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Health for the People: National Community Health Worker Programs from Afghanistan to Zimbabwe

Henry B. Perry, Editor

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Cover photo:

A Village Health Team member in Uganda takes a blood sample from a child to perform a rapid diagnostic test for malaria during a home visit.

Photo credit:

Henry Bugembe

The Maternal and Child Survival Program (MCSP) is a global, \$560 million, 5-year cooperative agreement funded by the United States Agency for International Development (USAID) to introduce and support scale-up of high-impact health interventions among USAID's 25 maternal and child health priority countries, as well as other countries. MCSP is focused on ensuring that all women, newborns and children most in need have equitable access to quality health care services to save lives. MCSP supports programming in maternal, newborn and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment.

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Foreword

For many decades governments and their partners—at national and global levels—have been trying to extend health care services and interventions to better reach the whole population, particularly those segments of the population poorly served by existing health services. Clearly, prevalent health issues and available resources vary across settings but there have been common challenges:

- How to efficiently *make key life-saving interventions available to the whole population* (e.g., immunizations, insecticide-treated mosquito nets, micronutrient supplementation)?
- How to overcome the challenges of *distance and geographic barriers* to extend services to segments of the population that cannot easily reach more well-equipped and staffed health centers?
- How to *bridge cultural gaps* that may exist between educated health professionals—many originally hailing from urban settings—and local people?

In many settings over the years it has been evident that our current systems and approaches have not been fully up to the challenge and that there is a need for some kind of community-level provider to bridge that gap at community level.

Through the 1960s and 1970s, the largest-scale program efforts in global health focused mostly on specific illnesses—malaria, smallpox, TB—and it was common to employ locally-recruited outreach workers who were quickly trained and deployed for program-specific community-level work. There were few large-scale examples of integrated community health worker programs (China’s barefoot doctor program, described in the introductory chapter, being a notable exception). In various regions of the world there were, however, small-scale, NGO-run programs (e.g., Jamkhed and SEARCH/ Gadchiroli in India) that were clearly having impact and exemplified what seemed to be key principles that could orient larger-scale efforts. A vital insight was that community-level workers in effective programs needed to be: (1) accepted and respected by the community, and (2) well-connected to and supported by the primary health care system (including being provided with a reliable supply of needed commodities).

The 1978 Declaration of Alma-Ata marked a global-level recognition of the potential for Community Health Workers (CHW) to serve as a foundation for primary health care (PHC). Inspired by this vision, beginning in the early 1980s, many countries established national CHW programs. But over the following years it was increasingly evident that important lessons from earlier program experiences were not consistently being acknowledged and applied. Instead many saw CHWs as a panacea, a way of delivering PHC on the cheap. As a result, many CHW programs were inadequately supported and experienced high attrition. By the late 1980s, the pendulum had swung away from such programs. Two seminal books cast a sharp critical eye, drawing lessons from large-scale CHW programs implemented over the preceding decade: *Community Health Workers in National Programmes* edited by Gill Walt (1990) and *The Community Health Worker: Effective Programmes for Developing Countries*, edited by Stephen Frankel (1992). Both drew attention to critical *systems support* needed if CHW programs were to be effective as a part of robust PHC services, operating at scale.

In the decades since then, there have been further cycles of waxing and waning of enthusiasm for CHW programs. Again, today, it is recognized that CHWs have potential to play an important role in PHC and to contribute to more rapid progress in population health status improvements. Certainly, as we have seen in the past, shifting tasks or functions typically assumed by physicians or other highly trained professionals to auxiliary health workers and CHWs can make such services available to segments of the population that otherwise have considerable difficulty accessing care. CHW and health auxiliary programs have played and will continue to play an important role in delivering key interventions to rural populations, including: immunization, antenatal and postnatal care, family planning, management of childhood illness, malaria, and nutrition-related services.

However, with urbanization, rising levels of education, technological innovations, and an epidemiologic shift towards non-communicable diseases, the needs of the population and optimal strategies to address those needs will continue to evolve. CHWs should not be seen as a stop-gap; we may think of these programs as a strategy for low-income countries, but there are many examples of CHWs playing helpful roles in high-income countries, as brokers between the community and health services. In principle, CHWs can be part of strategies for the *future* of PHC.

In global health, we see ourselves as making evidence-based decisions, but an important type of evidence is often neglected: evidence arising from past (and current) *program experience*. As a consequence of this blind-spot, we fail to harvest insights from analogous experiences elsewhere and we unnecessarily repeat mistakes or struggle, reinventing solutions. This historical pattern is well traced out in the introductory chapter of this compendium. As well as describing the ups and downs of past global interest in CHW programs, this chapter is a very useful review capturing highlights of several decades of key literature on CHW programs globally.

The main body of this collection is a set of 29 case-studies of national CHW programs. They follow a common format, helping facilitate comparisons across cases. The studies look at a mix of CHW types, from the more professionalized end of the spectrum to less formalized community health volunteer programs. The programs described are drawn from diverse regions and both low- and middle-income countries.

Small, innovative, proof-of-concept programs can certainly have rich and interesting findings; indeed, such programs served as inspiration for the 1978 Declaration of Alma-Ata. However, a different set of challenges face national programs. As such, case studies of such programs—providing good contextual and systems support information and summarizing available information on their role and performance—can be particularly relevant and useful for national-level policy makers and program managers concerned about delivery of services to whole populations.

This set of studies is offered as an introduction to these programs; all of these cases either have authors with first-hand familiarity with the programs or are drawn from key informants with such experience. Certainly, there is much more that can be learned from the programs documented in these cases. In many instances there would be value in further, more analytic work but that will require further primary-level research; to date relatively few national CHW programs have been comprehensively assessed. This compendium should be seen, then, as an invitation to dig deeper and learn more from these programs.

Stephen Hodgins, MD MSc DrPH
Associate Professor—Global Health, University of Alberta, Edmonton Alberta
Editor-in-Chief—Global Health: Science & Practice

Preface

This book is a collaborative effort of 79 different authors and many other collaborators from all around the world, all of whom have worked with me to create this unique source of current information about national community health worker programs throughout the world. Almost all have experience working in the ministry of health of their respective country or working directly with the CHW program they have written about. Working with them has been a great privilege.

I am grateful to the United States Agency for International Development, its Maternal and Child Survival Program (MCSP) led by Jhpiego, and its predecessor, the Maternal and Child Health Integrated Program (MCHIP) also led by Jhpiego, for their support. The development of this publication was also funded by a grant from the Bill & Melinda Gates Foundation. The content does not necessarily reflect the views USAID, the United States Government, or the Bill & Melinda Gates Foundation.

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Authors

Abera Damtew, Zufan. Formerly with Health Extension and Primary Health Service Directorate, Federal Ministry of Health, Addis Ababa, Ethiopia

Adakal, Aboubacar. Independent Consultant, Niamey, Niger

Adhikari, Binita. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Aitken, Iain. Management Sciences for Health, Ministry of Public Health, Kabul, Afghanistan

Antwi, Patricia. District Director, Ghana Health Service, Accra, Ghana

Asma, Adam. Pathfinder, Niamey, Niger

Ban, Bharat. Health and Development Solutions, Kathmandu, Nepal

Besada, Donnela. Health Systems Research Unit, South African Medical Research Council, Cape Town, South Africa

Brieger, William R. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Chan, Elizabeth. University of Toronto Faculty of Law, Toronto, Canada

Chowdhury, Zaynah. Independent Consultant

Crigler, Lauren. Crigler Global Consulting, LLC, Durham, NC, USA

Daviaud, Emmanuelle. Health Systems Research Unit, South African Medical Research Council, Cape Town, South Africa

Davis, Alyssa L. Independent Consultant, Naypyitaw, Myanmar

Davlangtes, Elizabeth. US Centers for Disease Control and Prevention, Atlanta, Georgia, USA

Dyson, Meredith. UNICEF, Amman, Jordan

Edward, Anbrasi. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Ekirapa-Kiracho, Elizabeth. Makerere University School of Public Health, Kampala, Uganda

Frumence, Gasto. Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania

Gergen, Jessica. Visualst, Maputo, Mozambique

Giugliani, Camila. Social Medicine Department, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

Glandon, Douglas. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Gondwe, Frank. Malaria Alert Centre for Communicable Diseases and Action, Blantyre, Malawi

Gonza, Joviah. Makerere University School of Public Health, Kampala, Uganda

Habib Arwal, Said. Community-Based Health Care Department, Ministry of Public Health, Kabul, Afghanistan

Hodgins, Steve. School of Public Health, University of Alberta, Edmonton, Canada

Htet, Khin Thu. Ministry of Health and Sports, Republic of the Union of Myanmar, Naypyitaw, Myanmar

Htwe, Ye Min. Ministry of Health and Sports, Republic of the Union of Myanmar, Naypyitaw, Myanmar

Hussein, Salim. Department of Primary Healthcare Services, Ministry of Health, Nairobi, Kenya

Javadi, Dena. Alliance for Health Policy and Systems Research, World Health Organization, Geneva, Switzerland

Joardar, Taufique. Multisectoral Nutrition Project/FHI 360, USAID, Dhaka, Bangladesh

Jones, Tanya C. Department of Sociology, Dartmouth College, Hanover, NH, USA

Kahn, Zulfikar. Health System Strengthening Program, World Health Organization, Islamabad, Pakistan

Kasangala, Amalberga. Health Promotion, Ministry of Health, Community Development, Gender, Elderly and Children, Dodoma, Tanzania

Khanal, Leela. John Snow, Incorporated, Kathmandu, Nepal

Koffi, Alain K. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Koku Awoonor-Williams, John. Ghana Health Service, Accra, Ghana

Lassi, Zohra S. Robinson Research Institute, University of Adelaide, Adelaide, Australia

Lemma, Seblewengel. Formerly with International Institute for Primary Health Care—Ethiopia, Addis Ababa, Ethiopia

Measures, Emily. Clinton Health Access Initiative, Lusaka, Zambia

Mugeni, Catherine. Ministry of Health, Kigali, Rwanda

Musaf, Elizabeth. Ministry of Health and Sanitation, Freetown, Sierra Leone

Musoke, David. Makerere University School of Public Health, Kampala, Uganda

Mwinnyaa, George. Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Napier, Harriet. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Ndejjo, Rawlance. Makerere University School of Public Health, Kampala, Uganda

Njiraini, Rose. UNICEF Kenya Country Office, Nairobi, Kenya

Oendari, Apriani. Center for Community Health Education Research and Service, Boston, MA, USA

Oo, Htet. Associate, Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

Orji, Bright C. Jhpiego/Nigeria, Abuja, Nigeria

Ottosson, Amanda. Independent Consultant, Kampala, Uganda

Perry, Henry B. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Phillips, James F. Mailman School of Public Health, Columbia University, New York, NY, USA

Pongpirul, Krit. Chulalongkorn University, Bangkok, Thailand

Raeisi, Alireza. Ministry of Health and Medical Education, Tehran, Iran

Raghavan, Mallika. Last Mile Health, New York, NY, USA

Rahbar, Mohammadreza. Center for Health Network Management, Ministry of Health and Medical Education, Tehran, Iran

Rakotomalala, Bonaventure. Community Health Consultant, Antananarivo, Madagascar

Rodrigues, Humberto. National *Agentes Polivalentes Elementares* Program, Ministry of Health, Maputo, Mozambique

Rogers, Julia. Partners in Health Liberia, Maryland County, Liberia

Rohde, Jon. James P. Grant School of Public Health, BRAC University in Dhaka, Bangladesh

Rohde, Sarah. Independent Consultant, Cape Town, South Africa

Rosales, Alfonso. Maternal and Child Health, World Vision US, Washington, DC, USA

Sanders, David. School of Public Health, University of the Western Cape, Cape Town, South Africa (deceased)

Schneider, Helen. School of Public Health and SAMRC Health Services to Systems Research Unit, University of the Western Cape, Cape Town, South Africa

Scott, Kerry. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Shakwelele, Hilda. Clinton Health Access Initiative, Lusaka, Zambia

Shelley, Katharine D. PATH, Seattle, WA, USA

Shiferaw Moges, Amsalu. UNICEF, Addis Ababa, Ethiopia

Shrestha, Ashoke. Health and Development Solutions, Kathmandu, Nepal

Simkoko, Abigail. Maendeleo Research and Development Consulting, Zomba, Malawi

Strodel, Rachel J. School of Medicine, Johns Hopkins University, Baltimore, MD, USA

Teklu, Alula. MERQ Consultancy PLC, Addis Ababa, Ethiopia

Ummer, Osama. Oxford Policy Management, Delhi, India

Valdez, Mario. Curamericas/Guatemala, San Sebastián Coatán, Huehuetenango, Guatemala

Wilmink, Nikhil. Clinton Health Access Initiative, Lusaka, Zambia

Worku, Yekoyesew. Systems for Better Health, Lusaka, Zambia

Zulliger, Rose. President's Malaria Initiative, US Centers for Disease Control and Prevention, Maputo, Mozambique

Dedication

To the community health workers throughout the world who have served and who will serve to help health systems and communities achieve Health for All

and

To the pioneering champions of the community health worker movement, including (but not limited to) Jimmy Yen, John Grant, Halfdan Mahler, Carl Taylor, Rajkanit and Mabelle Arole, Abhay and Rani Bang, David Sanders, Kesetebirhan Admasu, and Tedros Gebreyesus Adhanom.

Introduction and Historical Perspectives



Henry B. Perry¹



¹ Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

One-page summary

Introduction

National community health worker (CHW) programs are now moving toward the center stage of the global health arena. The World Health Assembly in 2019 highlighted the key role that CHW programs will need to play in order to achieve Universal Health Coverage and the health-related Sustainable Development Goals (one of which is ending preventable child and maternal deaths). CHWs comprise a diverse category of workers but they all have limited formal training, work mostly outside of health facilities in communities to promote healthy behaviors and appropriate utilization of health services, and have an increasingly important in health systems throughout the world.

Contents of this compendium

This compendium contains case studies of 29 national CHW programs, with each case study following the same format. As far as we know, this is the most current and most complete description of large-scale CHW programs available at present. Its publication online will help the contents to be widely available throughout the world.

Early CHW programs

The first national programs began in China and in Central America. A publication of a World Health Organization (WHO) monograph in 1975 described these and other innovative programs using CHWs. This book set the stage for the 1978 International Conference on Primary Health Care and the Declaration of Alma-Ata, where CHWs were affirmed to play an important role in extending essential health services to underserved areas. The early experience in developing and implementing national CHW programs produced mixed results, raising the question of whether CHWs were relevant to improving the health of people living in resource-constrained settings. The need for stronger training, supervision, and logistical support as well as the necessity of adequate, stable long-term financing became apparent. Growing evidence of the effectiveness that CHWs can have in providing priority interventions together with the progress made by countries such as Bangladesh, Ethiopia and Nepal with strong CHW programs helped to revitalize the global CHW movement during the past decade.

Recent contributions to the literature and to global policy formulation

Beginning with the WHO-sponsored monograph entitled *Global Experience of Community Health Workers for Delivery of Health-Related Millennium Developmental Goals: A Systematic Review, Country Case Studies, and Recommendations for Integration into National Health Systems*, there have been a number of publications that address policy and program issues that national CHW programs face. In addition, there have been a number of global conferences to discuss CHW issues with a special focus on national CHW programs.

Evaluations of national CHW programs

In spite of the rapidly growing number of publications about CHWs, there are still very few publicly available evaluations of large-scale CHW programs. More research and more publicly available monitoring and evaluation activities are needed.

Introduction

National community health worker (CHW) programs are, at last, garnering the attention, recognition, and scrutiny they deserve.¹ In 2018, the World Health Organization adopted the evidence-based *Guideline on health policy and system support to optimize community health worker programmes*.^{2,3} In 2019, the World Health Assembly passed a historic, first-ever resolution on CHWs highlighting their role “to assure that universal health coverage and comprehensive health services reach difficult-to-access areas and vulnerable populations,” and their role in “advancing equitable access to safe, comprehensive health services.” However, the Assembly noted their “uneven integration into health systems.”⁴ The Assembly called upon Member States to “optimize community health worker programmes” as part of the global strategy to achieve Universal Health Coverage and to attain Sustainable Development Goal 3 (Ensure healthy lives and promote well-being for all at all ages).⁴

The new-found recognition of the importance of CHWs has been slow in coming. This often-unsung category of health workers has struggled to achieve a coherent and consistent role in public health and in health systems. Despite nearly a century of experience now—as the earliest CHW program was begun in the 1930s in China—we still struggle with how to define, employ, support, and marshal CHWs.

The United Nations High-level Meeting on Universal Health Coverage held in 2019 noted that at least one-half of the world’s population lacks access to essential health services, that Universal Health Coverage^a is fundamental for achieving the Sustainable Development Goals by 2030, and that at the current pace, up to one-third of the world’s population will still remain underserved by 2030. The Assembly unanimously passed a resolution stating that a “measurable acceleration is urgently needed” to reach the health-related targets of the SDGs by 2030.⁵ Now is the time to give priority to the strengthening of national CHW programs. This compendium is one small effort to bring CHWs to the forefront of global health priorities.

Given the potential that national CHW programs are now recognized as having for accelerating progress in achieving global health goals, it is entirely fitting to provide an update of these programs from a global perspective. Descriptions of these programs are not readily available, and the last comprehensive overview of these programs was a decade ago.⁶ During this time, much progress has been made. Making available more comprehensive information about national CHW programs can contribute to development of stronger and more effective programs globally.

Since 2010, a number of countries have made major commitments to either establishing new national CHW programs or to major upgrades and strengthening of existing programs. These countries include in the first decade of the century (2000–2009): Afghanistan, Ethiopia, India (the Accredited Social Health Activist, or ASHA, program), Kenya, Niger and Uganda; and in the second decade (2010–2019): Madagascar, Myanmar, Liberia, Sierra Leone, South Africa, Tanzania, and Zambia.

Contents of this compendium

In recognition of the growing importance of CHW programs for expanding access to essential health care and in view of the lack of comprehensive information about current national CHW programs, we offer this compendium. Our goal is to make available current information about these programs for those around the world who have an interest in the further expansion and improvement of these programs. We hope that policy makers, donors, academics, along with program managers, CHWs, and even community members will make use of this compendium – those who want to expand their knowledge about these programs and who could benefit from a broader awareness of CHW program policies and strategies that are being implemented at present.

The compendium contains case studies of 29 national CHW programs, with each case study following the same format. To our knowledge, this is the most current, most complete and most extensive description of

^a Basic health services, including essential medicines, without exposure to financial hardship and with special emphasis on the poor, vulnerable and marginalized segments of the population

large-scale CHW programs available at present. Its publication online will help the contents to be widely available throughout the world. It is an update and expansion of a monograph released in 2017⁷ that included 13 case studies. This new edition has an updated version of these same 13 case studies along with 16 new case studies. This compendium should be considered as a companion to the 2014 CHW Reference Guide that provides guidance on expanding and strengthening large-scale CHW programs.⁸

Information on large-scale CHW programs is neither easy to obtain nor easy to succinctly summarize. They are complex entities that are constantly evolving. Even people working directly with these programs find that describing them is a challenge, not only because of their complex and changing features but also because current and accurate information is simply not available.

Each case study follows the same format: a one-page summary, followed by the historical context, health needs and health system organization, details about the CHW program structure, scale-up, monitoring and data use, financing, impact and lastly, challenges.

Who are community health workers?

The formal definition of CHWs according to the International Labor Organization's International Standard Classification of Occupations is shown in Box 1.

Box 1. Definition of community health workers according to the International Labor Organization (ISCO 3253)

Lead statement: Community health workers provide health education and referrals for a wide range of services, and provide support and assistance to communities, families and individuals with preventive health measures and gaining access to appropriate curative health and social services. They create a bridge between providers of these services and communities that may have difficulty in accessing them.

Task statement: Tasks include: (a) providing education to communities and families on a range of health issues including family planning, control and treatment of infectious diseases, poisoning prevention, HIV risk factors and measures to prevent transmission, risk factors associated with substance abuse, domestic violence, breastfeeding and other topics; (b) assisting families to develop the necessary skills and resources to improve their health status, family functioning and self-sufficiency; (c) conducting outreach efforts to pregnant women, and other high-risk populations to help them with access to needed health care services; (d) ensuring parents understand the need for children to receive immunizations and regular health care; (e) working with parents in their homes to improve parent-child interaction and to promote their understanding of normal child development; (f) providing advice and education on sanitation and hygiene to limit the spread of infectious diseases; (g) storing and distributing medical supplies for the prevention and cure of endemic diseases such as malaria and tuberculosis and instructing members of the community in the use of these products; (h) assisting families in gaining access to medical and other health services.

Source: ⁹

This definition leans toward a prescriptive ideal of what a CHW should or could be. A more empirically derived definition is provided by Olaniran and colleagues who carried out a systematic review of the academic and grey literature that provided definitions of CHW in 25 countries across seven regions.¹⁰ They defined CHWs as "... paraprofessionals or lay individuals with an in-depth understanding of the community culture and language, have received standardized job-related training or a shorter duration than health professionals, and their primary goal is to provide culturally appropriate health services to the community."¹⁰

Obviously, the term "community health worker" covers a wide variety of cadres and programs, and there are many different terms used to name specific cadres. As such, the term CHW can be a source of confusion. A typology of CHWs that reflects this diversity is shown in Table 1. Level 4 CHWs are paid, full-time workers with pre-service training lasting 18–24 months who may or may not be recruited from the localities where they serve. Examples are Ghana's Community Health Officers, India's Auxiliary Nurse Midwives, and Iran's *Behvarzs*. Level 3 CHWs are similar but have six weeks to one year of training, may work full- or part-time and receive either regular salaries or incentives related to specific, time-limited activities, and are usually recruited from the

locality where they live. Examples include Brazil’s Community Health Agents, Ethiopia’s Health Extension Workers, India’s ASHA workers, and Liberia’s Community Health Assistants. Level 4 and Level 3 CHWs often, but not always, have a health post where they work, but they spend a significant time out in the community and in homes providing services.

Level 2 and Level 1 CHWs are both part-time with formal training of often only a few days or a few weeks. Level 2 CHWs work on an ongoing, regular and weekly basis. Level 1 CHWs work only intermittently to support special campaigns, often focused on a specific disease. While Level 2 CHWs may provide some curative services, both Level 2 and Level 1 CHWs focus on health promotion and community mobilization, often including the dispensing of commodities such as family planning supplies or insecticide-treated bed nets. Examples of Level 2 CHWs include *Shasthya Shebikas* in Bangladesh (working with the non-governmental organization BRAC^b), Ethiopia’s Health Development Army Volunteers, Indonesia’s *Kaders*, and Kenya’s Community Health Volunteers. There are few examples of national CHW programs that make use of Level 1 CHWs since they are mostly linked to vertical, selective national programs such as for HIV, malaria, family planning, intermittent distribution of vitamin A or ivermectin (for control of onchocerciasis), and so forth. We have not included these programs here. However, Myanmar does not yet have a cadre of CHWs that provides a broad range of services, so there are Level 1 CHWs who work in one specific area such as malaria, TB, and maternal health.

Early CHW programs and literature about them

The world’s first CHW programs began in China in the 1930s followed by similar programs in Central America in the 1960s. The program in rural China at Ding Xian was led by Jimmy Yen and John Grant, working with the Rockefeller Foundation and the Peking Medical College.¹¹ They recruited illiterate peasant farmers and provided them with a short course of training to carry out the following:

- Administer simple treatments at home and use 16 essential and safe drugs
- Give talks and demonstrations on health and hygienic behavior
- Maintain sanitary wells
- Vaccinate against smallpox
- Record births and deaths¹¹

Table 1. A typology of community health workers

	Terms of service, training and recruitment	Functions (and further explanation)
Level 4	Salaried and full-time; pre-service training lasting one or more years (in a technical training institution); not necessarily recruited from the area. May be hired through some unit of the local government or through the national civil service structure.	These workers often provide routine clinical preventive services (e.g., immunizations or family planning), as well as case management for a limited range of conditions (e.g., childhood illness). These functions may be provided from a peripheral health unit (e.g., a health post) or, at least in part, from outreach sites. (Workers in this category may fall outside the ILO definition of community wealth worker, and instead under the category of nursing associate professionals).

^b BRAC is an acronym that stands for Building Resources Across Communities. It originally stood for Bangladesh Rural Advancement Committee.

	Terms of service, training and recruitment	Functions (and further explanation)
Level 3	Salaried and expected to work more or less full-time; initial training generally at least one and usually several months (sometimes provided after recruitment); in some cases, this can be for up to almost a year. Usually recruited from the area but may or may not originate in the community where they are serving.	Their functions may be very similar to those described above for Level 4 CHWs.
Level 2	Volunteer with certain regular duties (usually with at least some activity every week); possibly with regular episodes of short training (up to several days at a time) and may have some initial training lasting several weeks. They are usually from and live within their local communities.	May be involved in case management of childhood illness, in dispensing some medications (e.g., birth control pills or antenatal iron) or distributing commodities (e.g., insecticide-treated bed nets or condoms). In rare cases, may give injectable contraceptives, such as Depo-Provera or other injections. In some programs, duties and terms of service start to approach those of Level 3 CHWs, with significant part-time involvement (e.g., 10–20 hours/week) and financial incentives representing an important source of revenue. These incentives may be performance- or commission-based. In other programs, though these CHWs perform regular functions: they may spend less time (e.g., 5 hours per week or less) and financial incentives may be minimal or not available at all.
Level 1	Volunteer with only intermittent engagement. Training is usually only a few days. They are always local.	Typically have functions limited to health promotion, though they may also support periodic campaign activities (e.g., distribution of insecticide-treated bed nets, ivermectin, or vitamin A) and support for immunization campaigns.

Source: ¹²

This program nurtured what later became China’s national “barefoot doctor”^c program in the 1950s. As part of the Great Proletarian Cultural Revolution, Chairman Mao (founding father of the People's Republic of China, which he ruled as the chairman of the Communist Party of China) criticized the over-attention of the Ministry of Health to urban problems and required urban medical workers to train large numbers of peasants in environmental sanitation, health education, preventive medicine, first aid, and primary medical care while continuing their farm work. At that time, there were only 40,000 medical doctors for China’s 540 million people, and almost all of these were in large cities.¹³

Training lasted 3-6 months and was evenly divided between theoretical/classroom work and practical work. Barefoot doctor handbooks were prepared that covered a broad range of medical problems and discussed both traditional Chinese and Western treatments. They treated colds, bronchitis, gastrointestinal disorders, headaches, measles, and minor injuries (including application of dressings). They used traditional herb remedies, acupuncture, as well as antibiotics (such as penicillin) and other modern medicines (including aspirin, antacids, chlorpromazine [Thorazine]). In their medical bag they carried alcohol, gentian violet, bandages, forceps, syringes, clinical thermometers, and acupuncture needles. They trained and supervised junior health aides to ensure proper disposal and later use of human feces as fertilizer, to spray insecticides in homes, and ensure purity of drinking water, and to give immunizations against diphtheria, pertussis, tetanus, poliomyelitis, meningococcal meningitis, measles, and Japanese B encephalitis. Their incomes were part of the

^c The CHWs were neither barefoot nor doctors, but the term became popular first in Shanghai, where much agricultural work was done barefoot in the rice paddies and where barefoot doctors also continued their work as member of the agricultural cooperative.

agricultural commune system. In the early 1970s there were more than one million barefoot doctors. Reforms in the health-care system associated with economic liberalization led to a collapse of the cooperative medical system to a payment-based system and thus barefoot doctors lost their institutional and financial support, and the title of barefoot doctor was eliminated by the Ministry of Health in 1985. The focus of the health care delivery system shifted from prevention to curative care, with many barefoot doctors becoming fee-for-service village doctors.¹³⁻¹⁵

In the 1960s and 1970s, small CHW programs began to emerge in various countries, particularly in Guatemala under the guidance of Maryknoll Catholic nuns in the 1960s¹⁶, at the Jamkhed Comprehensive Rural Health Project in India in the 1970s¹⁷, in the West Azerbaijan Project in Iran in the 1970s¹⁸, and in the Lardin Gabas Rural Health Program of the Church of the Brethren Mission in Nigeria in the 1970s.^{19,20} These experiences and others inspired the development of much larger CHW programs in many low-income countries in the 1980s.

The challenges of scaling up some of these projects proved to be insurmountable and major disappointments. One of the most notable of these was the Village Health Guides Scheme in India²¹, also included as a chapter in this book.²² Because the early experiences in developing and implementing national CHW programs produced mixed results, the question arose of whether CHWs were relevant and practical in efforts to improve the health of people living in resource-constrained settings. The need for stronger training, supervision, and logistical support, as well as the need for adequate, stable long-term financing became apparent, but whether these could actually be attained at scale remained an open question.

Following the failures and lessons learned from these programs, others proved to be highly successful, particularly in Bangladesh²³ and Nepal²⁴, also described in later chapters of this compendium.²⁵⁻²⁷ This, together with an abundance of rigorous research findings demonstrating the effectiveness of community-based interventions provided by CHWs in reducing mortality among young children²⁸ and in expanding access to family planning services^{29,30}, created a resurgence of interest in and growth of CHW programs emerged around the world.

One of the notable early publications about CHW programs is the 1975 World Health Organization monograph edited by Kenneth Newell with case studies of community health projects from China, Cuba, Guatemala, India, Indonesia, Iran, Niger, Tanzania and Venezuela that included community-based providers of services.³¹ This monograph provided evidence of new approaches to health care delivery and offered important examples of programs that engaged community-level workers in extending basic health services to underserved populations. This publication was seminal in setting the stage for the International Conference on Primary Health Care at Alma-Ata, USSR, in 1978, during which the role of CHWs was articulated clearly as being members of the health team with the goal of reaching underserved populations with:

“... essential health care based on practical, scientifically sound and socially acceptable methods and technology made at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination, ... bringing health care as close as possible to where people live and work...”³²

Building on early examples, including those in Newell's book, countries began to develop and implement large-scale national programs. There are detailed descriptions of early national CHW programs in Bangladesh⁶, Brazil^{6,33,34}, China^{13,14,35}, Ethiopia⁶, Haiti⁶, Honduras³⁶, India³⁷, Indonesia³⁸, Mozambique⁶, Nepal²⁴, Nicaragua³⁹, Pakistan^{6,40}, Tanzania⁴¹, Thailand⁶, Uganda⁶ and Zimbabwe.⁴² A book about the Tanzania national CHW program was published in 1988.⁴³ A book published in 1990⁴⁴ provides a series of chapters on aspects of national CHW programs such as roles, linkages to the health system, financing, and results of evaluations, followed by case studies from Botswana, Colombia and Sri Lanka. Another major contribution to the early literature on national CHW programs is the description and analysis of seven case studies published in 1992 and edited by Stephen Frankel entitled *The Community Health Worker: Effective Programmes for Developing Countries*⁴⁵ with in-depth chapters on national CHW programs in China, Honduras, Indonesia, Nicaragua, Nepal, Tanzania, and Zimbabwe.

In the 1980s and 1990s there were important contributions to the literature that addressed common issues that faced CHW programs as well as the basic philosophy underlying the CHW movement. Early CHW programs in Central America emphasized the role of CHWs as agents of transformative social change and community empowerment (and as part of the liberation theology movement that was prominent in Central America at that time). Programs in Asia focused more on the technical components of delivering appropriate and effective preventive and curative interventions, leading some to view CHWs as the bottom rung of a vast bureaucratic ladder. This led to David Werner's famous article in 1981, "The village health worker: lackey or liberator."⁴⁶

In light of the disappointments that had been observed with the outcomes of CHW programs in the 1980s, a critical question arose: do CHW programs have a place in health care delivery? Gill Walt's reflective 1988 article, "CHWs: are national programmes in crisis?"⁴⁷ along with the seminal article by Berman and colleagues published in 1987 entitled "Community-based workers: head start or false start towards health for all"⁴⁸ as well as Frankel's introductory overview chapter to his 1992 book⁴⁹ all addressed this question. Frankel's response was unequivocal:

There is no longer any place for discussion of *whether* CHWs can be key actors in achieving adequate health care. The question is *how* to achieve their potential.⁵⁰, p. 1

Berman's view was more nuanced. He provided evidence from six large-scale CHW programs (China, India, Indonesia, Jamaica, Peru, and Thailand) that the programs have increased the coverage and equity of service delivery at low cost compared to alternative modes of service organization, but that their potential has not been achieved. He emphasized that they are not likely to have a substantial impact on population health until the quality of their services improves and until they become an integral component of the health system with substantial increases in support for training, management, supervision, and logistics.⁴⁸ Berman emphasized the point that although CHW programs have been attractive because of their low unit costs (per CHW) and the ease with which they could be initiated through a one-time special expenditure, the long-term aggregate costs are substantial if in fact high coverage of services and effectiveness are to be achieved.⁴⁸

We would argue that these statements by Frankel and Berman are equally relevant for national CHW programs today.

The early literature on national CHW programs pointed out the many challenges that these programs faced, particularly with respect to their lack of financial and political support and the weak supervisory and logistical support systems. In part, these weaknesses reflected the weaknesses of the primary health care systems of which they were a part, leading to the famous statement by Haines and colleagues that "community health workers are not a panacea for weak health systems and will need focused tasks, adequate remuneration, training, supervision, and the active involvement of the communities in which they work."⁵¹ Nonetheless the potential of these programs remained if these challenges could be overcome.

However, a number of national CHW programs imploded in the 1980s and early 1990s just as the primary health care movement fizzled because of a lack of political and financial support for programs (in part due to the global financial crisis of the 1980s).⁵² For example, the Village Health Guides Program in India, included as a case study in this compendium, deployed 500,000 CHWs between 1977 and 1982, but steadily lost momentum and was finally officially terminated in 2002.⁵³ A number of others, such as Tanzania's volunteer CHW program established in 1983, managed to continue in a semi-moribund state with intermittent funding from vertical, disease-focused programs that had external funding.

An important review of the national CHW program experience, published in 1989, highlights four central issues that were preventing national CHW programs from reaching their potential: (1) unrealistic expectations, (2) poor initial planning, (3) problems of sustainability and (4) difficulties in maintaining quality.⁵⁴

Interest in and support for CHW programs re-emerged in the latter part of the 20th century and the first decade of the 21st century as countries with strong national CHW programs became leaders in improving the

health of their populations, particularly in reducing the mortality of children younger than five years of age but also in reducing maternal mortality, in controlling HIV/AIDS, malaria and TB, and expanding the use of contraception.⁵² Countries that were early leaders in implementing effective national CHW programs and in improving population health included Bangladesh, Brazil, Ethiopia, Nepal and Thailand.

A WHO monograph published in 1998 surveyed the CHW landscape globally and concluded that, in spite of obvious challenges,

[t]here is no question that CHWs are essential.... The challenges that face the proponents of these programs now are not when and why and how to go about making them work – but actually moving forward with the hard work of implementation.⁵⁵

But, of course, one of the most important aspects of the “hard work of implementation” involves overcoming the many challenges of scaling up and sustaining quality at scale.

Contributions to the literature and to global policy formulation, 2000–2019

Important contributions to the literature on national CHW programs since 2000 include a comprehensive review of evidence about CHWs released in 2007 by Lehmann and Sanders⁵⁶, a thoughtful essay published the same year on the potential role of CHWs in achieving global goals for child survival by Haines and colleagues⁵¹, and an overview of CHWs by Rifkin⁵⁷ in 2008 (updated in 2014⁵⁸). A broad perspective on the development of national CHW programs published in 2014 is available elsewhere.⁵²

In 2010, Bhutta, Lassi, Pariyo and Huicho published what was then and still is the most comprehensive review of national CHW programs, *Global Experience of Community Health Workers for Delivery of Health Related Millennium Developmental Goals: A Systematic Review, Country Case Studies, and Recommendations for Integration into National Health Systems*.⁶ This 187-page document includes a systematic review of the global experience with national CHW programs along with eight country case studies: from South Asia (Bangladesh, Pakistan and Thailand), Latin America (Brazil and Haiti), and Africa (Ethiopia, Mozambique, and Uganda). Their report found very few descriptions of national CHW programs and even fewer evaluations of these programs, none of which followed an a-priori experimental design or impact assessment process.⁶

Bhutta’s monograph, sponsored by Global Health Workforce Alliance and the World Health Organization, was a prominent advance for the global CHW movement in the sense that it had the imprimatur of WHO. It also strongly advocated for the inclusion of CHW programs as an integral part of national health systems and inclusion of CHW programming as part of the country’s strategic planning for human resources for health.⁶ This document also called for:

- Strong engagement of communities and their participation in selection of CHWs through the formation of village health committees,
- Organization of CHW programs around community needs
- Training curricula that incorporate scientific knowledge about preventive and basic medical care and that relate this knowledge to local issues and cultural traditions
- A clear selection and deployment process for CHWs
- Adequate support capabilities for supplies and equipment that CHWs need
- Established referral protocols
- Regular and continuous supervision and monitoring systems

- Opportunities for career mobility for CHWs
- Sustained resources for the support of the program and its CHWs.

Finally, the report called on countries to establish a national plan of action finalized by a working group of stakeholders to develop and improve CHW programs.⁶

These same messages were also conveyed in 2010 when the Global Health Workforce Alliance held a consultation of program managers, policy makers and experts on CHWs, at which time special emphasis was put on engaging communities in the planning, selecting, implementing, monitoring and supporting CHWs. The consultation called on countries to fully integrate CHWs into national planning of human resources for health and into health systems just as the Bhutta report did. But it also called for governments to take responsibility for the quality assurance of services provided by CHWs as part of its stewardship role for CHWs working in the private sector.⁵⁹

Simultaneously, USAID supported the development of the CHW AIM Tool (*Community Health Worker Assessment and Improvement Matrix: A Toolkit for Improving CHW Programs and Services*), originally named the CHW Program Functionality Assessment (PFA) tool.⁶⁰ In fact, Bhutta et al. used the functionality matrix and scoring process from the PFA to evaluate the country case studies presented in the WHO Monograph. The functionality matrix proposed 12 specific areas for program evaluation, and a scoring process with which to assess. Specifically, the emphasis on the development of a career path for CHWs, was derived from the testing results of this tool. This toolkit, renamed the CHW AIM, has been widely used throughout the world to help strengthen national CHW programs. In addition, USAID supported the creation of the website called CHW Central⁶¹, managed by Initiatives, Inc. This website has become a leading source of information for and about CHWs and CHW programs. Importantly, it provides a forum for CHWs themselves from around the world to communicate with each other. It also has a listserv associated with it, along with a rich library of CHW-related resources.

In 2012, the United States Government convened a two-day Evidence Summit that included participants from low- and middle-income countries, U.S. Government and non-governmental agencies, bilateral and multilateral agencies, and academic institutions to discuss existing evidence and make recommendations for policy, practice, and future research.^{62,63} A number of overview papers emerged from that conference focused on national CHW programs and the existing evidence as well as expert opinion related to the performance of CHWs. A number of publications resulted from that conference, both in the grey literature and in the peer-reviewed literature. Three Evidence Review Teams produced extensive reports summarizing various issues. The first team addressed the question of which *community support activities* improve the performance of CHWs.⁶⁴ The second team addressed the question of which *health system support activities* improve the performance of CHWs.⁶⁵ A third team addressed the question of whether there might be a synergistic effect by *linking community and health systems approaches* to improve CHW performance.⁶⁶ Several reports were later published in the peer-reviewed literatures that explored these issues further.^{67,68}

A summary report⁶⁹ synthesized all of this important work, providing observations, conclusions and recommendations. Among them are the following:

- Even though expert opinion strongly supports the need for support from the community systems and from formal health systems for optimizing CHW performance, the research evidence to support expert opinion is weak.
- Questions about which interventions from which systems are most likely to improve CHW performance are not commonly raised or adequately investigated.
- The stewardship of CHWs at both the country and global levels is fragmented, with limited coordination, raising questions of who is responsible for the overall welfare of CHWs and the quality of the services they provide.
- A strategic research agenda is needed to provide greater clarity about how to enhance CHW performance. The agenda should promote the development of innovative research designs and

methodologies to answer complex questions about CHW performance at scale. This research should be led by investigators in low- and middle-income countries.

- Prospective documentation of the “dynamic, variable evolution, and intended and unintended effects of large-scale CHW programs” should be undertaken.
- A more coordinated approach to “sound stewardship” of CHWs at country and global levels is now required.

Also in 2012, a technical task force produced a report making the case for the rapid deployment of one million additional CHWs for Africa based on evidence of effectiveness and need.⁷⁰ A campaign was mounted and led by the Earth Institute of Columbia University to achieve this goal.⁷¹

In 2013, an important overview appeared providing guiding principles for NGOs to assist in the strengthening of national CHW programs.⁷² In 2014, an online resource entitled *Developing and Strengthening Community Health Worker Programs at Scale: A Reference Guide and Case Studies for Program Managers and Policymakers* was published, which we refer to here as simply the CHW Reference Guide.⁸ This 468-page document provides an overview of issues that need to be considered as national CHW programs are designed, implemented, strengthened, and expanded. The volume covers systematically the following range of topics:

- History of CHWs
- Planning
- Governance
- Financing
- Coordination and partnerships
- Roles and tasks
- Recruitment
- Training
- Supervision
- Motivation, incentives and retention
- Relationships with other parts of the health system
- Community participation
- Monitoring and evaluation
- Scaling-up and maintaining program effectiveness
- Measurement and data use

There are three appendices: (1) case studies from Afghanistan, Bangladesh, Brazil, Ethiopia, India, Indonesia, Iran, Nepal, Pakistan, Rwanda and Zimbabwe⁷³ (2) summary findings from interviews with 14 key informants with expertise in and experience with large-scale CHW programming⁷⁴, and (3) important resources that could be useful to program managers and policymakers.⁷⁵ A further development of one of the chapters from this reference guide led to the production in 2016 of a toolkit for assessing the functionality of community health committees and health facility management committees⁷⁶, building as well on the CHW AIM toolkit mentioned previously.⁶⁰ In 2019, as a resource to complement Chapter 7 of the 2014 CHW Reference Guide

(entitled CHW Roles and Tasks), the USAID-funded Maternal and Child Survival Program developed the C3 Tool: the Community Health Worker (CHW) Coverage and Capacity Tool to help planners decide on the proper number of CHWs required to efficiently carry out specified health interventions as well as to optimize the coverage of services that a set number of CHWs could achieve within a given population.⁷⁷ A series of articles updating chapters in the 2014 CHW Reference Guide is forthcoming.⁷⁸

The appendix of 13 case studies from the 2014 CHW Reference Guide⁸ was further developed into a stand-alone report with the addition of a case study from Niger and published in 2017.⁷ The case studies which follow in this current compendium are an update and expansion of these 14 earlier case studies, with the addition of 15 more, from Ghana, Guatemala, Kenya, Liberia, Madagascar, Malawi, Mozambique, Myanmar, Nigeria, Sierra Leone, South Africa, Tanzania, Thailand, Uganda, and Zambia. The appendix of the CHW Reference Guide⁸ containing a summary of key informant perspectives on strengthening large-scale CHW programs emphasized the importance of high-quality, realistic planning that takes into account the real costs required for effective programming. It also noted the need for strong monitoring and evaluation systems that can inform programs, enabling them to adjust to needs and problems as they emerge at the local level and at various higher levels of management.⁷⁴

The appendix of the CHW Reference Guide⁸ also contained useful resources that had become available in 2014 to guide and promote large-scale CHW programming⁷⁵ including references to two overviews of CHW program effectiveness in low-, middle-, and high-income countries published in 2012⁷⁹ and 2014⁸⁰ along with several policy papers produced by the Global Health Workforce Alliance and the World Health Organization. One of these policy papers was a set of recommendations for task shifting for expanding access to maternal and newborn health interventions⁸¹ and two policy papers concerned strengthening national CHW programs. One, summarizing the outcomes of four global consultations, called for: (1) alignment and synergies among development partners on CHW program strengthening, (2) movement from evidence to action, (3) research addressing evidence gaps, (4) national-level multi-stakeholder collaboration, (5) recognition by and integration into health systems, (6) national-level consultations and advocacy, and (7) monitoring, assessment and shared accountability.⁸² A second focused on establishing stronger monitoring and accountability platforms.⁸³

Between 2012 and 2019, the United States Agency for International Development (USAID) sponsored a program called Advancing Partners & Communities (APC), that sought to improve the overall health of communities through community-based programming, with a particular focus on family planning, HIV and AIDS, post-Ebola recovery, and vulnerable populations.⁸⁴ Part of its work was to provide useful descriptions of CHW programs in 25 countries around the world^d in an online format.^{85,86}

In 2017, the 1st International Symposium on Community Health Workers took place in Kampala, Uganda, drawing 450 participants from 22 countries to explore the theme *Contribution of Community Health Workers in Attainment of the Sustainable Development Goals*. The abstracts of the presentations are available in *BMC Proceedings*.⁸⁷ This symposium provided a unique opportunity for program implementers and researchers to share recent findings regarding advances in programming, mostly at the national, subnational and district levels. Of note were multiple examples of engaging CHWs in strengthening programming for HIV and TB control, the role of many international and national NGOs in supporting the strengthening of national CHW programs, new approaches to supportive supervision, and the use of mHealth strategies to improve programming. Presentations were made regarding the challenges that CHWs face in their work, including the demotivation of CHWs arising from stockouts of medications and contraceptives, harassment of female CHWs by men, and personal sacrifices that CHWs have to make.

Also in 2017, a global consultation was held called The Institutionalizing Community Health Conference hosted by USAID and UNICEF in Johannesburg, South Africa, attended by nearly 400 people—government officials, civil society and private sector leaders, policymakers, sub-national managers and practitioners, researchers, representatives of bilateral and multilateral organizations, and donors from 45 countries. Participants shared state-of-the-art lessons and experiences as well as progress made in individual countries.⁸⁸

^d Afghanistan, Bangladesh, Benin, Democratic Republic of the Congo (DRC), Ethiopia, Ghana, Haiti, India, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Nigeria, Pakistan, Philippines, Rwanda, Senegal, Sierra Leone, South Sudan, Tanzania, Uganda, and Zambia

The conference concluded with a consensus on 10 critical principles to ensure that progress continues in strengthening community health systems. These were:

1. Engage with and empower communities to build viable and resilient community health systems with strong links to health and other relevant sectors.
2. Empower communities and civil society to hold the health system accountable
3. Build integrated, resilient community health systems based on recognized frontline health workers.
4. Implement national community health programs at scale, guided by national policy and local systems context, to ensure impact.
5. Ensure that sufficient and sustainable financing for community health systems is available from national and international resources and that the private sector participates in financing.
6. Give priority to reducing health inequities and gender inequalities.
7. Ensure that communities facing a humanitarian crisis receive essential healthcare, particularly at the community level.
8. Invest in the development of inclusive partnerships to leverage and coordinate diverse civil society and private sector actors to support national acceleration plans and enable communities to shape and support the implementation of policies.
9. Integrate community data into the health information system, including investment in innovative technologies.
10. Employ practical and participatory learning and research to identify, sustain, and scale up effective community interventions while providing opportunities for country-to-country lesson sharing and informing a shared global learning agenda

The 2nd International Symposium on CHWs, held in Dhaka in 2019⁸⁹, brought together more than 500 participants from 35 countries to explore the theme “Potentials of CHWs in the Prevention and Control of Non-Communicable Diseases (NCDs) in the Context of Universal Health Coverage (UHC).” There was broad agreement that CHWs can be a major solution to controlling NCDs in low- and middle-income countries. Among the other important messages coming out of the symposium were: (1) the need to engage communities in a deeper way in the design and implementation of interventions, (2) the need for CHWs to have training in counseling since their role may entail supporting women who have suffered abuse or are combatting violence against children, (3) the need for better training and better remuneration in order for CHWs to achieve the optimal impact of their work, and (4) the recognition that well-trained CHWs who provide timely, affordable, appropriate, and quality care are a means to achieving Universal Health Coverage. There is an abundance of literature assessing the effectiveness of CHWs delivering one or a small number of interventions to a small population over a short period of time, especially for mothers and children.²⁸ There is also a rapidly growing number of articles in the peer-reviewed literature about various aspects of the work of CHWs. However, there are far fewer descriptions of larger CHW programs that provide an integrated package of services, much less data-driven descriptions of how and how well they function.

A recent systematic review of review articles about CHWs⁹⁰ noted the lack of evidence—and the relative low quality of existing evidence—on the effectiveness of approaches and strategies to integrate CHWs in health systems and optimize their performance. Evidence on effective approaches to training and supervision is limited. The review lamented the limited research that had been published about large-scale CHW programs given the importance of CHWs for global health programming and improving population health.⁹⁰ A book that provides further details on these reviews and insights they provide for the integration of CHW programs with health systems is forthcoming.⁹¹

CHW programs are remarkably diverse, and there are no simple blueprints for planning and implementing a CHW program. In essence, national CHW programs are and need to be “home grown.” However, this review

did find that community embeddedness (whereby community members have a sense of ownership of the CHW program and positive relationships with CHWs), supportive supervision, continuous education, and adequate logistical support and supplies are important requirements for effective CHW programs.⁹⁰

Evaluations of large-scale CHW programs

To date, there are still only a handful of publicly available evaluations of national CHW programs. Several of note were in Pakistan, carried out by Oxford Policy Management in 2002⁹² and 2009⁹³; in Rwanda carried out by Ingenuity, LLC in 2015⁹⁴ and the Liverpool School of Tropical Medicine in 2016⁹⁵; in Ethiopia in 2019 carried out by the MERQ Consultancy⁹⁶; and in India by a researcher who used a nationally representative sample of households to assess the role of ASHA workers in the utilization of facility-based maternity services.⁹⁷ India's National Health Mission has provided useful evaluation material related to the ASHA Program that is publicly available on an annual basis.⁹⁸⁻¹⁰⁰ In Nepal, nationwide surveys were conducted of Female Community Health Volunteers in 2007 and 2014.¹⁰¹

One paper presented at the 1st International Symposium on Community Health Workers⁸⁷ reported on a national assessment undertaken in Uganda of its CHW program with international development partners that led to a decision to revise its CHW policies and structures, including a stronger institutionalization of CHW policies and regular payments to CHWs for ensuring the long-term sustainability of the program.¹⁰²

Concluding comments

National CHW programs should no longer be an “underfunded afterthought”¹⁰³ but rather a central pillar – if not the firm foundation – of health systems around the world. Frankel's observation about national CHW programs, made in 1992, is still true today for most programs:

It is striking how little is known about what CHWs actually do in relation to the tasks assigned to them, the impact of these activities upon health status, how much time they actually spend doing these various tasks, the response they find among the communities they serve, attrition rates, and costs of CHW programs.⁵⁰

In producing this compendium, we have engaged people who are based in the country where the program is located and/or people with personal experience working with the programs to write about them. What they have done has been a major accomplishment that merits our deep gratitude.

By purpose, these case studies are only descriptive, leaving analyses, critiques, and commentaries for others who are invited to use them as a starting point for further analysis and synthesis. We hope that this compendium will provide insights into both the challenges as well as the opportunities that await as the quest for stronger national CHW programs continues.

Acknowledgments

The map on the cover page was obtained from: <https://geology.com/world/cia-world-map.pdf>.

Photographs. Left: A barefoot doctor in China examining a child. Photo credit: http://2.bp.blogspot.com/-c6J_1Iafa6c/U7K6cinumwI/AAAAAAAAAFQA/LPXjMEZJtmY/s1600/0023ae606e6610ecec820b.jpg.

Right: Francisco Martin, now 88 years old, one of the original *Promotores* trained by Maryknoll Medical Mission Sisters in the 1960s and one of the world's early CHWs outside of China. When this picture was taken 50 years later in 2011), he was still at work as a *Promotor* and collaborating with a local NGO, Curamericas/Guatemala and its programs serving mothers and children. Mr. Martin gave permission to include this photo. Photo credit: Henry Perry.

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The Community-Based Health Care System of Afghanistan



Iain Aitken¹, Said Habib Arwal², Anbrasi Edward³, and Jon Rohde⁴



¹ Advisor on Community-Based Health Care to the Ministry of Public Health, Afghanistan, through Management Sciences for Health from 2004 to 2015

² Head of the Community-Based Health Care Department of the Ministry of Public Health, Afghanistan, since 2004

³ Associate Scientist in Health Systems at the Johns Hopkins Bloomberg School of Public Health

⁴ Emeritus Bernard Lown Professor, Harvard T.H. Chan School of Public Health

One-page summary

Background

Afghanistan's community health worker (CHW) program is part of the Community-Based Health Care (CBHC) component of the Basic Package of Health Services (BPHS). The BPHS was developed in 2003 after 25 years of violence and conflict.

Implementation

In Afghanistan, CHWs work in male and female pairs at health posts, frequently spouses or family members. Non-governmental organizations (NGOs) have contracts from the government in specific districts to supervise and train CHWs to implement the BPHS. At the present time, there are approximately 26,560 CHWs (12,965 females; 13,595 males).

Roles/responsibilities

Afghanistan's CHWs provide a comprehensive package of services that includes health promotion, provision of certain health services, and referral to the next level of care. Importantly, CHWs are tasked with community case management of acute childhood illness (pneumonia, diarrhea, and malaria in endemic areas); treatment of patients diagnosed with TB; and the provision of family planning commodities.

Training

The training of the CHWs lasts just over four months. They receive three separate three-week classroom and clinic modules. After the first two modules, the CHWs return to their villages for a month of practical experience. The trainers attempt to visit all the trainees in their villages during these periods of field experience.

Supervision

Each health facility supporting health posts has a Community Health Supervisor (CHS) that visits health posts to support and supervise the CHWs. In addition, the CHWs come monthly to the supporting health facility for a joint meeting with the other CHWs. During these encounters, the CHWs receive continuing education and have an opportunity to discuss problems encountered in day-to-day work.

Incentives and remuneration

Afghanistan's CHWs are volunteers. Expenses for meetings and training are paid.

Impact

CHWs provide a major portion of primary health care services in Afghanistan. As such, they are widely recognized as important contributors to Afghanistan's marked improvement in health status during the past 15 years.

Historical context

Afghanistan has suffered from war and internal conflict since 1978. As of 2002, the health system was not well developed and there were only a limited number of health facilities in the rural and remote areas which were run by the government or by non-governmental organizations (NGOs). Health professionals who could, fled the country. The population was largely illiterate, and social and economic structures were very weak. In addition, a large portion of Afghanistan's population is scattered across deserts, while another large portion lives in remote mountain valleys that are cut off for several winter months because of heavy snowfall.

By 2003, few health facilities were still standing and functioning after 25 years of war and internal conflict: only 783 health facilities served an estimated population of 23 million people, or 1 per 29,000 population, and 20% of districts had no health facility at all. Only 24% of all hospitals had the capability of performing cesarean sections. Furthermore, only 21% of all health facilities had female health staff (a cultural necessity if women are going to be examined by a trained health provider), and only 467 midwives were available in the entire country (1 per 49,250 population).¹ Almost all births in rural areas then took place at home without professional help.

In 2003, after the removal of the Taliban, the Afghan government began to implement community outreach and service provision through the Community-Based Health Care (CBHC) Component of the Basic Package of Health Services (BPHS). Since that time, the CBHC has been an integral part of the health system. Since 2003, there have been a lot of positive changes, including a marked improvement in the coverage, quality, and effectiveness of CBHC, as well as changes in how people access and use the available health services. The usage of CBHC increased as services became more accessible and familiar to the population. With that increased usage, confidence in modern medical care has grown and there is a demand for better qualified staff in health facilities.

Health needs

All of these factors contributed to some of the worst health statistics in the world: maternal mortality was estimated to be 1,600 per 100,000 live births, the under-five mortality rate was estimated to be 257 per 1,000 live births, the rate of child stunting was 48%, the total fertility rate was 6.7 per woman, and the crude birth rate was 48 per 1,000 population. Only 23% of the population had access to safe water and only 12% had access to improved sanitation. More than 50% of the population was at risk of malaria. Only 8% of pregnant women received skilled antenatal care (ANC), and only 14% of women delivered in a health facility. The contraceptive prevalence rate (CPR) was 8.5%, and the child immunization rate was 30%. As a result of the war, a very considerable burden of disability and mental illness existed among soldiers and the civilian population.¹

Health system structure

The government health system now operates in each of Afghanistan's 34 provinces. Very rapid development of health services was possible through contracting structures during the first 7-10 years after the removal of the Taliban government in 2003. Each province has a provincial referral hospital, and there are now 78 district hospitals. In addition, there are more than 400 Comprehensive Health Centers and about 1,400 Basic Health Centers (BHCs) and Sub-Health Centers (SHCs), staffed by doctors, nurses, and midwives, whose numbers correspond to the size of the populations they serve and their workload. Only 10% of the BHCs and SHCs are now without a female staff member. Currently, 88% of the population is within two hours travel time from a health facility. Each of the district-level facilities has a network of health posts with community health workers (CHWs) in its catchment area.

Despite this impressive improvement, the number of health posts staffed with CHWs has not kept up with the growth in community populations. Although the median number of health posts per health facility is now between 15 and 20, some facilities support up to 50 health posts.

CHW program features

In 2003, the transitional Islamic Government of Afghanistan made two key decisions for the development of the health services. The first was to develop the BPHS, giving priority to the health of women and children. This decision reflected the severely limited resources available for health care, the existence of highly effective, evidence-based low-cost interventions to reduce the mortality of women and children, and the goal of creating an equitable health system. The second decision was to contract out health care delivery to NGOs through a series of partnership agreements. The World Bank, the US Agency for International Development (USAID), and the European Union provided the funding for these contracts. This arrangement has continued and further evolved over the past 15 years. Initially the NGOs were a mix of international and national NGOs, but soon the need for international NGOs diminished as the capacity of national NGOs expanded.

A key element of the BPHS was the inclusion of a CBHC component, centered on the use of CHWs at a village health post. Staffing each health post with one female CHW and one male CHW had not been a part of previous attempts to use CHWs in Afghanistan; this innovation addressed a critical need, as women and their children faced many obstacles in reaching and obtaining services at health facilities. In addition to extreme security issues, there were additional cultural norms that restricted travel by women and required them to be cared for only by female health workers. This change in staffing, however, came with other cultural challenges: in some places, traditional healers felt threatened by the introduction of the new female CHWs, and reports emerged of CHWs being assaulted, health posts and CHWs' homes being burnt, and communities being threatened for accepting care from female CHWs. Enabling CHWs to work together as a male-female team, therefore, provided them with more security and enabled them to provide more effective care.

In 2004, the government, aided by NGOs, developed a CHW job description and a standard CHW training curriculum. They prepared a training manual, and NGO trainers began training CHWs. The NGOs had targets for the numbers of CHWs to train. Within the first year, the expectation that health facility^a staff would be able to make time to supervise the CHWs proved to be unrealistic. In 2005, therefore, the government created a new category of full-time CHSs, who would have a high school education, be selected from the district, and be based at the peripheral health facilities.

Scope of work

Afghanistan's CHWs are responsible for the following activities.

Health promotion activities:

- Safe water and sanitation; personal and food hygiene
- Prevention of malaria, including use of insecticide-treated bed nets (ITNs)
- Safe pregnancy, childbirth preparedness, and care in the postpartum period
- Pregnancy and child nutrition, including breastfeeding
- Importance of immunizations
- Benefits and methods of birth spacing
- Promotion of the use of maternal and child health (MCH) and birth spacing services at the health facility, including education about danger signs during pregnancy, childbirth, and acute child illness, for which care should be sought from a trained provider

^a We use here the term "health facility" to refer to Basic Health Centers, Comprehensive Health Centers, and District Hospitals. The term does NOT include health posts.

Direct patient care services:

- Community case management of childhood illnesses and referral of complicated cases
- Screening for and referral of suspected cases of TB, and community-based treatment of cases with directly observed therapy (DOT)
- Counseling about birth spacing and the provision of condoms, contraceptive pills, and injectable depomedroxyprogesterone acetate (DMPA)
- Referral for obstetrical complications, mental health support, and first aid

Management activities:

- Getting to know the families in the community and maintaining a community map showing families requiring or using particular services
- Reporting vital events (births, maternal deaths, and deaths among under-five children), and submitting a monthly report to the national HMIS of all health post activities
- Managing the health post and maintaining all equipment, supplies, and drugs

The CHWs provide health promotion through personal and group activities, including Family Health Action Groups (FHAGs), with the support of a village health committee (the *shura-e-sehie*).

The basic scope of the CHW's work has not changed since this cadre was introduced 15 years ago. However, some of the details of the job have been modified, and training methods and job aids have been improved. New tasks assigned to the CHWs include postpartum family planning and the provision of injectable contraceptives, newborn care, and growth monitoring of children. An improved training package and pictorial job aids for community case management of childhood illnesses and DOT for TB have been introduced nationwide.

The first additional task assigned to CHWs, postpartum family planning, included training about the Lactation Amenorrhea Method and provision of the injectable DMPA, also known as Depo-Provera® and Depo-Ralovera®, beginning in 2008. A pilot project in villages in three provinces demonstrated that the training and support of CHWs in these skills led to a 45% increase in the CPR.² As a result, a cascade training course was developed and 12 master trainers trained the NGO CHW trainers, who in turn trained the CHWs. All the BPHS donors provided financial support, and the program was implemented nationwide.

The Ministry of Public Health (MOPH) also received funding to implement Community-Integrated Management of Childhood Illnesses (C-IMCI) training for CHWs nationwide. The USAID-supported Basic Support for Institutionalizing Child Survival (BASICS) project paid for the preparation of the training course design and the pictorial C-IMCI charts. These charts also included guidance on routine newborn care and management of newborn illnesses. Additional charts provided information about the nutrition and immunizations needed by children of different age groups, as well as alerts for the CHWs to talk with couples about birth spacing. In this case, however, the funds were insufficient to train the CHW trainers and produce enough sets of charts for CHWs in six out of the 34 provinces. Unfortunately, these provinces have never implemented C-IMCI training. In a survey of 342 health posts in 2011, 76% were found to have a copy of the original CHW manual, but only 32% had a copy of the C-IMCI charts.³

One of the other activities of the BASICS project was to implement a community growth monitoring program through the CHWs and FHAGs. This aim was accomplished in 26 districts.⁴ Funding has never been made available to scale up the effort nationwide, but the existing program continues under the Nutrition Department of the MOPH.

In 2015, the National TB Program upgraded the role of the CHW from a passive, supportive one to an active promoter of the program. This more active role entails identifying suspected cases of TB, ensuring that sputum samples are collected and tested, and ensuring completion of TB therapy for patients in their village. In 15 provinces, suspected case referrals by CHWs have increased from 13,000 in 2014 to 40,000 in 2017. These 40,000 referrals yielded 2,900 confirmed cases whose treatment has been supervised by CHWs.

The national CBHC Program tries to maintain a standard job description for the CHWs and a standard approach to their training. However, some NGOs have included varying amounts of training content on disabilities, mental health, and most recently, other non-communicable diseases. Turnover of CHW trainers is significant, and many receive no special training for the job. At the beginning of the program, one of the BPHS donors implemented systematic training of all CHW trainers. Subsequently, there has been further training associated with the national family planning and C-IMCI implementation programs. In general, though, training has tended to be theoretical; opportunities for supervised practical training in clinical and communication skills have been very limited. As mentioned previously, job aids and health education materials are frequently unavailable, and training does not focus on their use.

Increased skills and knowledge have been requested by the CHWs as they encounter new demands from their communities. The community demands are increasingly for more medicines and drugs, even when they are not indicated. The two sides to this problem are the inadequate or irregular supply of medicines to some health posts, and the increasing irrational and excessive use of drugs, especially antibiotics. In principle, these are issues that should be addressed by the supervising health facilities, but they also reflect wider problems of pharmaceutical management within the health system.

Selection and training

In Afghanistan, CHWs are selected through a consultation process between the NGO staff and the community elders. Each health post is supposed to have a male and a female CHW, frequently spouses or other close relatives. This family connection allows the pair to work together more harmoniously within a cultural context in which close contact between unrelated men and women is severely constrained. The formal requirements are: (1) age 20-50 years and (2) respect from other community members. There is no upper age limit. There is also no education requirement, but if a person with education meets the other criteria, this is an advantage. Among the first female CHWs, the literacy rate was only 30%. In 2011, in a sample of CHWs from 33 provinces where the average female literacy rate was 15%, 65% of 158 female CHWs were literate and 54% of them had completed at least primary school.³

The basic training course for the CHWs consists of three separate three-week classroom modules. Between modules, the trainees spend a month in their own village, where they can practice their new skills before moving on to the next classroom module. The trainers attempt to visit all the trainees in their villages during the field practicum.

The three classroom modules are designed to build the competency of CHWs, starting with simpler skills and then moving to more complex skills. The first module deals with common infectious diseases; environmental, household, and personal hygiene for the prevention of malaria and diarrhea; basic principles of health education; and the management of diarrhea and eye and skin infections. CHWs also learn how to make a community map and complete a pictorial tally sheet that serves as the CHWs' monthly reporting form. The second module focuses on MCH services and include the provision of antenatal care (and preparing the mother for childbirth), postnatal and newborn care, breastfeeding and nutrition, and immunization services. The CHWs also learn some basic first aid at that time. The third module includes community case management of childhood illnesses, prevention and treatment of TB, birth spacing promotion, and the provision of contraceptive methods. There is also training in how to talk with people about sickness, treatment, and birth spacing.

Surveys of CHWs have repeatedly shown requests for training in new skills. As conflict and fighting has increased over the past five years, they have requested more extensive training in first aid. In response, the

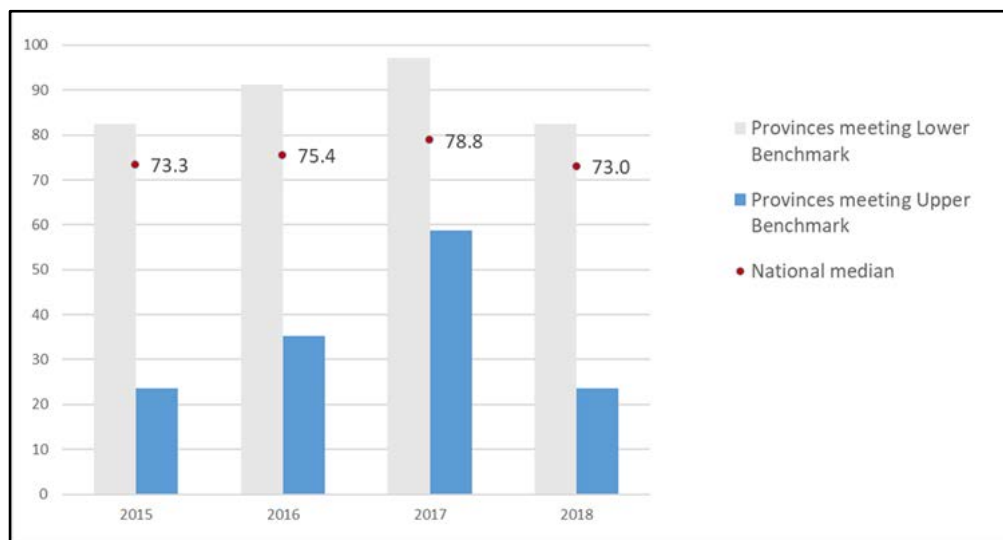
World Health Organization (WHO) assisted the CBHC Department in developing a first aid training course. Since 2015, about 2,000 CHWs in 23 provinces have received this training. The plan is to train another 300 in the final quarter of 2019.

Support and supervision

Since 2015, a Health Post Status Indicator has been included in the annual national BPHS Balanced Scorecard Report.⁵ This indicator is comprised of three sub-indices. The first, health post functionality, includes five items measuring health post staffing, repairs, existence of a *shura-e-sehie* (community health committee), supervision, and health management information system (HMIS) reporting. The CHW functionality includes the CHW kit: the required equipment, medical supplies, protocols and guidelines, and number of activities performed. Lastly, CHW satisfaction and motivation are included as a final measure. In 2018, a sample of 1,150 CHWs were interviewed; findings, compared with the results from the previous three years, are shown in Figure 1.⁵ (The lower benchmark is the cutoff between the lower 20% and the remainder in 2015; the upper benchmark is the cutoff between the upper 20% and the remainder.)

The national median for the Health Post Status Index was 73 in 2018. This finding is similar to that in 2015, but slightly less than those of the previous two years. The percentage of the provinces meeting the lower benchmark is 82.3%. The six provinces that did not meet the lower benchmark have had significant security issues. Eight provinces (23.5%) exceeded the upper benchmark. The percentage of health posts that met individual quality standards were as follows: presence of a *shura-e-sehie* (96.8%), support from the *shura* (73.1%), presence of health post supervision (94.7%), adequate CHW equipment (63.0%), adequate CHW medical supplies (72.7%), and presence of protocols and guidelines (59.2%). The CHWs dispense 14 drugs and three types of contraceptives. These commodities are managed by a simple inventory control system for resupply from the supervising health facility each month. The last three indicators (CHW equipment, medical supplies, and sets of protocols) seem to be the areas of support that are most consistently sub-par. In 2019, there were 26,650 CHWs (12,965 females and 13,595 males).

Figure 1. Percentage of health posts meeting quality standards based on the BPHS Balanced Scorecard, 2018



Source: MOPH 2019.⁵

Each of the health facilities supporting health posts (district hospitals, community health centers, and Basic Health Centers) has a CHS, who is almost always a male. An additional female CHS is present in fewer than 10% of facilities. The selection criteria for CHSs include a high school education, residence in the district where they will work, and good communication skills.

Their job description includes:

- Regular on-the-job training provided to the CHWs
- Assurance on a monthly basis that the health posts have adequate supplies and drugs
- Supervision of the quality of the community maps and monthly reports prepared by the CHWs
- Planning and management of all community health activities in the CHS's catchment area
- Support to the community *shuras-e-sebie*

These activities are managed through monthly visits of the CHS to each health post and a monthly meeting of all the CHWs supervised by the CHS at the health facility where the CHS is based. CHSs frequently have a motorcycle and a fuel allowance that make it possible for them to visit the health posts. CHSs participate in all the training programs provided for CHWs. In addition, special training courses are provided specifically to the CHSs to build their capacity as supervisors, trainers, and managers so that they can do clinical and administrative work in the facility that is not in the CHWs' job description.

The workload of the CHSs varies considerably. About 20% have more than 20 health posts to supervise; some have as many as 50. Even those with fewer may have some health posts that are several hours' travel from the health facility where the CHS is based. In 2011, 94% of a sample of CHWs had received three or more supervisory visits in the previous six months. Written records and recommendations were present for 83% of these visits. Short in-service training sessions are a regular part of the monthly visits of the CHWs to the health facility. Facility clinical staff frequently contribute to these sessions.³ A constraint on the effectiveness of some CHSs is the requirement, by the person in charge of the facility where the CHS is based, to have the CHS do work in the facility that is not in the CHS's job description.

The lack of female CHSs reflects the incompatibility of the amount of travel required of the CHS with the cultural norms for women. The few female CHSs in place are frequently close relatives of the male CHS who is based at the same health facility. The problem of male CHSs supervising female CHWs seems to be easier when the male and female CHWs at a health post are married or are close relatives, as is the case more than 75% of the time. More recently, in a few provinces, there have been satisfactory experiences involving the midwives at health facilities in more regular technical supervision of the female CHWs during their monthly attendances at the facility.

Incentives and remuneration

Afghan CHWs have been volunteers from the beginning of the program. This policy has been reviewed and reaffirmed periodically because the issue of salary is constantly raised, especially by the CHWs themselves. There is general agreement in the MOPH and among donors that it would be appropriate to provide regular compensation to these important health educators and health care providers. However, it is also recognized that the government does not have the resources to do so, and dependence on external donors would risk almost certain collapse of the program if and when they fade out. Attempts to encourage financial support for CHWs from the community itself have never been successful, but communities do provide food, clothing, commodities, and other non-monetary incentives for CHWs from time to time. Also, many communities have built a house or an extension to the CHW's house for the health post, assist with transport, promote health campaigns, and support the CHWs in their work with individual families.

Since 2008, CHWs are supposed to receive allowances to cover travel and food for all monthly meetings at the facility and any training courses they attend. In some provinces, CHWs participate in the polio campaign and in the National Immunization Days, and for this they receive an honorarium. The National TB Program also covers the expenses of CHWs and CHSs who accompany a suspected TB case to the facility. Recently, the TB program has also offered two prizes of US\$ 100 per province per quarter to the best performing health workers, including CHWs and CHSs. However, in the 2011 survey, 40% CHWs claimed they were not

compensated for travel expenses; over 50% said they did not get food or an allowance when attending training courses.³

Since 2010, December 5 has been recognized as National CHW Day in Afghanistan. Celebrations are held for CHWs at both the national and the provincial levels. A quarterly magazine and newsletter were developed and distributed to all CHWs, but this effort ceased when external funding for it stopped.

When CHWs were asked about constraints to performance in 2011, the most commonly reported responses were: inadequate salary or remuneration (79%), lack of transport (69%), drugs and supplies (49%), equipment (40%), and training (29%). Only 14% complained of lack of time, 12% of lack of community support, and 3% of a lack of supervision. When asked about recommendations to improve performance, 18% mentioned salary, more training, or more supervision. However, 86% emphasized the importance of appreciation and recognition.³ Anecdotally, CHWs commonly cite their personal and religious duty to their communities as their main motivation.

The drop-out rate of CHWs in Afghanistan has consistently been less than 8% per year. In 2015–2016, the annual recruitment and training of new CHWs was only half the number of dropouts. The NGOs receiving contracts for the BPHS Program have funds to train replacements for CHW dropouts, but it is not clear that this always happens. The same report of the survey of 10 provinces found that only 79% of CHWs had training certificates.⁴ Anecdotally, when some CHWs decide to leave, the community selects a replacement, who is then trained informally by another CHW. The number of active CHWs peaked at about 29,000 in 2017. The current number is 26,556. There may be two main contributors to this decline. Many of the more-recently trained young CHWs have a higher level of education than those trained in the early years and are more likely to obtain paid employment elsewhere. The steady spread of security problems and the influence of the Taliban have also created difficulties for both male and female CHWs to work effectively. Thus, it is possible that the rate of dropouts may increase in the future.

Community role

Each community with a health post is expected to have a health committee—the *shura-e-sebie*. Respected men are selected by the community with help from the CHW, the CHS, and the head of the health facility. Attempts at different times to form women’s health *shuras* have met with varying degrees and periods of success. The health *shuras* provide leadership and support to all health-related activities in their communities. They select, support, and supervise the CHWs in the community. They also encourage families to make full use of preventive and curative health services. In addition, the *shuras* provide leadership for the adoption and promotion of new behaviors and social norms. In many cases, they have supplied land and a building for the health post, separate from the CHWs’ homes. They have also provided transport for the CHWs and for referrals of sick people to a health facility.

By 2013, many of the health *shuras* were losing their original enthusiasm and some had ceased to function. One reason was that the same village leaders tended to be members of several *shuras*, responsible for different development programs, and could not give full attention to all of them. As a result, the CBHC Department developed a new nationwide training program for *shuras* and began to implement it in 2014.

Soon after the establishment of village health *shuras*, the government began to promote the formation of a *shura-e-sebie* at all health facilities to provide community oversight. Members of these facility *shuras-e-sebie* are from the immediate town as well as representatives from village *shuras* in the facility catchment area. The facility *shuras* have been important in helping to increase use of facilities by women from communities. By 2011, NGO managers were reporting an active *shura-e-sebie* at 79% of health facilities, with 76% of the *shuras* having at least one female member. Community members had participated in 95% of facility *shura* meetings in the previous six months, and 76% of facility *shuras* were actively supporting CHW activities.³ A key expectation of the facility *shura-e-sebie* has been that it would oversee improvements in quality of care. However, in the absence of a practical methodology, very little was accomplished. In 2012–2013, an exploratory study was conducted in three provinces with Community Scorecards, which involved scoring of

performance by health providers and community representatives three times over the course of six months. This Community Scorecard assessed the facility structural capacity, including staffing, and provider care. The quality of provider care received high ratings, but staffing, the physical condition of the facility, equipment in the facility, and health education materials received much lower ratings. The district governor, members of the community, and the district health office all contributed to the implementation of action plans to address these deficiencies. Funding has not yet been found to scale up the Community Scorecard of health facilities beyond the area where the pilot study had been carried out.⁶

Health education has been a priority for CBHC from the very beginning and is a major responsibility of both the CHWs and the *shura-e-sebie*. Initially, two strategies were used to assist in this effort: the development of community maps and the use of flip charts and posters. Each health post prepares a community map of all the households of the community. Different symbols and color codes indicate which households have a pregnant woman, a child younger than two years of age, or a couple needing or using contraception. This tool provides both the CHWs and the *shura-e-sebie* members a guide for targeting health promotion messages appropriate to the needs of each family. Early evaluations of these two strategies revealed enthusiastic and effective use by the CHWs and *shuras*. However, both strategies have become less effective in recent years due to the lack of health education materials and the paper required for redoing the community maps each year.

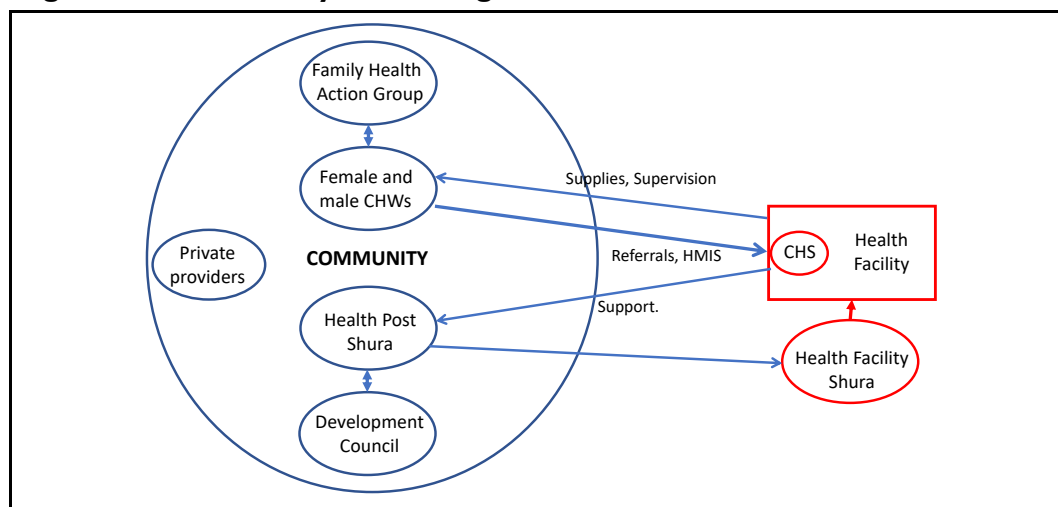
In 2003, one of the major donors had supported the development and printing of 12 sets of flip charts and posters for use by the CHWs and facility staff in the provinces it supported (about 45% of the country). These were pictorially based for the benefit of an illiterate population, but also for the 70% of the female CHWs who themselves were illiterate. Although there were delays, these materials were extensively used and were effective once made available. Development of health education materials in other parts of the country was much less comprehensive and scientific, and it depended on the initiatives of individual NGOs. In recent years, no programs have replaced the original sets of materials, except for specially funded disease-control programs. Some of the original sets are still available and in use, but in general, health education job aids are not available.

Between 2004 and 2006, an NGO (Future Generations) led by Dr. Carl Taylor developed what it called Women's Action Groups, led by the female CHWs and based on the Care Group model.⁷ These groups were very effective in beginning to improve a number of family health practices. The model was adapted by the CBHC Department, and a program to implement women's FHAGs began in 2009. In this program, the female CHW selects a group of 10–12 women who are respected in the community and whom she trusts. They are given a series of monthly “lessons” on important health topics, including home hygiene, diet and nutrition, care of newborns and young children, and use of health services. The CHW encourages each of the selected women to put the lessons into practice in her own home and then demonstrate and share them with women from 8–10 of the households in her neighborhood. By 2013, NGOs were reporting improved attendance at health facilities for MCH care from communities with FHAGs. Overall, about 35% of the 14,000 health posts now have FHAGs. In 2016, in a study of 10 provinces, 85% of health posts had developed FHAGs, but only 53% of them were still active.⁸

Linkages with the formal health system

The Afghan CBHC system is an essential part of the national health system and a key element in the BPHS. CHWs are linked to a health facility (basic health center, comprehensive health center, or district hospital). CHWs are given technical supervision and supplies by a CHS who is based there (Figure 2). CHWs' monthly reports are part of the national HMIS. In the province, the NGO that is responsible for managing the BPHS has a CBHC Coordinator and CHW trainers to manage and support the CBHC Program. In the Provincial Health Office, there is usually someone who is the CBHC focal point. However, apart from a couple of years beginning in 2012, when about one-third of provinces had specific CBHC Officers to oversee and promote all CBHC activities in the province, these CBHC focal points usually have additional responsibilities and have shown variable commitment to CBHC.

Figure 2. The CBHC system in Afghanistan



At the national level, the CBHC Department in the MOPH was created in 2005. Its role within the overall stewardship role of the MOPH is to promote CBHC, oversee policy and program development, monitor implementation, and coordinate the inputs of other technical departments in the MOPH that are stakeholders in the CBHC Program. The challenge is that the CBHC Department, like all other MOPH technical departments, has no direct authority over the NGOs that are implementing the BPHS. Supervision of the NGOs implementing the BPHS is by the Grants and Contracts Management Unit (GCMU) of the MOPH. There are performance standards for some activities, including CHW and CHS work, in many of the NGO contracts. These are quite effective in holding the NGOs accountable for their programs. However, there is no formal mechanism by which the technical departments of the MOPH, such as the CBHC Department, can influence the work of the GCMU and negotiate inclusion of priority performance standards.

Fortunately, the CBHC Program has benefitted from strong, long-term, stable leadership that has made it possible to maintain active informal links between CBHC Program staff and other officials within the MOPH. A CBHC Task Force has been created that consists of representatives of other technical departments, BPHS-implementing NGOs, and international organizations. This Task Force has been one of the most consistently active bodies associated with the MOPH. It has also been effective in maintaining clear policies, promoting productive technical developments, and attracting financial support for innovations.

The CBHC Department started in 2005 with one person, who had to borrow a desk when he needed one. In 2009, in anticipation of the national implementation of the postpartum family planning program, the Department was staffed with 12 professionals, including the master trainers. Donor financial support for the Department continued until 2016 and allowed consolidation and improvements to the Program. The master trainers trained the NGO trainers on the family planning and C-IMCI programs components of the curriculum. They also prepared and trained NGO staff for the revised training program of *shuras-e-sebie*. In addition, the master trainers did a complete revision of the CHW training program and prepared the training programs for the Nomad and Urban CHW programs. At the same time, they conducted the regular monitoring visits of the NGO programs. Since 2016, as a result of diminished funding at the MOPH, the Department has had a reduced capacity for effective stewardship of the national CBHC Program.

Program scale-up

Because CBHC has been part of the BPHS from the beginning, its scale-up has been part of national health planning. Each provincial NGO contract and each contract renewal have included a target for the training of CHWs. The recent total of 15,000 health posts was approaching the total necessary to provide national coverage at the desired ratio of health posts to population (1:1,000–1,500 people). However, two factors complicate that assumption. The first is continued national population growth at the rate of about 1 million each year. Although much of this occurs in urban areas, many rural communities are also growing. Such

growth means that provincial planners need to work out where new health posts are required, or simply provide an additional CHW at health posts with greater needs to maintain a manageable workload. The second challenge is the continued existence of truly remote communities. Up to now, a guiding principle has been to create health posts only in locations where support and supervision are feasible. A new category of health sub-centers was started in 2007 to bring services closer to such communities, but these do not supervise health posts. For a while, mobile clinics were organized for the same purpose, but they became difficult to manage. Expansion of CBHC, therefore, depends on an expansion of needed support and supervision.

Two additional population groups have received attention since 2010: nomads and people living in underserved urban communities. Modifications to the CHW job descriptions and to the training programs were made according to the special circumstances of these populations. The nomad CHW program is progressing, with 1,500 CHWs already trained to serve this special population. The urban program started in Kabul with the training of 220 female CHWs. Unfortunately, the program failed and has been stopped.

There have been a variety of innovations in the program over the 15 years, several of which are described in this case study. Two health care innovations—postpartum family planning and C-IMCI—were scaled up nationally. The administration of an injectable contraceptive by CHWs was not included initially in the BPHS policy, but it was later approved based on international experience and a very successful pilot study in Afghanistan. Funding for the training programs was provided for national scale-up, and the CBHC Department master trainers were available to train and follow-up the NGO trainers.

Other innovations, such as the FHAGs, the Nomad CHW Program, and the Newborn Care Program, have been growing slowly but steadily towards national coverage. These programs also became national policy, and the targets and funding for their gradual scale-up have become part of the BPHS NGO contracts.

Additional innovations, such as the Community Scorecard for health facilities, the community growth monitoring program, misoprostol tablets for preventing postpartum hemorrhage, and the mini-ambulances (see below), have either not been scaled up or are expanding very slowly. The main problem has been the limitations of funding either for introduction and training or for recurrent costs. The issue of funding has become serious, as the continuation of international financial support for Afghan government programs is uncertain at this point. In the first few years after the introduction of the BPHS, there was an enthusiasm for the new programs that were changing Afghanistan for the better. But this zeal for change has now diminished significantly. Effective support and supervision of community-based programs have always been a challenge in Afghanistan (as described above), and the home-visiting and health promotion activities at community level have suffered particularly. Hence, there is not the same enthusiasm as before for national implementation of innovations that will require good supervision and support.

Monitoring and data use

At the community level, the CHWs prepare and update a community map. This displays all households in the community and, with the use of different symbols and colors, specifies locations of women and young children requiring/receiving preventive health services, family planning services, and TB treatment.

On the pictorial tally sheet, the CHWs keep a monthly record of their activities and any births or deaths. This tool is designed so that it can easily be used by illiterate CHWs. For every service provided, the CHW puts a line (tally) in the appropriate box next to a picture representing that service. At the end of each month, the CHW gives the document to the CHS, who then transfers this information into a health post report; the report is then combined into an aggregated CBHC report for the health facility and its surrounding health posts. These and the health facility reports are all entered into a database at the provincial level and forwarded quarterly to the national HMIS Department. Checks and analyses of the data are done at both the provincial and national levels. Usually, a specific set of priority indicators is monitored regularly for program management purposes at all levels of the health system, including the CBHC Department.

For about seven years, from 2009 to 2015, staff of the CBHC Department were able to make regular monitoring visits to health facilities and health posts across the country. These in-depth monitoring visits provided the CBHC Department with additional information beyond what was available from HMIS reports. With recent changes in the structure and reduced funding for the Department, these visits are no longer possible.

Financing

The BPHS implementation by NGOs, including the CBHC Program, continues to be financed by the World Bank, USAID, and the European Union. Most of the funding for development of different aspects of the CBHC Program has come from USAID. The Global Alliance for Vaccines and Immunizations (GAVI); the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund); the Japan International Cooperation Agency; and some smaller donors have also supported these activities.

Costing of the CBHC component of the BPHS has not been done until recently. Table 1 shows a breakdown of recurrent costs in 2016 by the MOPH.⁸ For a national rural population of approximately 24.8 million people, these figures amount to an annual per capita expense of approximately US\$ 0.4 per year.

Table 1. Annual recurrent costs of the CBHC Program, 2015

Cost Categories	Annual Costs (USD)	Percentage of Total Costs
MOPH management costs	279,816	2.8
BPHS NGOs for costs of program implementation	1,640,368	16.5
Health facility costs for CHW support/supervision	4,557,954	45.9
CHW supplies and training	3,459,565	34.8
Total costs	9,937,703	100.0

Source: MOPH 2017⁸

The two major expenses of the CBHC Program are the cost of supervising CHWs (46% of total program costs) and the cost of supplies and training for the CHWs (35% of total program costs). Staff salaries make up most of the MOPH, NGO, and health facility costs, but transportation is another significant cost. The annual costs of operating an individual health post is approximately US\$ 685. The total estimated costs of US\$ 9.9 million represents 13.7% of the total cost of implementing the BPHS. Funding from external development partners is separate from these recurrent costs and has been considerable over the past 15 years.

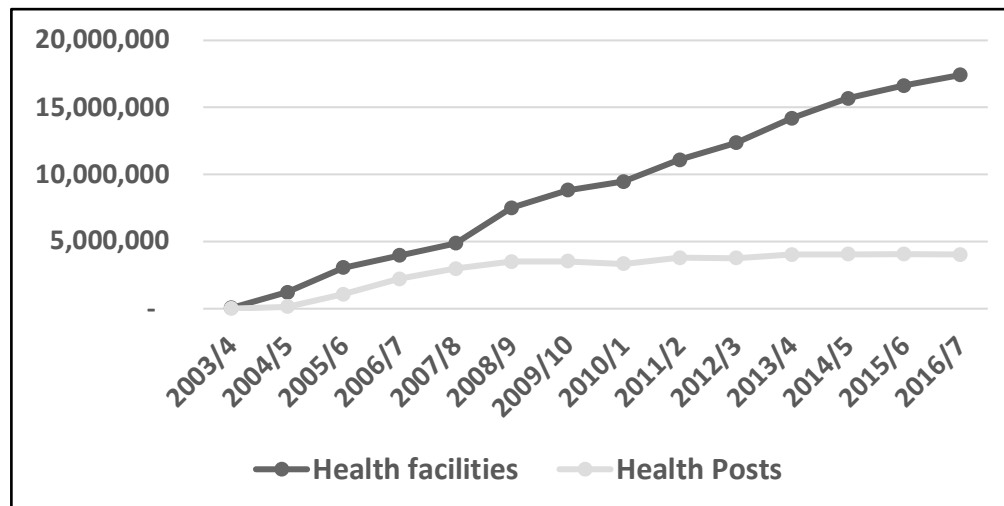
Impact

Afghanistan experienced a very rapid build-up of its health system in the first 10 years following the formation of a new government in 2003. Over that period, the estimated maternal mortality ratio dropped from 1,600 to 661 per 100,000 live births,⁹ and the under-five mortality rate dropped from 257 to 55 per 1,000 live births. During this time, rates of ANC and skilled birth attendance rose from 8% to 59% and from 14% to 51%, respectively. The CPR rose from 9% to 20%, and the total fertility rate declined from 6.7 to 5.3.⁹ Key to these improvements was the CBHC Program along with the training and deployment of midwives and other female staff working at health facilities.

CHWs have been very effective in increasing demand for vaccinations and ANC, as well as for skilled birth attendance at health facilities. Two important services that they have been able to provide directly to their communities are the management of sick children and the provision of contraceptives. Figure 3 shows the growth in numbers of children treated each year by CHWs at health posts and by higher-level staff at health facilities. For the first five years (beginning in 2003), the numbers of patients treated at both types of facilities

increased together. Since then, however, treatment numbers by CHWs have remained steady while the numbers of patients treated at health facilities have continued to increase. In 2009–2010, CHWs were treating 38% of all sick children seen in the public health system. That percentage has more recently declined to 19% in 2016–2017. In recent years, there has also been a rapid increase in availability and use of private clinics and pharmacies in rural areas as well as in urban centers. Recent data suggest that private providers are now treating almost half of all sick children in rural areas.²

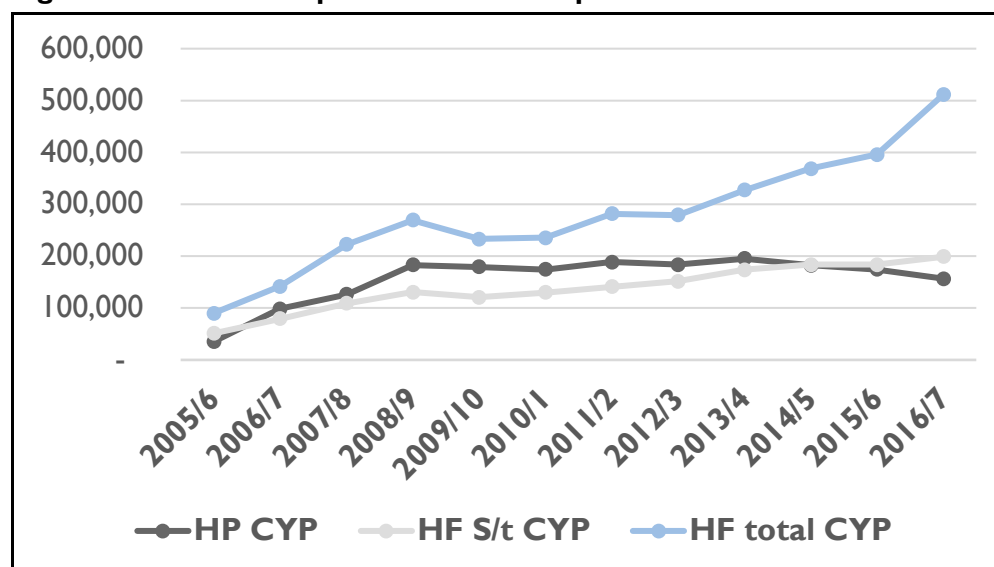
Figure 3. Number of under-five children treated each year at health facilities and health posts



Source: MOPH HMIS.

Figure 4 shows changes in annual couple years of protection (CYPs) from short-term methods (the only method type supplied by CHWs) and short-term and total CYPs at health facilities (where longer-term methods are also provided). The numbers of CYPs from short-term methods supplied at health posts (by CHWs) and at facilities (by higher-level providers) have remained very similar. In 2009–2010, health posts were supplying 60% of all short-term methods. The total numbers of annual CYPs provided by the government health system has grown steadily, primarily as a result of greater use of long-term methods.

Figure 4. Annual CYP provided at health posts and health facilities



Source: MOPH HMIS. Key: HP – health post; HF – health facility; CYP – couple-years of protection; S/t – short-term methods; HF total CYP – short-term and long-term methods.

The difference between the maintained contribution of CHWs to short-term CYPs and the declining contribution to management of sick children probably has several causes. One possible explanation is the diminishing availability of medicines and contraceptives at some health posts. Another, surely, is the growing demand for health services at health facilities. Such demand may be due to the growing quality and availability of services at these facilities, as well as a growing respect for services provided by more highly trained personnel. That felt need is more likely to be the case for the father of a sick child than for a village woman needing resupply of her contraceptive method at a more accessible place and time. In step with the expansion of the public health facilities has been the growth in availability of private health providers. This growth has affected both contraceptive supplies and treatment of childhood illnesses. In the Afghanistan Health Survey of 2018, among the cases of children with acute respiratory infection for which treatment was sought, 37% were seen at public health facilities and 63% were seen by private providers. To obtain contraceptive supplies, 36% of women went to a private pharmacy and 17% went to a private clinic. The remainder (47%) went to public health providers.¹⁰

Challenges

An important observation from reviews of recent national surveys of use of health services is that the current levels of both ANC and skilled birth attendance reached their current levels in 2010 and have not increased significantly since then. Cost, distance, and the availability of transport are claimed to be the main constraints to the use of facility services for maternal health.¹¹ It is also clear that there is a great need to expand the coverage of postnatal care for both mother (currently only 40% of mothers receive postnatal care in the first two days after birth) and the newborn (only 9% receive care during the same time period). When such care takes place in a facility, it is usually just before the woman and newborn are discharged home, which is normally within 24 hours of the birth. Four community-based strategies have since been introduced to address these issues.

Family health houses (FHHs), the first strategy, consist of the usual community CBHC complex of CHWs, the *shura-e-sebie*, and the FHAG with the addition of a Community Midwife and a birthing facility. FHHs are in communities more than 10 kilometers from a health facility (and in some cases in communities as far as 70 kilometers away) and serve up to 3,000 people. A pilot project was started in 2009 in three provinces with many remote villages. The FHHs are supported by mobile support teams made up of a nurse or doctor, a midwife, and vaccinator. The establishment of each FHH (including the facility, equipment, and training of the Community Midwife) costs about US\$ 29,000, and the annual running costs are about US\$ 8,000. There are currently 159 FHHs in seven provinces.¹²

The Zaranj mini-ambulance project, the second strategy, started at the beginning of 2015. So far, 500 of these three-wheeler mini-ambulances have been put into service in four provinces. The ambulances are based in communities with health posts and are available for emergency referrals of sick women and children. They are also being used extensively to transport women to health facilities for deliveries as well as for routine preventive MCH care. Plans are in place to expand this project to another two provinces.

The third strategy focuses on misoprostol tablets, which can be taken by a woman just after delivery of her baby and before delivery of the placenta to reduce the risk of postpartum hemorrhage. Based on a pilot study done in 2008, the program is now being implemented by CHWs in five provinces. CHWs are being trained to use pictorial flipcharts to counsel pregnant women in birth-preparedness, safe delivery practices, and the use of misoprostol if they are planning to deliver at home. The CHW leaves the misoprostol with the pregnant woman during a prenatal visit so that she will be prepared to take it at the time of the home birth.¹³

The fourth strategy is a community-based newborn care program, being supported by United Nations Children's Fund (UNICEF). So far, 4,000 CHWs have been trained.

In view of the large percentage of women who are still prevented by distance or cost from going to a facility, the needs for more effective ANC, and the provision of misoprostol and of postnatal and newborn care by female CHWs should be carefully considered. Such careful consideration may require rethinking the job

description and roles of female CHWs. Moreover, the new set of needs in community-based MCH suggests that further reduction in maternal and neonatal mortality requires a much more targeted, continuity-of-care approach to achieve improved coverage. Most importantly, this new set of needs implies the necessity of a more consistent home visit program for pregnant and postpartum women and neonates.¹⁴ It also implies the need for renewed emphasis on behavioral change communication with appropriate provision of job-aids to the CHWs and FHAGs. In addition, these new needs underscore the necessity of a more integrated collaboration between the CHWs and the staff of the supervising facility, especially the midwife.

The CBHC Program in Afghanistan has been a major contributor to the success of the BPHS, as evidenced by great improvements in maternal and child mortality rates. Success also has its costs, as seen in the growing use by the population of health facilities rather than health posts for acute medical care and preventive care. This shift means, therefore, that after 15 years, there is now a need to re-evaluate the roles of both male and female CHWs and the opportunities for further gender-based specialization. This will require a fresh commitment to the role of CHWs in health education, as well as ensuring that both the necessary skills are taught and job-aids are provided. The track record of the CBHC Department and its CBHC Program provides confidence in the possibility that necessary changes will take place, but major challenges remain. Not the least of these challenges are (1) the likelihood of diminishing resources since government funding is not replacing the gradually diminishing external donor support, (2) the increasing insecurity across the country, and (3) the political uncertainties that Afghanistan still faces. However, a notable strength of the CBHC system of Afghanistan has been the continuity and consistency of its leadership and its advocacy, and the steadfast support that it has received from the ministers of the MOPH.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are as follows:

Left: CHW Ozara Hussein (left) talks to Najiba, who has five children, about the advantages of family planning and Najiba's decisions to start taking the pill at Najiba's home in Katasank near Bamyan, Afghanistan, on June 8, 2010. Photo by Kate Holt, Jhpiego. Right: A CHW provides basic information on newborn care.

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The Government Family Welfare Assistants, Health Assistants, and Community Health Care Providers in Bangladesh



Taufique Joardar,¹ Dena Javadi,² Jessica Gergen,³ and Henry B. Perry⁴



¹ USAID/Multisectoral Nutrition Programming through Implementation Science Activity, FHI 360, Dhaka, Bangladesh

² Alliance for Health Policy and Systems Research, Geneva, Switzerland

³ Public Interest Data Designer, Visualst, Maputu, Mozambique

⁴ Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

One-page summary

Background

Bangladesh has a long history of using community health workers (CHWs) to support health services. At present there are approximately 185,000 CHWs in Bangladesh. Most CHWs work with non-governmental organizations (NGOs), especially BRAC, as described in a separate case study, while the remainder are employed by the government as Family Welfare Assistants (FWAs), Health Assistants (HAs), or Community Health Care Providers (CHCPs).

Implementation

FWAs were introduced in 1976 and numbered about 19,600 in 2017. Their work focuses on family planning and referral of mothers for antenatal and postnatal care and for conducting delivery at reproductive health facilities. HAs worked originally as vaccinators or malaria control workers. Beginning in 1995, their role expanded to include vitamin A supplementation and detection and treatment of pneumonia, diarrhea, malaria, and TB. There are about 15,200 HAs at present. The government introduced CHCPs in 2010 to staff Community Clinics that were established at that time to provide primary health care services. There are about 12,300 CHCPs at present.

Roles/responsibilities

FWAs visit the same household/same couple every two months, register new couples, encourage them to utilize a family planning method, distribute contraceptives, and refer clients for antenatal care, postnatal care, and normal delivery at family planning facilities. HAs provide immunizations and vitamin A capsules and distribute packets of oral rehydration salts. CHCPs work in Community Clinics (which each serve a catchment area of about 6,000 people on average) where they provide antenatal and postnatal care; treat pneumonia, diarrhea, and anemia; and provide injectable contraceptives.

Training

FWAs receive 21 days of training followed by on-the-job training. HAs receive training of a similar length, and CHCPs receive 12 weeks of training.

Supervision

FWAs are supervised by male supervisors, called Family Planning Inspectors, with whom they meet at least twice per month during field visits. HAs are supervised by Assistant Health Inspectors, each of whom is responsible for three HAs (one in each old Ward). CHCPs are supervised by the field supervisory team of Upazila Health and Family Planning Officers, e.g., the Health Inspector or the Assistant Health Inspector.

Incentives and remuneration

FWAs receive a government salary of US\$ 132–318 per month, HAs, US\$ 135–327 per month, and CHCPs, US\$ 150–362 per month.

Impact

There are no available evaluations of these programs. The strong CHW presence in Bangladesh is widely perceived to have made an important contribution to Bangladesh's remarkable progress in reducing under-five mortality and maternal mortality and in helping couples achieve their reproductive health preferences.

Historical context

The Government of Bangladesh introduced Family Welfare Assistants (FWAs) in 1976 to scale up the successful pilot family planning program that had previously been implemented in Matlab, Bangladesh. As the program scaled up with external donor support and technical assistance, FWAs were the “backbone” of the government’s family planning program, which is widely credited as being one of the most successful such programs in the world in a country not undergoing simultaneous rapid socioeconomic development.^{1,2} The Health Assistant (HA) program is an outgrowth of the government smallpox and malaria control programs from the 1960s and, later, a government disaster response program. The establishment of Community Clinics was a response to the need to improve access to treatment for acute illness and to make injectable contraceptives more readily available as part of the government’s 1996 commitment to establish 18,000 Community Clinics across the country to provide “one-stop” provision of basic services at a community-owned facility and to reduce reliance on “doorstep delivery” of basic services.² Bangladesh’s National Strategy for community health workers (CHWs) reports that there are now 70,000 government CHWs, 38% of the country’s estimated 185,000 CHWs.³ The remainder work with NGOs, among which BRAC has the largest number (as described in the adjoining chapter).

Health needs

The health status of the poor and vulnerable remains challenging. Families not uncommonly suffer financial catastrophes if a member falls ill. Communicable diseases, poor maternal and child health, and malnutrition are responsible for levels of preventable morbidity and mortality that remain high. New challenges related to the epidemiological shift to chronic and noncommunicable diseases are arising, along with environmental hazards from air and water pollution, injuries, and unhealthy behaviors such as tobacco use and violence.¹

Health system structure

Bangladesh has an extensive three-tiered network of government facilities at tertiary, secondary, and primary levels. However, utilization of government district hospitals and health centers is low, and, in fact, there is a strong mix of public, private, NGO, and traditional providers, leading to a pluralistic health system that is also minimally regulated.⁴ The government health system provides only 20% of curative services in the country. The public and private sector have a porous boundary—many government doctors also work part-time in private facilities or in their own private office, often bringing patients at a government facility who can pay to a private facility.⁴ Village doctors (informally trained providers who practice allopathic medicine) are the dominant providers of curative care at the community level.⁵

CHW program features

For almost a half century now, FWAs have visited every eligible couple (i.e., a couple in which the woman is of reproductive age) in a two-month interval and registered new couples to promote family planning and maternal and child health. FWAs were introduced in 1976 and numbered 19,600 in 2017. Their work focuses on family planning and referral of pregnant mothers for antenatal care, postnatal care, and normal delivery at family planning facilities.

Historically, HAs were responsible for responding to local emergencies such as natural disasters, thus justifying the recruitment of only men because, culturally, men have had more mobility and flexibility to travel. However, recently women have been allowed to become HAs since women are now more mobile than previously, though still not as mobile as men.² There are 15,200 HAs at present.

CHCPs were introduced in 2010 to staff Community Clinics established by the government at that time to provide primary health care services. There are 12,300 at present. CHCPs are based at Community Clinics, which are open from 9:00 a.m. to 3:00 p.m. six days a week. Each clinic is supposed to be supplied with 23 essential drugs. For our purposes in this chapter, we classify CHCPs as CHWs. Though CHCPs do not provide services at the household level, they do provide patient care at community-level health posts, each of

which serves 6,000 people and can be considered as part of the community platform of service delivery. CHCPs are also categorized as CHWs in the Bangladesh National Strategy for Community Health Workers.

The goal is to have one FWA for no more than 500 eligible couples, and one HA for 6,000 people. Each Community Clinic is supposed to have one CHCP and be in a location that enables 80% of the clinic's catchment population to be within a 30-minute walk of the facility.²

Scope of work

FWAs have promoted family planning methods and, to a lesser degree, basic maternal and child health—child immunizations, referrals for normal delivery, antenatal and postnatal care, and provision of packets of oral rehydration salts for cases of childhood diarrhea. They prepare couple registers, counsel couples to adopt family planning, and distribute oral contraceptives, condoms, emergency contraceptive pills, and misoprostol. They refer women to appropriate health facilities if they express an interest in permanent contraceptive methods, intrauterine devices, injectable contraceptives, contraceptive implants, and menstrual regulation. They also report the adverse effects or complications of contraceptive methods to their supervisors.

In addition to family planning services, FWAs provide counseling services on sexual and reproductive health care and HIV/AIDS. They also provide some maternal health care services, such as referring pregnant mothers for antenatal care; providing health education on pregnancy self-care, nutrition, safe delivery, and immunization; identifying danger signs among pregnant women and referring them to an appropriate facility; advising mothers on breastfeeding practices; conducting postnatal household visits and making referrals to health facilities for postnatal care; distributing misoprostol tablets (to take at the time of a home delivery to reduce the risk of postpartum hemorrhage) and chlorhexidine dropper bottles; and identifying danger signs in neonates and referring them to an appropriate facility.

Traditionally, dating back more than a half century, HAs had worked as vaccinators or malaria control workers. Beginning in 1995, their role expanded to include vitamin A supplementation and detection and treatment of pneumonia, diarrhea, malaria, and TB. HAs are supposed to provide immunizations, packets of oral rehydration salts and vitamin A capsules at immunization sites (called Expanded Program on Immunization Outreach Sites). Nonetheless, they make occasional home visits for health promotion and for providing packets of oral rehydration salts for treatment of diarrhea, treating acute respiratory infections, and collecting blood samples for detection of malarial parasites. The HAs' target population is women and children in need of immunization. In addition to their other duties, one FWA and one HA are each assigned to work at a Community Clinic three days a week.

CHCPs provide health education and health promotion, treat minor ailments, and identify and refer cases for higher-level care. They provide antenatal and postnatal care to the mothers. They also conduct growth monitoring and promotion (GMP) for children, manage acute respiratory infection, diarrhea, and anemia, and they also give injectable contraceptives.^{2,6}

Selection and training

FWAs are required to be female and have at least 10 years of schooling. They receive 21 days of pre-service training followed by on-the-job training. HAs can be either male or female, and they are required to have 10 years of schooling. They also receive 21 days of pre-service training followed by on-the-job training. CHCPs are required to have 12 years of schooling, be a local resident, and be capable of operating a computer. They receive 12 weeks of training.

Support and supervision

FWAs are supervised by male supervisors (Family Planning Inspectors), with whom they meet twice per month. Family Planning Inspectors supervise three to six FWAs. HAs are supervised by Assistant Health Inspectors, each of whom is usually responsible for three HAs. CHCPs are supervised by the Upazila Health and Family Planning Officer (UH&FPO), who is the head of all upazila (subdistrict)-level health facilities.

The UH&FPO is the administrative superior of all the Community Clinics and the CHCPs therein in each upazila. The number of unions per upazila and the number of Community Clinics per union all are variable, so, the number of CHCPs supervised by each UH&FPO is also variable.

Incentives and remuneration

FWAs receive a government salary of US\$ 132–318 per month, HAs, US\$ 135–327 per month, and CHCPs, US\$ 150–362 per month.

Community role

There is no explicit role for the community in the selection, training, or supervision of FWAs and HAs. However, Community Groups (CGs) and Community Support Groups (CSGs) were involved in designing and planning Community Clinics, and they are involved in their monitoring and implementation. The communities provided land for the clinics and assisted in their construction, while the government funded construction, provided the supplies and equipment, and staffed the clinic. The community assists further through these two groups (CGs and CSGs) that, among other things, help maintain the facility.²

Linkage with the formal health system

All FWAs and HAs are included in the formal government health system. They are recruited, maintained, and supervised by the Directorate Generals under the Ministry of Health and Family Welfare (MOHFW).

Program scale-up

All three of these CHW programs have been scaled up nationally in the rural areas. Health care is provided in urban areas through a separate mechanism under the Ministry of Local Government Rural Development and Cooperation.

Monitoring and data use

FWAs register couples and record demographic information, family planning service data, and child's health information, including immunizations. HAs register pregnant women and keep track of the immunization status of all under-five children in their jurisdiction. Both FWAs and HAs record this information on paper registers. CHCPs mainly record information about patient encounters. Unlike HAs and FWAs, CHCPs have a laptop and a modem through which they submit some data online. All of them meet in their own separate monthly coordination meetings, and they align their records and submit to their line supervisors.

Financing

Although external donors, particularly the World Bank and the United States Agency for International Development, provided significant support for the FWA program during the first few decades after its introduction, FWAs and HAs are now supported solely with government funds. The program for Community Clinics and CHCPs has been highly political from the start, being first a signature project of the Awami League government. This program was closed when the opposition party, the Bangladesh National Party, came to power in 2001. When the Awami League returned to power in 2008, the clinics were reopened.² This program is maintained by the Community Based Health Care Project under the Directorate General of Health Services of the MOHFW and supported by a consortium of development partners. The salary of CHCPs is mostly drawn from the Japan International Cooperation Agency along with supplements from the local community, the Government of Bangladesh, and development partners.

Impact

There are no available evaluations of these programs. But different studies involving these CHWs suggest that Bangladesh's remarkable progress in reducing under-five and maternal mortality as well as in expanding the use of contraceptives may be attributed, among other factors, to the strong CHW presence.^{2,6-8}

Challenges

FWAs are supervised by male supervisors. This means that, due to the cultural context, their supervisors cannot accompany the FWAs to observe their work, and thus the quality of their supervision is affected. Many HAs have become older without an opportunity for further career progression. They often develop role conflicts with the newly recruited and younger CHCPs. CHCPs can prescribe medicines and conduct medical procedures even though they have only 12 weeks of training. This often invites questions and criticism, mostly from other cadres of health workers.

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The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

Photo credits: Md. Shahajahan Bari Bhuiyan (Sumon), CHCP, Borarchar Community Clinic, Muradnagar, Cumilla. The photographs on the cover page are as follows: Left: Family Welfare Assistant (FWA) distributing oral contraceptive pill to a beneficiary; Middle: Female Health Assistant (HA) vaccinating a child; Right: Community Health Care Provider (CHCP) measuring the weight of a child

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The BRAC Shasthya Shebika and Shasthya Kormi Community Health Workers in Bangladesh



Taufique Joardar,¹ Dena Javadi,² Jessica Gergen,³ and Henry B. Perry⁴



¹ Multisectoral Nutrition Programming through Implementation Science Activity, FHI 360, Dhaka, Bangladesh

² Alliance for Health Policy and Systems Research, Geneva, Switzerland

³ Public-Interest Designer at Visualst, Maputo, Mozambique

⁴ Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

One-page summary

Background

BRAC, or Building Resources Across Communities, was founded in 1972 and is one of the largest non-governmental organizations in the world. It has been a global leader in developing and scaling up community health worker (CHW) programs to serve Bangladesh's large rural population. More than three decades ago, BRAC trained paramedics modeled on the barefoot doctor approach from China but then shifted the approach in the early 1980s to train local, often illiterate women. The *Shasthya Shebika* (SS) and *Shasthya Kormi* (SK) programs are rooted in a gendered perspective, focusing on the need for female health workers in Bangladesh to address sociocultural barriers to access health care services.

Implementation

In 1990, there were 1,080 SSs. At present, there are approximately 43,000. The SK cadre was introduced in 2002 to supervise the SSs and provide additional antenatal and postnatal care services, in addition to other services. At present there are approximately 4,300 SKs.

Training

SSs receive three weeks of basic training at the local BRAC office. They are trained on family planning; pregnancy identification, treatment of 10 minor ailments; identifying TB patients; sputum collection and providing directly observed TB therapy; basic sanitation, hygiene, and nutrition; eye care; and recordkeeping. SKs receive two weeks of classroom training followed by two weeks of field orientation under close supervision. They are trained on health education, antenatal and postnatal check-up, pre-pregnancy care, adolescent reproductive health and nutrition, and reproductive health and nutrition.

Roles/responsibilities

During monthly household visits, SSs educate families on nutrition, safe delivery, family planning, immunizations, hygiene, and water and sanitation. They also use this time to sell health products such as basic medicine, sanitary napkins, and soap.

SKs supervise SSs. SKs also provide services such as pregnancy confirmation, antenatal and postnatal care, detection of danger signs in mothers and children and referral, education about breast and cervical cancer, breast self-screening, and facilitation of referrals for women with gynecological problems.

Incentives

SSs are given small loans to establish revolving funds, which they use to make some money by selling health products at a small mark-up. SKs work full-time and receive a monthly salary of US\$ 190.

Supervision

Direct supervision of SSs is conducted by the SKs. SKs are supervised by BRAC Area Managers.

Impact

The program is self-sustaining and is widely perceived to have made an important contribution to Bangladesh's remarkable progress in reducing under-five mortality and in contributing to the widely acclaimed success of its national TB control program. BRAC's CHWs have also been instrumental in the success of Bangladesh's national programs for immunizations and treatment of childhood diarrhea.

Historical context

Community-based programming with CHWs has been widespread in Bangladesh, especially through the national implementation of Bangladesh's well-known and highly successful national family planning program, which began in the 1970s.¹ This program trained Family Welfare Assistants (FWAs) to visit every home on a regular basis to promote the uptake of family planning at a time when women were not able to leave the immediate environs of their home.²

BRAC is the largest non-governmental organization (NGO) in Bangladesh. Its multisectoral programs, all focused on women and their empowerment, reach two-thirds of the country.³ In addition, it now has programs in 11 other countries.

Health needs

The health status of the poor and vulnerable remains challenging. Families can suffer a financial catastrophe if a member falls ill. Communicable diseases, poor maternal and child health, and malnutrition are responsible for levels of preventable morbidity and mortality, which remain high. New challenges related to the epidemiological shift to chronic and noncommunicable diseases are arising, along with environmental hazards from air and water pollution, injuries, and unhealthy behaviors such as tobacco use and violence.²

Health system structure

Bangladesh has an extensive three-tiered network of government facilities at tertiary, secondary, and primary levels. However, utilization of government district hospitals and health centers is low, and, in fact, there is a strong mix of public, private, NGO, and traditional providers, leading to a pluralistic and unregulated health system that is minimally regulated.⁴ The government health system provides only 20% of curative services in the country. The public and private sector have a porous boundary — many government doctors also work part-time in private facilities or in their own private office, often siphoning patients from government facilities who are able to pay.⁴ Village doctors (informally trained providers who practice allopathic medicine) are the dominant providers of curative care at the community level.⁵

CHW program features

The development of the SS program has been deliberate, slow, and organic. There was no preconceived national blueprint that was scaled up rapidly. Rather, a viable role was established for SSs that was appropriate for the Bangladeshi context, and BRAC found a way to provide sufficient locally generated financing to motivate them to carry out their responsibilities. Then, as BRAC was able to provide appropriate training and supervision, the program began to grow over the course of two decades.⁶ In 1990, there were 1,080 SSs. At present, there are approximately 43,000. The SK cadre was introduced in 2002 to supervise the SSs and provide additional antenatal and postnatal care services, in addition to other services. At present there are approximately 4,300 SKs.

Scope of work

SSs work part-time in the afternoon, providing services to an average of 450 households through monthly household visits. They hold health promotion sessions where they educate families on safe delivery, family planning, immunizations, hygiene, and water and sanitation, and they look for common and sometimes serious ailments such as common cold, fever, diarrhea, dysentery, and scabies.⁸ They identify patients with a sustained cough suggestive of TB and either directly obtain sputum from them to take for examination at the district health laboratory or refer these patients for diagnostic tests. For patients who test positive, the SSs receive the medicines and directly observe the patient as they take their medicines (known as the Directly Observed Treatment [DOT]). They also sell health products at a small profit, a strategy introduced by BRAC to provide a financial incentive. When people have an illness that the SS cannot manage, they are referred to a government health center or a private clinic operated by BRAC or another NGO.

Activities that SSs carry out include the following:²

- Identifying pregnant women, providing them with health education, and linking them to maternity care
- Supporting SKs in providing antenatal and postnatal care
- Identifying high-risk pregnancies
- Referring women for tetanus toxoid immunization
- Promoting exclusive breastfeeding during the first six months of life and continued breastfeeding with appropriate weaning foods thereafter
- Mobilizing communities for participation in national campaigns such as de-worming, immunizations, and vitamin A supplementation.
- Assisting with the organization of satellite clinics for antenatal care provided by Family Welfare Visitors (FWVs) and with Expanded Program on Immunization (EPI) sessions by Health Assistants (HAs) and FWAs, and mobilizing the attendance of community members
- Bringing family planning clients to government facilities for long-acting and permanent methods
- Treating uncomplicated acute illnesses
- Promoting awareness about reproductive tract infections
- Identifying suspected TB cases, referring them for diagnosis, and providing DOT to the diagnosed TB patients
- Screening for presbyopia (far sightedness) and selling reading glasses

SKs accompany SSs on field visits and monitor and evaluate their activities. SKs help SSs to solve problems encountered during their service delivery. SKs also assist the SSs in identifying patients with TB and glaucoma and providing information and counseling to women regarding family planning. During home visits with pregnant women, they show videos on their mobile phone or on a tablet explaining the danger signs of pregnancy. In addition, SKs provide services such as treatment for common illnesses; confirmation of pregnancy; family planning; antenatal care; assistance in childbirth; care of neonates and children; detection of danger signs in mothers and children and referral; reproductive and adolescent health care; health and nutrition education; and helping to identify patients with symptoms suggestive of TB, getting their sputum tested, and for those who test positive, arranging for DOT provided by the SS.

Selection and training

BRAC works at the village level through Village Organizations (VOs). Each village has six to eight VOs, and each VO has 30–40 members, all of whom participate in BRAC's microcredit savings and loan program. Traditionally, SSs have been selected from the VO groups based mainly on interest and willingness. Now some SSs are selected from women who are not VO members. The identification of prospective SSs is made first by the Gram Committee, which is the local village health and development committee and is made up of 8–10 women, one SS, and one traditional birth attendant. The final selection is made by BRAC staff together with local village leaders and government officials.² To be an SS, a woman must be supported and selected by the community, between the ages of 25 and 40, married with no children younger than five years, and motivated; have at least eight years of schooling; and not live near a health care facility or large bazaar since SSs are supposed to work in hard-to-reach areas or areas with less health service coverage.⁴

SSs receive three weeks of basic training from the local BRAC office. They are trained on family planning; pregnancy identification, treatment of 10 minor ailments; identifying TB patients; sputum collection and

providing DOT; basic sanitation, hygiene and nutrition; eye care; and recordkeeping. Refresher training, done in an interactive and problem-solving way, is central to BRAC's method and serves to keep the knowledge of SSs updated, to provide opportunities for discussion of problems, and to facilitate regular contact. During these meetings, the SSs replenish their supplies, including drugs.⁴

SKs are selected based on the following criteria: they should preferably be VO members, socially acceptable, between 20 and 35 years old, and married. Their youngest child should be more than two years of age. They should be eager to work, have 10 years of education, and not live near a local health care facility or a large market (so that they can work in a more underserved area).^{8,9} SKs receive two weeks of classroom training followed by two weeks of field orientation under close supervision. They are trained on health education, adolescent reproductive health and nutrition, pre-pregnancy care, antenatal and postnatal care, reproductive health (cancer, obstetric fistula, and uterine prolapse and incontinence), and nutrition for women of reproductive age.

Support and supervision

SSs are supervised by SKs, who are also recruited from their communities. SKs verify and monitor performance during their visits to communities, where they have the chance to talk with village women and also visit homes.⁴ The SKs supervise 10–12 SSs, and work 4–5 hours per day. They accompany each of the SSs in their charge on home visits at least twice per month and meet monthly with their group of SSs to discuss problems, gather information, and provide supplies and medicines. BRAC program staff members also participate in supervision. There is a formal link to the local government's health service delivery system for referral when necessary.^{2,4}

SKs are supervised by the BRAC Area Managers. The number of SKs per Area Manager is variable.

Incentives and remuneration

SSs receive no regular, fixed salary. Instead, they are given small loans to establish revolving funds, which they use to make some money by selling health products at a small mark-up. SSs earn an income from selling supplies such as oral contraceptives, birthing kits, iodized salt, condoms, essential medications, sanitary napkins, and vegetable seeds. SSs sell these products at a competitive price that includes a small mark-up above the cost of purchasing them from BRAC. They also receive incentives for good performance that is based on achieving specific objectives during that month, such as identifying a certain number of pregnant women during their first trimester.

The salary of SKs was recently increased from about US\$ 47–190 per month. SKs receive fixed payments from the respective program of BRAC, mostly through its Health, Nutrition and Population Program.

Community role

SSs are accepted by the community because they are from the community and answerable to the community for their activities. They can benefit from increasing respect within the community and can often become opinion leaders.⁶ SKs also enjoy community acceptance since they are recruited from the locality and one of their selection criteria is “social acceptance.”

Linkages with the formal health system

SSs link into the formal government system in important ways: they refer patients to government health centers, to private clinics, or to another NGO when needed; they mobilize communities to attend to monthly Satellite Clinic sessions for immunizations and family planning services and to participate in the government's health campaigns for vitamin A distribution and de-worming. In addition, SSs identify patients with symptoms suggestive of TB and, on selected days, collect sputum specimens from them. A second-level supervisor (the Program Organizer) takes these specimens to the district health facility, where they are tested. Then, patients who test positive are given DOT by the SS under authorization from the government.^{2,4}

Program scale-up

BRAC's community-based integrated programs now reach more than 110 million people in Bangladesh. BRAC has a well-known capacity to maintain quality of programming in the scaling up process by ensuring that standards in training and supervision are met and logistic supply chains continue to function adequately.

Monitoring and data use

SSs and SKs collect household information, including demographic, economic, and health status data. They also submit monthly reports to BRAC.

Financing

Like most other program activities at BRAC, the SS program is subsidized by income-generating activities that BRAC operates at scale, including commercial enterprises in handicrafts, milk and poultry production, printing, and banking.

Impact

Supervisors track SS performance, and BRAC provides support to address challenges as they occur.⁴ One formal study assessed how well SSs managed childhood pneumonia using the protocol approved by the World Health Organization; the study revealed that SSs performed as well as physicians in implementing this protocol.¹⁰ Another formal study¹¹ compared the prevalence of TB in districts where SSs were identifying suspected cases and providing DOT for those diagnosed with TB, finding that the prevalence of TB in BRAC districts was one-half that in control districts.

Both SSs and SKs have been effective in improving child feeding practices and reducing the prevalence of stunting through maternal nutrition counseling.¹² Maternal and newborn health outcomes have improved as a result of community-based intervention packages provided by SSs and SKs.¹³

Challenges

SSs still struggle for legitimacy in the pluralistic health environment, where they may be viewed as second rate and not as good as doctors.⁴ Current challenges include the increasing demand from growing community populations, new health issues such as chronic adult diseases/conditions, and the rapid urbanization of many catchment areas with new types of health challenges.

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The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

Photo credits: BRAC. The photographs on the cover page are as follows: Left: BRAC Shasthya Kormi (SK) providing antenatal checkup to a pregnant woman; Right: BRAC Shasthya Shebika (SS) carrying out a routine household visit.

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The Community Health Agent Program of Brazil



Camila Giugliani¹ and Rose Zulliger²



¹ Family physician, PhD in Epidemiology, Associate Professor in the Social Medicine Department, Federal University of Rio Grande do Sul. Porto Alegre, Brazil.

² Epidemiologist, PhD, MPH, President's Malaria Initiative Resident Advisor, US Centers for Disease Control and Prevention, Maputo, Mozambique

One-page summary

Background

The Brazil *Programa Saúde da Família* (Family Health Program, now called the Family Health Strategy and abbreviated PSF) was launched in 1994. It builds upon several decades of experience in rural underserved areas with Community Health Agents (CHAs). CHAs were legally recognized as professionals in 2002.

Implementation

Each CHA is a member of a Family Health Team and is responsible for providing services for up to 750 individuals living in a geographically defined area. Currently, Brazil has 265,000 CHAs working as part of 43,000 Family Health Teams. Each team includes a physician, a nurse, a nurse assistant and a variable number of CHAs depending on the size and vulnerability of the population served.

Roles/responsibilities

The scope of work for the Family Health Teams varies with location, but most teams provide a comprehensive array of promotive, preventive, curative, and rehabilitative services. CHAs register and follow up the households in the areas where they work and engage their communities in the health care process, strengthening their link to the formal health system.

Training

CHAs are usually selected by the health department in each municipality. They must be literate and live in the community where they will be working. The curriculum comprises 1,200 hours of training divided into formal didactic learning and field training activities.

Supervision

CHAs are supervised by nurses and physicians from the Family Health Teams based at the local clinics with which they are attached. The supervision process varies among Family Health Teams depending on capabilities and needs.

Incentives and remuneration

CHAs are full-time (eight hours per day, five days per week) salaried workers earning in the range of US\$ 281-472 per month.

Impact

Brazil has experienced marked improvements in a wide range of national health indicators over the past three decades, and much of this progress has been attributed to the strength of its primary health care program and the critical role played by CHAs.

Historical context

The Brazilian health system dates back to large-scale vaccination and other public health campaigns that were implemented by sanitary police in the late 1800s and early 1900s. The history of the health system is well-characterized by Paim and colleagues.¹ Briefly, the health system was shaped by the country's tumultuous history. Public health was institutionalized under the Vargas dictatorship in the 1930s and 1940s, and the country's first Ministry of Health was later formed in 1953. A strong private health care system also developed in the 1950s; it continued to expand with the support of the federal government, as did PHC programs. In the 1980s, the country transitioned from dictatorship to democracy, and 1985 marked the start of the New Republic. The Eighth National Health Conference in 1986 established that health is “a citizen's right and the state's duty.”

The *Sistema Único de Saúde* (SUS, or Unified System of Health) was instituted as part of the country's new constitution in 1988. The system has its origins in the struggle for democracy within the country. Government responsibilities for health were then defined broadly as encompassing social and political realities along with traditional medical services.¹ This included the support of efforts to provide free access to health care services as well as social protection, social mobilization, and expansion of social rights to facilitate “community participation, integration, shared financing among the different levels of government, and complementary participation by the private sector.”²⁻⁴ States and municipalities have taxation authority, and federal guidelines originally mandated that 10% of this revenue be allocated to health. More recently, this minimum has been raised to 12% for states and 15% for municipalities.

CHW programs have been implemented in Brazil for decades, including the successful *Visitadora Sanitaria* (Health Visitor) program in which community health workers (CHWs) provided immunizations, information, and various other maternal and child health interventions. The CHA program was initiated in the 1980s as an emergency program in Ceará, one of the poorest areas of Brazil, frequently hit by major droughts.⁵ Its success influenced subsequent PHC programs.⁶

The CHA program started during a drought and followed several successful pilot projects, including a project that trained 6,000 women in 118 municipalities. CHAs received two weeks of training to promote breastfeeding, the use of oral rehydration solution, and immunization uptake.⁷ In 1989, 1,500 of these original 6,000 CHAs were incorporated into a new CHA system, supervised by local nurses. These CHAs provided mostly health promotion and health education services in clearly defined geographic areas near their homes. This program was highly successful and served as a model for subsequent CHA programs.⁵ It did, however, face formal resistance from nurses for a variety of reasons, including a lack of specificity of the CHA roles and overlap of the CHA role with that of auxiliary nurses.⁸ Despite this, based on the initial markedly positive results, the first national CHA program was developed in 1991 and implemented as part of Brazil's first national PHC program; later, it was integrated into the Family Health Strategy (PSF).⁹

The PSF was launched in 1994 to improve the availability of health care for the poorest Brazilians.⁴ CHAs in programs such as the one at Ceará were integrated into the PSF.⁷ In 1996, the federal government transferred control of the management and financing of health care services to the municipal jurisdiction, and in 2002 CHAs were officially recognized as professionals by Law No. 10.507/2002.¹⁰ CHAs originally provided vertical maternal and child health services, but their role evolved such that they became the cornerstone of a much broader set of PHC services.

Based on the early experiences with CHAs in Ceará, three main ideas stood out that guided the formation of the more comprehensive national CHA program that would follow: (1) the solutions for many of the people's health problems can be found within the community; (2) social and medical knowledge are complementary; and (3) education of families through home visits is an important tool for the control of endemic diseases and improvement of epidemiologic indicators.¹¹ The initial success of CHAs was based on their dedication, their commitment to their work, their initiative for problem solving, and the trusting relationships they developed with their supervisors and with the families they served. These values have persisted, leading to continued success of the program.¹²

Brazil has also made important advances in other areas of health care. It was one of the first middle-income countries to provide free antiretroviral medication for patients with HIV/AIDS. It has developed legislation supporting the use of generic drugs, and it has developed a sophisticated process of social participation through health councils.¹³

Aside from the government CHAs, Brazil has another notable cadre of CHWs that have been trained and supported by the Catholic non-governmental organization (NGO) *Pastoral da Criança* (Pastorate of the Child). This NGO has a network of 260,000 volunteer CHWs who promote child survival through low-technology interventions such as the administration of oral rehydration solution for childhood diarrhea.⁴

Health needs

Brazil has been undergoing a demographic, epidemiological, and nutritional transition since the 1970s. During this transition, fertility, infant mortality, and illiteracy have all decreased as life expectancy and urbanization have increased. For example, the infant mortality rate (IMR) declined from 114 deaths per 1,000 live births in 1975 to 14 deaths per 1,000 live births in 2016. Life expectancy increased from 52 years in 1970 to 75 years in 2017. The country also has a strong HIV/AIDS program. Brazil has completely eliminated polio and has almost eliminated measles, diphtheria, and Chagas disease.¹⁴ However, marked social inequalities persist—the richest 1% of Brazilians earn 36 times more than the average income of the poorest 50% of Brazilians.¹⁵ In this context, major challenges concerning infectious diseases remain, such as control of dengue and other viral diseases transmitted by mosquitoes, and the recent return of measles in northern Brazil due to migration in frontier states.¹⁶

Despite positive advancements in health indicators, the country is plagued by increasing levels of noncommunicable diseases, including high levels of hypertension and diabetes.¹ Other persistent health challenges include overuse of health care services and medications, and challenges in the field of reproductive health, such as high levels of utilization of unsafe abortion services, high rates of adolescent pregnancy, and high rates of mother-to-child transmission of sexually transmitted infections.⁴ There is also a large burden of homicide and drug-traffic-related deaths, and the burden of mental health problems is increasing;¹⁷ syphilis, dengue, yellow fever, and visceral leishmaniasis remain important problems.¹⁴

Health system structure

There are three levels of health care in Brazil, but the country strongly emphasizes the first level, PHC, as the entry point to secondary and tertiary care services. PHC includes promotive and preventive components, together with curative and rehabilitative components. Family Health Teams are the main service providers and comprise one doctor, one nurse, one auxiliary (assistant) nurse, and a variable number of CHAs, usually four to six.¹⁸ Secondary care in the public sector, consisting of community-level ambulatory care centers and hospitals that provide specialized care, is underfunded from the public sector, but private sector funding fills in some of the gaps.¹ Tertiary care is provided at specialty referral hospitals, mostly by the private sector and government teaching hospitals.¹

The current health system consists of the government's *Sistema Único de Saúde* (SUS) and a private sector that also includes the private health insurance industry. The private sector is regulated by the National Supplementary Health Agency (*Agência Nacional de Saúde Suplementar*).¹⁰ Private providers are often subcontracted by the SUS to provide a range of services at the secondary and tertiary levels. Coordinating the mix of public and private services remains a challenge for Brazil's health system.¹⁹ The private sector has grown substantially with state support, while the public subsector of PHC services remains often underfunded, which potentially compromises its ability to guarantee quality of and access to PHC.¹ Additionally, private health insurance is disproportionately used in the southeast and south regions of Brazil. Overall, 75% of Brazilians are dependent solely on the SUS for health care. Recently the government has supported the creation and expansion of “popular” private health insurance plans with attractive prices but low quality and limited coverage of services. This represents still another threat to the strength of the SUS.

CHAs recruited by the PSF are given special contracts in order to expedite hiring and provide more competitive salaries than is legislated for civil servants in Brazil. This has many benefits, but it means that CHAs lack job security and fringe benefits afforded to other civil servants, leading to higher staff turnover.¹⁴

Finally, a central feature of the Brazilian health system is the engagement of civil society in decisions about government health programs through the formation of health councils at the federal, state, and municipal levels, along with the periodic use of health conferences (see below).² Public support for CHAs has been important for the expansion and long-term financial backing of the program.

CHW program features

CHAs are closely integrated into formal health services.⁷ They operate as members of Family Health Teams described above that are managed by municipalities.⁷ Throughout Brazil's population of 209 million people, there are 265,000 CHAs working in 43,000 Family Health Teams.^{1,20} These teams are based within PSF clinics and provide services for up to 3,500 people, but they occasionally serve as many as 4,500 people. With four to six CHAs on each team normally, but varying according to the catchment area's population and on demographic, epidemiologic, and socioeconomic criteria, each CHA is responsible for up to 750 individuals.¹⁸ The current PHC policy has removed the recommendation of a minimum number of four CHAs per team.¹⁸ Some teams also include a dentist, an assistant dentist, and special agents for endemics. CHAs are the part of the team that primarily operates outside of the health facility to provide health education, health promotion, and linkage to referral services.³ One study of CHAs in Araçatuba, a city in São Paulo state, found that 83% of CHAs reported good communication within the teams, although some CHAs felt that physicians undermined their work.⁸ Unfortunately, there are no structured opportunities for career advancement for CHAs.

Scope of work

The scope of work for the Family Health Teams varies from place to place, but most teams provide a comprehensive array of promotive, preventive, curative, and rehabilitative services. Key services provided by CHAs include the promotion of breastfeeding; the provision of prenatal, neonatal, and child care; the provision of immunizations; and participation in the management of infectious diseases, such as screening for and providing treatment for HIV/AIDs, TB, and chronic non-communicable diseases such as hypertension and diabetes.^{21,22} CHAs register and follow up the households in the areas where they work and also are expected to engage their communities with the process of care, strengthening their link to the formal health system. However, not all CHAs receive training on community engagement and not all implement this activity.²²

A study by Fausto and colleagues of 585 CHAs in four major metropolitan areas of Brazil identified home visits as their principal activity. Monitoring and support for priority groups, controlling hypertension and diabetes, screening for TB and leprosy, and health promotion and disease prevention actions also are important routine activities. Other activities that were less common included participation in intersectoral activities, social mobilization, and community development. Although there is an expectation from some — who consider health to be a political issue — that CHAs should play a significant political role, their profile is currently more strongly focused on delivery of health services.²²

In the 1990s, CHAs were trained to provide integrated management of childhood illness in the home, including providing prescription antibiotics for children suspected of having pneumonia. This stopped in 2002 following pressure from medical and nursing societies.³ The current national PHC policy issued in 2017 allows CHAs to perform a new set of activities in the home under exceptional conditions and after specific training: blood pressure measurement, blood glucose determination, axillary temperature measurement, wound care with clean dressing techniques, and orientation and support for the correct use of medications in vulnerable households.¹⁸ There is considerable debate around the incorporation of these new activities, and the new PHC policy is facing resistance because of the risk of turning CHAs away from their original roles and responsibilities: health promotion, collection of data about the community's health, community mobilization for participation in health issues, performance of regular household visits to monitor risk

situations, and participation in actions that strengthen the link between programs outside of the health sector that improve the quality of life.²³

Selection and training

The CHAs in the early Ceará program were selected by local health committees. There were two selection criteria: (1) they had to come from and reside in the area where they would be working and (2) they had to be literate.⁷ Today, the selection process is highly variable and is organized by municipalities. It can include written tests, curriculum evaluation, and personal interviews.

CHA training is conducted at the local or regional level using, as a reference, the curriculum developed by the Ministry of Health in 2004 and approved by the Ministry of Education.²⁴ The complete curriculum contains 1,200 hours of training divided into three phases: first a formal didactic phase followed by a field training phase and culminating in a second formal didactic phase. This curriculum includes training on home visits and conducting a family census, and then on specific priority health care interventions according to local needs. Each municipality or state organizes a program of continuing education for CHAs, with monthly and quarterly activities. Those who teach CHAs are required to obtain 80 hours of experience in training about the curriculum.

Training activities for CHAs take into account their previous experience and current knowledge. These serve as inputs to build — through active and participatory methodologies — new knowledge that will enable greater autonomy.¹¹

A nationwide study, performed in four major metropolitan areas of Brazil, found that 30–56% of CHAs did not take the introductory course for working in the PSF. Most of their training was obtained from continuing education courses along with training on selected specific topics.²² Despite the existence of a standard national reference curriculum, the training of CHAs is heterogeneous, with considerable variation across municipalities.

Support and supervision

CHAs are supervised by nurses who are part of the Family Health Teams at the local clinics.²⁵ The supervision process varies from team to team. Supervision is often neglected since the supervising nurses and physicians are frequently overloaded with provision of patient care in the clinic. The role of the nurse as a supervisor is clearly defined, but a protected time to perform supervisory responsibilities is not always assured.

The PSF has a strong referral system. CHAs report any ill person within their catchment area to a nurse, and the CHA may at times accompany the person to the local health facility. Upon the patient's release, the CHA is expected to maintain the continuum of care and follow up with the patient, always in close coordination with the Family Health Team. This important function performed by CHAs helps to ensure accountability of the health system to local health needs.²⁴

Incentives and remuneration

CHAs are salaried, full-time workers. CHAs work full-time (eight hours per day, five days per week) and receive a salary that ranges from 954 to 1,600 Brazilian *Reais*, or approximately US\$ 226-380 per month.

CHAs attribute value to their role when they talk of their close ties to the community, but they complain about their low salary and low status, particularly in comparison with higher-level professionals.²⁶ In order to increase the motivation of CHAs and boost their effectiveness, it is important to understand the main obstacles they face in their daily activities. According to recent studies, these are: failure to be fully integrated into the Family Health Team, inability to follow up on identified health needs due to limited resources, community members' lack of understanding of their work, lack of recognition, low salaries and undervaluing of preventive medicine by both the community and the Family Health Team.^{27,28}

Community role

One of the goals of the PSF program is to promote the organization of the community and to analyze the community's needs.²⁹ Thus, CHAs are expected to serve as the link between Family Health Teams and the communities they serve.⁹ The community is also involved in the oversight of the health system, and some municipalities and states have developed a system in which the public is able to vote on the proportion of the municipal budget allocated to health.

The Brazilian model of social participation in health was created in 1990, together with the creation of the SUS itself. The health councils take their origins from the popular health councils formed by community activists in São Paulo during the early 1980s. The councils demanded greater accountability for health services. This led to the mandatory creation of health councils in all states and municipalities in the country.¹³

There are now health councils operating at the national, state, and municipal level, including more than 5,500 municipal health councils throughout the country. Council membership is allocated as follows: 50% are community members, 25% are health workers, and 25% are health managers and service providers. Health workers are those involved with direct care to patients, whereas health managers are those involved with policy implementation, a more administrative role. CHAs usually participate as health workers rather than community members. Health conferences are also held every four years to guide health policies.¹⁴

Family Health Team members, including CHAs, often participate as members of municipal health councils. However, the engagement of CHAs in issues relating to community development and social participation are still minimal, although many recognize that a stronger role in these activities could be extremely beneficial.²²

Linkages with the formal health system

One of the strongest features of Brazil's CHA program is its close integration both with Family Health Teams and with the broader health system. In most cases, CHAs meet almost daily with the other members of the Family Health Team with whom they work. They begin their day by checking in at the health clinic and often end the day checking in there as well. This close connection is also manifested by the frequent accompaniment of patients by CHAs in their catchment area to the clinic when acute care is needed, and CHAs will often request a nurse or physician from the Family Health Team to come for a home visit when a patient has a problem that is best handled in this manner. Family Health Teams and the clinics where they work have well-developed referral networks, and CHAs often provide follow-up when patients have received care from the local clinic or from a higher-level facility.

Program scale-up

As mentioned elsewhere, the CHA program is an integral part of Brazil's government PHC system, which provides PHC services, including those of CHAs, to two-thirds of Brazil's population of 209 million people.

Monitoring and data use

The PSF has a computerized information system, the e-SUS created in 2013, which utilizes data collected by CHAs.²⁴ Many municipalities have already adopted a completely electronic data system, with CHAs using tablets for data collection during home visits. This is an ongoing process toward a fully computerized system. Where data collection by CHAs is still paper-based, a monthly compilation is done with the supervisor, and then the data is digitized in the e-SUS program. Through the e-SUS, municipal, state, and national level managers can access and analyze the data. The existence and quality of computerized data through the e-SUS is part of the Access and Quality Improvement Program (known as PMAQ), a nationwide program for permanent improvement of primary care, which is currently being revised.³⁰ This has helped to strengthen vital statistics reporting, rapid identification of health problems, and implementation of locally relevant solutions.¹

Financing

The recent health advancements in Brazil have occurred alongside an evolving health system and increased investment in health. Between 1990 and 2010, the proportion of the gross domestic product spent on health increased from 6.7% to 8.4%. Out-of-pocket expenditures have increased steadily as have other expenditures in the private sector such that 57% of health-related expenditures are now from the private sector. The growth of funding for the public sector has been more constrained.¹ Recently, the government approved a constitutional amendment that freezes for 20 years the government's investment in health beyond inflation, which poses a great threat to the expansion and strengthening of the public health care delivery system in the face of growing demands.

The financing of the health system in Brazil is decentralized and arises from a variety of funding sources, including taxes, social contributions, out-of-pocket expenditures, and employer health insurance purchases.¹ The PSF provides services free of charge to recipients, and the program is financed on a capitation basis with incentives for municipalities to increase coverage.^{6,18} Since 1996, states and municipalities have been responsible for the management and financing of health care. Now, states must allocate at least 12% of their total budget to health; municipal governments are required to spend 15% of their total budget on health — a requirement met by 98% of municipalities.

The financing of PHC in Brazil is currently being revised. The changes will be implemented beginning in 2020.

The Brazilian total expenditure on health was 8.8% of its gross domestic product in 2014, but only 3.8% was public expenditure, which is low for effectively maintaining a universal health system.³¹

Impact

Despite the chronic underfunding of its public health care delivery system, Brazil has experienced dramatic improvements in a broad range of national health indicators over the past four decades. This includes marked reductions in maternal, infant, and child mortality as well as in childhood stunting as a result of expanded access to services. There have also been reductions in health disparities within the country. The Millennium Development Goal (MDG) 1 indicator of a 50% reduction in the percentage of underweight children and the MDG 4 indicator of a two-thirds reduction in under-five mortality between 1990 and 2015 were met.^{4,14}

A variety of factors—such as socioeconomic development and conditional cash transfers, for example, the Bolsa Familia Program³²—have facilitated this progress, but the PSF and various health interventions have been critical components.⁴ In 2011, Victora and colleagues used vital statistics, United Nations model life tables, and census data to compare infant mortality in areas with different levels of PSF coverage. They found that while infant mortality was highest within poor communities irrespective of level of PSF coverage, when PSF coverage was higher, the mortality differences between poor and rich communities were less.⁴

Macinko and colleagues used public data from each state to determine the impact of the program on the IMR from the pre-intervention period (1990 to 1994) to the period from 1999 to 2002, when PSF expansion had occurred.³ During this time period, the IMR decreased from 49.7 per 1,000 live births to 28.9 and PSF national coverage increased by 36.1%. The authors found a significant and temporal relationship between coverage by PSF and decreased IMR. A 10% increase in PSF coverage was associated with a 4.6% decrease in the IMR, holding all other variables constant. A different analysis found that the program was associated with a 13–22% reduction in the IMR, depending on the level of PSF coverage.³³ Additional analyses of municipal-level data found that exposure to the PSF program was associated with a reduction in mortality, with the greatest impact on under-five mortality. The programmatic impact was largest in the poorest municipalities as well as in the more rural regions in the country where baseline health indicators were worse.^{29,33}

Concerning other health outcomes, several studies have suggested that an increase in the coverage of PSF has contributed to a reduction in the rate of hospital admission due to PHC-sensitive conditions, especially in geographic areas with low-income communities.^{34,35} Macinko and colleagues³⁵ found that PSF availability was

associated with lower PHC-sensitive hospitalization rates, whereas areas that relied on private or nonprofit hospitals had higher rates. The lowest predicted rates of such hospitalizations occurred in areas with high (>75%) PSF coverage and very few private or nonprofit hospital beds, highlighting the contribution of the PSF to improved health system performance in Brazil.³⁵

Regarding the effectiveness of CHAs specifically, a systematic review found that the greatest benefits have been for maternal and child health outcomes (resulting in more frequent child growth monitoring, greater duration of exclusive and total breastfeeding, and later introduction of bottle feeding). For infectious and chronic diseases, there is also a likely benefit, but the quality of the evidence is low or very low. An effect of CHAs on reducing inequities also appears to be present, although the quality of the evidence is low.³⁶

Challenges

Current challenges within the Brazilian health system include a high turnover of the PHC workforce, lack of integration between different PHC clinics, lack of investment in linkages and integration between PHC and other levels of care, and management challenges, including lack of funding. The aforementioned 20-year freeze in health investments poses a major threat to the SUS and its PHC strategy. Rasella and colleagues have simulated the effects of a likely reduction in the coverage of PSF and conditional cash transfer programs due to fiscal austerity measures, showing that under-five mortality rates will be 9.9% higher in this scenario than if the coverage of these programs remains stable.³⁷ The growing competition between the private and public sectors requires a reconsideration of their appropriate roles.¹ Additionally, patients receive different types of care from private providers depending on whether their care is funded by the SUS or by private health insurance, and there are concerns related to the low quality of care provided throughout both the public and private sectors.

There are perverse incentives for private providers to provide more services (such as cesarean sections) since they are reimbursed by fee-for-service (as is also the case in the United States). There are also rising costs for private health care, and the SUS remains underfunded.^{1,14} Progress has been made toward reducing socioeconomic and regional gaps in service access and in health indicators, but gaps remain and there are questions now being raised about the commitment of the federal government to the SUS.^{10,14}

Current challenges related to CHAs' work, specifically, are addressing chronic diseases more effectively, including mental health and violence, for these have placed growing demands on the PHC system. Moreover, with the new PHC policy, there is a risk that the number of CHAs may decrease, as there is no longer a recommendation on the minimum number of CHAs per Family Health Team. Low salaries as well as the need for more consistent training and more effective supervision are ongoing challenges.

Acknowledgments

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are as follows:

Left: Moab Caldas Health Center, PHC clinic in Porto Alegre, southern Brazil. Family Health Team with CHAs and medical students visiting the households in the catchment area. © 2018 photograph by Marli Colle, Courtesy of the author (CG). Right: CHAs of Cohab Feitoria Health Center in São Leopoldo, southern Brazil. CHAs were gathered to receive first year medical students in their territory. © 2017 photograph by Elson Romeu Farias, courtesy of the author (CG).

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Ethiopia's Health Extension Program



**Zufan Abera Damtew¹, Seblewengel Lemma²,
Rose Zulliger³, Amsalu Shiferaw Moges⁴, Alula Teklu⁵, and Henry B. Perry⁶**



¹ Former Director, Health Extension and Primary Health Service Directorate, Federal Ministry of Health, Addis Ababa, Ethiopia

² Former Director of Research, International Institute for Primary Health Care—Ethiopia, Addis Ababa, Ethiopia

³ Epidemiologist, PhD, MPH, President's Malaria Initiative Resident Advisor, US Centers for Disease Control and Prevention, Maputo, Mozambique

⁴ Immunization Specialist, UNICEF, Addis Ababa, Ethiopia

⁵ MERQ Consultancy, Addis Ababa, Ethiopia

⁶ Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

One-page summary

Background

Community health workers (CHWs) have a long history in Ethiopia, dating back to the time of the 1978 Declaration of Alma-Ata on primary health care (PHC). During Ethiopia's civil war in the 1970s and 1980s, one early program in Tigray trained 3,000 CHWs. In 1997, the Ethiopian Federal Ministry of Health (FMOH) launched its 20-year National Health Sector Development Program (HSDP), which shifted the health system away from a predominantly curative, urban, and facility focus to better meet the needs of its rural inhabitants. The government launched its renowned Health Extension Program in 2004.

Implementation

In Ethiopia, two Health Extension Workers (HEWs) are assigned per *kebele*, which is the lowest administrative unit of the government structure with an average of 1,000 households and approximately 5,000 people. HEWs provide services at their health post and in the community. To extend the reach and effectiveness of the HEWs, the Women's Development Army (WDA) was organized in 2011. The WDA engages communities by organizing five or six neighboring households into teams, with each team selecting a WDA Volunteer from a model household (defined by adoption of healthy behaviors). At present, Ethiopia has approximately 40,000 HEWs and an estimated three million WDA Volunteers.

Roles/responsibilities

HEWs provide health education in households and in communities, prevent disease (such as by giving immunizations), and provide basic curative services (including provision of family planning). The WDA and WDA Leaders promote healthy behaviors and utilization of PHC services.

Training

HEWs are required to complete at least grade 10. They then receive one year of training on basic health promotion, disease prevention, selected curative services, and documentation of health information. HEWs provide informal training for the WDA Leaders.

Supervision

HEWs are primarily supervised by the health center staff, who conduct regular supportive supervision visits to improve the capacity of HEWs to provide health services to the community. The village health committee and community members are also very involved in supporting the HEWs and evaluating their performance. HEWs provide supervision and support to the WDA.

Incentives and remuneration

HEWs are formal, government-salaried employees and received in 2014 a base salary of approximately US\$ 84 per month. The WDA Volunteers do not receive any monetary compensation, but they do receive important non-financial incentives.

Impact

Ethiopia has made notable strides in improvements of health outcomes. Declines in under-five and maternal mortality are among the most notable impacts of the country's efforts. The Health Extension Program and expansion of PHC have made a strong contribution to these results.

Historical context

Community health workers (CHWs) have a long history in Ethiopia, dating back to the time of the 1978 Declaration of Alma-Ata on primary health care (PHC). Community health volunteers with different names—such as Community Health Agents (CHAs), Trained Traditional Birth Attendants (TTBAs), volunteer health promoters, and others—played an early and important role in the expansion of health care provision and health promotion throughout the country’s rural and (more recently) urban communities. These community volunteers were early adopters of healthy practices; they volunteered to practice doable health actions and to share their knowledge and experience with their neighbors and relatives. During Ethiopia’s civil war in the 1970s and 1980s, one early program in Tigray trained 3,000 CHWs. These workers received training in maternal, child, and environmental health and in malaria diagnosis and treatment. The Tigray program was suspended in 1991 at the end of the civil war, but various similar CHW programs spread throughout the country after that.¹

In 1997, the Ethiopian Federal Ministry of Health (FMOH) launched its 20-year Health Sector Development Plan (HSDP), Ethiopia’s long-term plan to implement its 1993 health policy. The HSDP was implemented in four consecutive phases: the first (HSDP I) from 1997 to 2001, the second (HSDP II) from 2002 to 2005, the third (HSDP III) from 2006 to 2010, and the fourth (HSDP IV) from 2011 to 2016. A review of HSDP I (1997-2001) found that challenges remained in increasing access to basic health services for a great majority of the rural population.² This led to a transition from a predominantly curative, urban, and facility focus to include more preventive and promotive services; it also prioritized the needs of the rural inhabitants, who make up 83% of the Ethiopian population.³ Ethiopia’s Health Extension Program has been the foundation of its PHC system since HSDP II beginning in 2002.

Health needs

Despite considerable progress in the past two decades, Ethiopia still has a large burden of communicable and non-communicable diseases, nutritional disorders, and maternal/neonatal conditions.⁴ Infant and under-five mortality declined from 97 to 43 and 166 to 55 per 1,000 live births between 2000 and 2016, respectively. These achievements are mostly attributable to large-scale implementation of promotive, preventive, and curative PHC interventions provided by CHWs.^{5,6} Even with these interventions, however, the maternal mortality ratio for Ethiopia remains quite high, at 412 per 100,000 live births in 2016, although considerable improvement has been made since 2000 when the maternal mortality ratio was 871.⁷ Although 74-86% of pregnant women obtain at least one antenatal care visit, only 43-48% obtain the recommended four visits; only 48-55% of deliveries take place in a health facility, and only 34% of mothers and newborns had a postnatal check within two days following delivery.^{6,8} Low utilization of these maternal care services has contributed to the still-high maternal mortality.⁹ Leading causes of maternal mortality include obstructed/prolonged labor, pre-eclampsia/eclampsia, and malaria.⁴

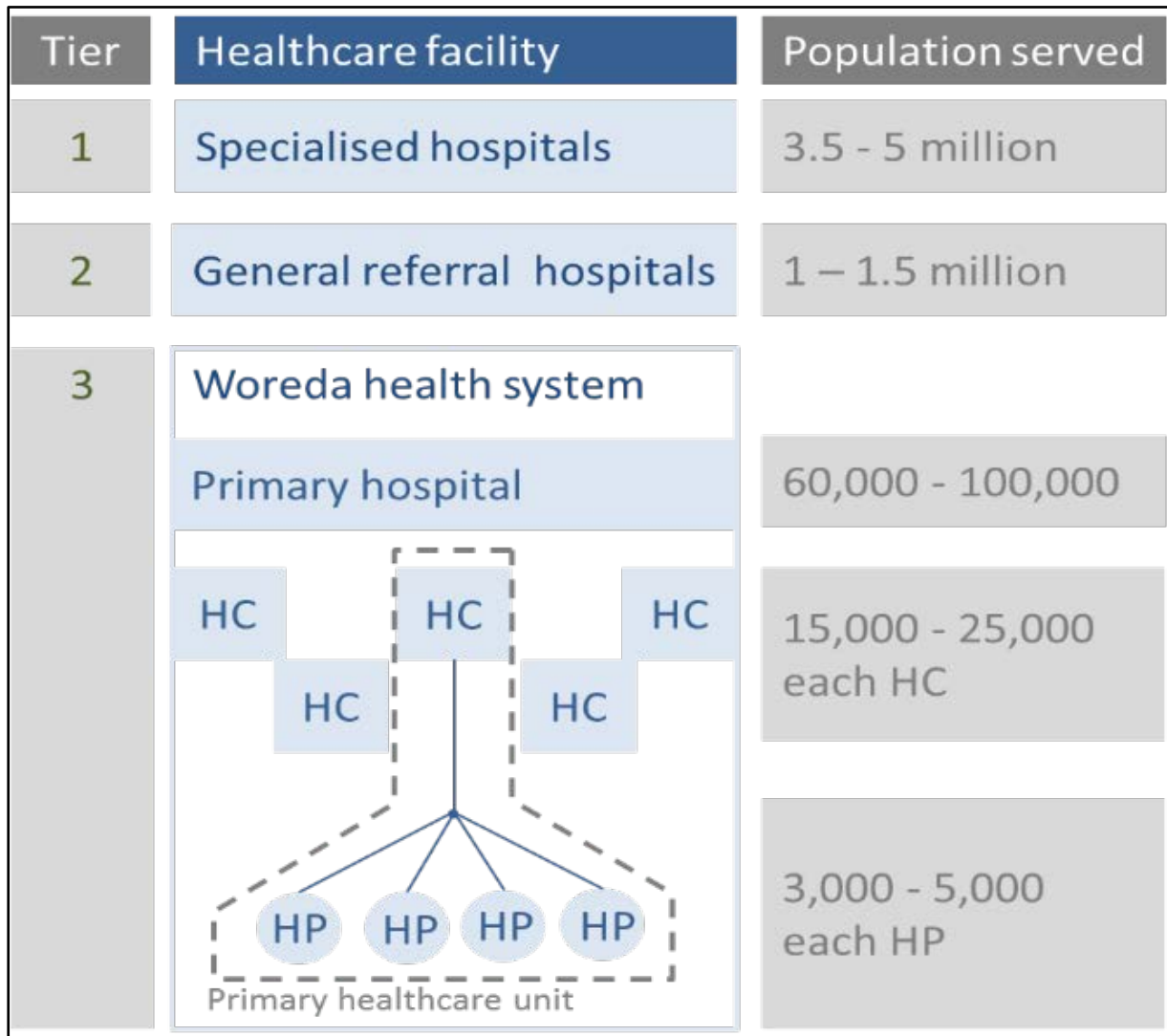
Ethiopia has also made remarkable progress in reducing the burden of malaria, TB, and HIV infection. The national HIV prevalence was 2.3% in 2009. Ethiopia is now one of the few sub-Saharan African countries with a rapid decline of HIV burden, having reduced the number of new HIV infections by 90% and HIV-related mortality by 50% among adults.⁴ Although the national TB cure and treatment success rates are relatively high at 67% and 84%, respectively, it is estimated that only 34% of cases are detected.⁴ Overall, Ethiopia has achieved the health-related Millennium Development Goals (MDGs) of halting and reversing HIV, TB, and malaria, as well as reducing child mortality by two-thirds and maternal mortality by three-fourths between 1990 and 2015.⁴

Health system structure

The Ethiopian health system is decentralized and has three tiers (Figure 1). Tier Three is made up of PHC services of 60,000 to 100,000, consisting of health centers for 15,000–25,000 people (and 40,000 people in urban areas), health posts for 3,000-5,000 people, and one primary hospital for 60,000 to 100,000 people. Thus, each PHC Unit has 4-5 health centers with five or so health posts within the catchment area of each health center. Because of the dispersion of the rural population, houses may be a 3-4-hour walk from a health

post and health posts may be a 4-6-hour walk from a health center. Motorized transport is not readily available. Tier Two consists of general hospitals that each serve 1 to 1.5 million people. The general hospital receives referrals from the PHC Unit, including from the primary hospital. It also serves as the teaching center for mid-level health workers as well as for clinical officers (most of whom are not physicians) who perform general surgery and provide ambulatory services. Tier One consists of specialized/referral hospitals, each of which serves 3.5 to 5 million people, where treatments of complex disease, teaching, mentoring and research take place.

Figure 1. The structure of the Ethiopian health system



Source: ⁸

Along with the expansion of PHC services, the Ethiopian government has embarked upon major expansions in the training of medical students, midwives, and health officers, some of whom are being trained using an accelerated curriculum.¹⁰ This expansion of health personnel training has been in response to major deficits in virtually all levels of human resources for health. To improve the staffing gap and to achieve Universal Health Coverage through PHC, the country’s focus has been on scaling up the training of community and mid-level health workers. The number of medical schools has also increased to overcome the critical shortage and maldistribution of medical doctors.

CHW program features

In response to the disappointing results of the 2002 evaluation of the HSDP I (from 1997-2001), the Government of Ethiopia launched two programs in 2002: (1) the Accelerated Expansion of Primary Health Care and (2) the Health Extension Program in each village.¹¹⁻¹³ The program was modeled after the country's Agricultural Extension Program, which used local extension agents to diffuse agricultural messages throughout the community.¹⁴ The Health Extension Program was designed to expand health service coverage, particularly in rural areas, using community-based human resources such as HEWs (who are salaried CHWs, all female) and also a separate cadre of volunteer CHWs.¹¹ The volunteer CHWs were trained and directed mainly by NGOs. In 2011, the government converted the volunteer CHWs throughout the country into the Women's Development Army (WDA). The WDA consists of a network of neighboring women to increase the efficiency and reach of HEWs. These networks are organized in the community with one WDA Volunteer for every 5-6 households. Every five WDA Volunteers select a team leader (referred to as the "1 to 5 Network." Each team of five WDA Volunteer women with their WDA Leader then works with 30 households (the "1 to 30 Network"). The WDA Leaders receive training on key health actions consistent with the HEWs scope of work and are supported and supervised by the HEWs as well as by the health center and district (*woreda*) health office staff.

The first group of HEWs was trained in 2004–2005.¹⁴ Between 2005 and 2008, approximately 25,000 HEWs were trained and deployed to 15,000 health posts (with two HEWs per health post). Their role was to provide key health services for underserved population.^{15,16} Following the rapid expansion of coverage of the Health Extension Program in rural areas, the program was launched in pastoralist and urban areas in 2007 and 2009, respectively.¹⁷ According to a recent national survey, 97% of Ethiopia's *kebeles* (which is the lowest administrative unit of the government structure with an average of 1,000 households and approximately 5,000 people) have a health post.⁸

Rural HEWs initially provided health promotion and disease prevention services. However, beginning in 2010, they began to receive additional training to treat selected life-threatening diseases, such as childhood pneumonia, diarrhea, malaria and severe acute malnutrition. Each health center in rural areas serves about 25,000 people (fewer in areas with pastoral populations), and each health center has on average five health posts and 10 HEWs in its catchment area.

HEWs constitute a formally recognized health cadre that has strong political support. HEWs collaborate with the WDA Leaders and provide training and mentorship. HEWs are full-time government employees who provide basic health service at health posts, households, and schools, as well as in other locations in the community. HEWs link the community with health facilities. Initially, they dedicated 75% of their time to community outreach activities and the remainder at their health post.^{18,19} However, recent reports indicate that HEWs spend about 50% of their time in the health posts.¹⁷

Scope of work

The main role of the HEW is health promotion, disease prevention (including immunization), provision of family planning services, treatment of selected illnesses, and documentation of community health status. They also provide counseling and distribute health commodities, such as long-lasting insecticide treated nets (ITNs), condoms, and other contraceptives (including injectable contraceptives and long-acting sub-dermal implants) at the community level. In addition, HEWs provide ongoing support to people with a chronic illness (e.g., HIV/AIDS), and mobilize the community for health campaigns.

The WDA Volunteers provide services such as disease prevention, health promotion, and health education; they also support HEWs to mobilize their communities to participate in health campaigns. WDA Volunteers are expected to model healthy household behaviors for their neighbors and share information with their communities regarding latrine construction, proper waste disposal, personal hygiene, safe water storage, creation of a healthy home and living environment, ANC, immunization, promotion of healthy infant feeding, and family planning.²⁰ Other persons in the community who provide additional support for health-

related activities include elders, community counselors, peer educators, and home-based care providers of HIV-related support services.¹⁹

Selection and training

HEWs are usually young women (at least 18 years of age) who have completed 10th grade. Preference in selection is given to candidates who are from or close to the same community they will serve. However, if suitably educated candidates do not exist in the *kebele*, preference is given to candidates from a neighboring *kebele* who meet the selection criteria. Hence, in virtually all cases, HEWs understand the language, culture, lifestyle, behaviors, and practices of the local community and are thus able to work effectively with the communities in their catchment areas. Although in theory HEWs are supposed to work in or close to their community of origin, one study reported that only a small percentage of interviewed HEWs were working in the village where they were born, and 52% were originally from urban areas.¹⁵ Community members and representatives from district health offices, from the offices of education and women's affairs, and from offices of other relevant sectors select the HEWs.

HEWs receive one year of pre-service training from a technical vocational training institute or from a health college. HEW training is conducted in collaboration with the FMOH and the Ministry of Education. HEW training includes didactic and clinical training in modules on (1) family health services, (2) disease prevention and control, (3) hygiene and environmental sanitation, (4) health education and communication, and (5) documentation and health information. HEWs also receive in-service training every two years to build on their initial training and develop new competencies. Most HEWs underwent multiple continuing education trainings on malaria and reproductive health, among other subjects. There was, however, little coordination among these trainings, leading to duplication of efforts and wastage of time and resources. There is widespread agreement that the quality of training provided to HEWs needs improvement. In order to provide standardized and harmonized in-service trainings for HEWs, the FMOH developed its Integrated Refresher Training approach.

HEWs expressed a desire for additional training on other topics such as basic nursing care, attending deliveries, and treatment of children with common childhood diseases.²¹ Since 2010, HEWs have received trainings on Integrated Community Case Management (iCCM), enabling them to manage life-threatening childhood illnesses at the community level, including pneumonia, diarrhea, malaria, malnutrition, measles, and ear infections.²² Almost half (48%) of HEWs have now received sufficient additional training to enable them to move to a higher grade (Level IV) and earn a higher salary.⁸ However, 25% of HEWs have still not completed their full formal certification examination.⁸

Support and supervision

HEWs are mainly supervised and supported by the health center staff, with whom they work closely. According to a study carried out in 2005, HEWs had relatively high levels of supervision: each HEW had an average of three supervisory visits over the course of nine months.¹⁵ A more recent assessment reported that 78% of HEWs had been supervised in the previous six months by health center staff and 47% had received supervision from staff at the district (*woreda*) health office.⁸ In addition, the village health committees and the *kebele* administration are very involved in the support and supervision of the HEWs. Representatives of the community regularly review the local performance of the Health Extension Program and provide relevant support based on the local context

HEWs provide training, supervision, and support to the WDA Volunteers.

Incentives and remuneration

HEWs receive a government salary equivalent to approximately US\$ 84 per month on average. When HEWs obtain further training and pass a competency exam, they move to a higher level of responsibility and obtain a salary increase. Opportunities for career advancement are envisioned, enabling qualified HEWs to obtain training to become a higher-level health care provider or health leader.

The WDA Volunteers do not receive any monetary compensation, but they do receive non-financial incentives such as formal recognition from the health system, ongoing mentorship by HEWs, certificates, and recognition by the community and local leaders.

Community role

Village health committees and the *kebele* administration are involved in the selection and oversight of HEWs. Additionally, the *kebele* council members are involved in every step of the Health Extension Program, from planning to evaluation. Representatives of the community regularly review the performance of the program and provide relevant support based on the local context.¹⁵

By 2008, about 25,000 HEWs had been trained, leading to substantial increases in health service coverage. The percentage of the population that was served by the program has increased from 61% in 2003 to 87% in 2007.²³ As of 2019, about 40,000 HEWs were deployed in rural, pastoral, and urban areas.

Linkages with the formal health system

HEWs are considered the “backbone” of the formal health system. They are in frequent contact with the health center staff through monthly meetings and through supervisory visits of the health center staff (and less frequently from staff at the district (*woreda*) health office). Referral care is good since most health centers have an ambulance that can come out to the health post or to a village to transport mothers in labor and emergency cases to the health center or the primary hospital.

Program scale-up

As mentioned above, the Health Extension Program scaled up rapidly. As the number of HEWs was expanding rapidly from 0 in 2003 to around 40,000 at present, the number of health posts increased rapidly as well, from 2,899 in 2004 to 16,480 in 2016.⁵

Monitoring and data use

HEWs collect household data using a family folder; this folder is given a number that corresponds to the number of the household in a community census/map, which the community creates with support from the HEW. This information has practical value for the HEW since she uses it to guide her work when she goes to the community and visits priority households, often together with the appropriate WDA Volunteer.

The Community Health Information System (CHIS) is part of the District Health Information System and the national Health Management Information System. The Health Extension Program has extensive monitoring and evaluation systems that include routine reports and monitoring of indicators for maternal, neonatal, and child health, as well as for disease prevention and control, nutrition, hygiene, and environmental health. Among the indicators that the HEWs report on are the number of clients receiving contraceptive supplies, TB case detection and cure rates, number of children immunized with specific vaccines, and proportion of households using latrines. The report compiled by HEWs is evaluated monthly by the *kebele* administration, which offers support to address problems encountered. Increasing emphasis is now being given to vital events registration and to digitization of the CHIS.

Financing

The health system is financed by national and sub-national government entities, bilateral and multilateral donors and NGOs, as well as through out-of-pocket expenditures. Although government expenditures are steadily increasing, per capita government health spending is lower compared to many other sub-Saharan African countries. In 2016/17 the government’s total annual per capita allocation for health was US\$ 10 compared to the World Health Organization (WHO) minimum recommendation of US\$ 85 for low-income countries.^{24,25} Major donors to the Ethiopian health sector have included UK Aid; the GAVI Alliance’s Health System

Strengthening Program; the Global Fund to Fight AIDS, Tuberculosis and Malaria; the Carter Center; the British and American governments and other bilateral and multi-lateral organizations, such as United Nations Children’s Fund (UNICEF), United Nations Population Fund (UNFPA), WHO, and the World Bank.¹⁰

According to a report published in 2007, the costs for one HEW were as follows: US\$234 for training; US\$178 for the apprenticeship; and US\$ 84 for their monthly salary.²⁶ The projected costs for implementation of the Ethiopian Health Sector Transformation Plan between 2016 and 2020 were prepared under two scenarios: the base-case scenario to achieve the target set for the Health Sector Transformation Plan, and the best-case scenario to achieve a much more ambitious target. The total cost estimates for the base- and best-case scenarios are US\$ 16 billion and US\$ 22 billion respectively, of which 55% (in the base-case scenario) and 62% (in the best-case scenario) is dedicated to PHC services. Ethiopia’s financing and planning are decentralized, and the districts (*woredas*) receive block grants to cover the expenses of the Health Extension Program.

Impact

The Health Extension Program with its CHWs has demonstrated success in many aspects of health service delivery. The percentage of pregnant women and under-five children using an ITN rose quickly to 44% in malarial regions.^{18,27} Significant, positive associations were also found early on between exposure to the Health Extension Program and child vaccination uptake, utilization of ANC early in pregnancy, and proper disposal of babies’ stools.¹⁸ Additionally, there were early increases in institutional deliveries and tetanus vaccination coverage.²⁸ In 2009, ANC coverage was 68% and postnatal care coverage was 34%, although only 11% of deliveries were performed by HEWs and the percentage of deliveries performed by skilled health personnel increased to only 18%. Full immunization coverage has now reached 66%. HEWs have made an important contribution to improving the effectiveness of TB control at a modest cost.²⁹ The under-five mortality has declined from one of the highest in the world in 1990 (204 per 1,000 live births) to 67 in 2016, enabling Ethiopia to reach the MDG for child health—one of the few African countries to achieve this. Although still high, the country’s maternal mortality ratio declined from 950 per 100,000 live births in 1990 to 412 in 2016.⁹ In addition, Ethiopia has achieved one of the “most rapid and unprecedented” expansions of contraceptive prevalence in Africa and, in fact, the world, with the contraceptive prevalence rate increasing from 8.2% in 2000 to 35% in 2016.⁹ HEWs are widely seen, both within and outside of Ethiopia, as one of the major reasons these remarkable results have been achieved.¹⁴

Ethiopia achieved all of the health-related MDGs, and the contributions of HEWs and the WDA Volunteers to these achievements are widely regarded as very significant.³⁰

Challenges

The Health Extension Program has faced a number of challenges in its implementation, including delayed construction of health posts, delayed provision of health kits to HEWs, and deficiencies in training.²³ The reach of HEWs is also limited in some settings.¹⁸

Analysis of strengths, weaknesses, opportunities, and threats have identified numerous drawbacks in the Health Extension Program, including low health service utilization; weak referral systems; low service quality; shortage of drugs, medical supplies, and equipment; and lack of a bona fide career trajectory for HEWs (although the plans for one have been widely publicized). More than half of health posts are lacking basic medicines and equipment required to function effectively.⁸ The analysis also raised a concern that the increasing number of tasks allocated to HEWs and their growing workload will compromise their ability to complete their tasks.

The selection and training of HEWs has room for considerable improvement. Training institutions should be better supported to provide a higher quality of education, and more stringent assessments of the trainees needs to be carried out before allowing trainees to graduate.

There is a widespread agreement in the population that health posts should provide additional clinical and curative services beyond what are currently being provided. Even so, there is still concern in the population about the clinical competencies of the HEWs even though they are a trusted source of information.

The recent national assessment of the Health Extension Program reported that only one-third (31%) of households in total areas had received a home visit from an HEW during the previous year, and only one-half (55.1%) had ever received a visit.⁸ Reformulation of the role of HEWs and the WDA in order to obtain optimal coverage of services and even adding more staff at the health post will need to be considered.

The health posts themselves need upgrading, since only one-third (37%) meet building standard and a majority do not have water or electricity.⁸ The recent national assessment of the Health Extension Program recommends that health posts be classified according to their distance from a health center so that those further away can have a stronger and more comprehensive capacity.

In spite of these challenges, the government of Ethiopia is highly committed to providing all the required support to enhance the flagship Health Extension Program and keep it in the vanguard of PHC programs in Africa. This will require, among other things, continuing to strengthen the capacity of HEWs and health posts to address the burden of chronic, non-communicable diseases. And, of course, strengthening as well as expanding the Urban Health Extension Program is a necessity, with adaptations that appropriate to the realities of urban life, including the fact that most people work away from home during the day. Continued expansion of financial support for health posts, HEWs, and community-based service delivery will be essential as well as weaning the Health Extension Program from donor support, which currently provides 73% of the funds for the program.⁸

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are as follows: Left: A CHV in Benishangul, Ethiopia, refers a child to a district health facility. © 2011 Yolanda Barbera Lainez/IRC, Courtesy of Photoshare. Right: A health worker holds up artemisinin-based combination therapy pills (ACTs) for malaria treatment in Ethiopia. © 2007 Bonnie Gillespie, Courtesy of Photoshare.

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Ghana's Community Health Officers and Community Health Volunteers



George Mwinnyaa¹, Tanya C. Jones², Patricia Antwi, Elizabeth Chan³, James F. Phillips⁴, and John Koku Awoonor-Williams⁵



¹ PhD Student, Johns Hopkins University Bloomberg School of Public Health, Baltimore, Maryland

² Dean's Research Fellow, Dartmouth College

³ JD Candidate, University of Toronto Faculty of Law, Toronto, Canada

⁴ Mailman School of Public Health, Columbia University, New York, New York

⁵ Ghana Health Service, Accra, Ghana

One-page summary

Background

Ghana's national Community-Based Health Planning and Services (CHPS) policy was adopted in 1999 and implemented in 2000. CHPS operations represent a response to early evidence emerging from the Navrongo Community Health and Family Planning Project in northern Ghana (1996-2003) showing that community-based primary health care improved childhood survival and reproductive health care. Two community health worker cadres were established in 1999: (1) the Community Health Officer (CHO), a full-time, government employee who resides and works in the community he/she serves and (2) the Community Health Volunteer (CHV), a part-time unpaid worker who supports the CHO. In early 2016 the government introduced a third cadre called Community Health Workers (CHWs) who were temporary employees of the National Youth Employment Agency. After a new government was elected in late 2016, the program stopped.

Implementation

CHOs deliver health services to a population of approximately 5,000 people in a demarcated area of a district known as a CHPS Zone. The community selects at least two CHVs to work with each CHO. There are now 2,523 trained CHOs operating across 5,062 functional CHPS Zones with an active community health committee. In addition, there are 19,411 active CHVs who support the CHOs.

Roles/responsibilities

CHOs provide maternal and reproductive health services, neonatal and child health services, treatment of minor ailments, health education, and referrals, many at the level of the household. CHVs support the CHO with service delivery tasks and community mobilization, and they assist community members in their homes.

Training

CHOs first obtain training as a Community Health Nurse (CHN), receiving two years of training at an accredited Community Health Nursing Training School. Upon graduation, many CHNs receive two additional weeks of training, mainly on community engagement and mobilization, and complete an internship in order to become a CHO. CHVs receive five days of training.

Supervision

CHOs are supervised monthly by public health nurses, physician assistants, and Sub-district CHPS Coordinators. CHOs supervise CHVs monthly. Community Health Management Committees also supervise the work of the CHVs.

Incentives and remuneration

CHOs are full-time salaried employees of the Ministry of Health. The starting monthly salary is around 800 Ghana *cedis* (about US\$ 140). Additional incentives for CHOs include extra paid leave days and the opportunity to advance their education with paid educational leave. CHVs are part-time health agents and do not receive remuneration. Incentives given to CHVs include T-shirts, transport per diem, and, on occasion, bicycles.

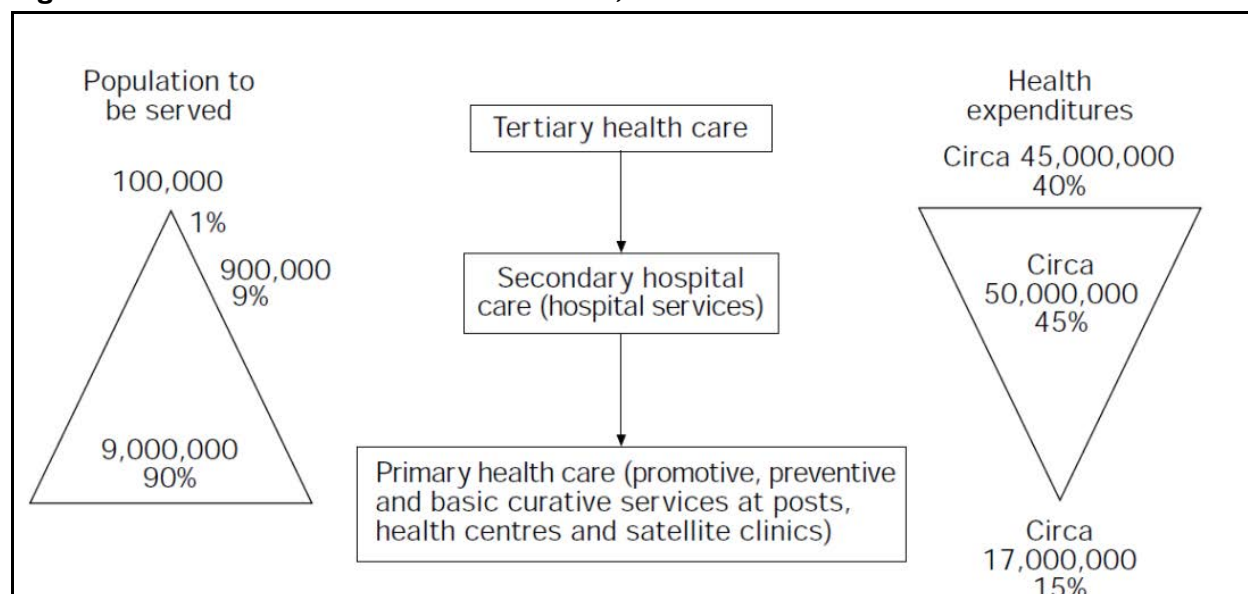
Impact

The CHPS model combines resident CHO health services with CHV mobilization. Several studies have demonstrated the impact of CHPS on maternal health. However, no countrywide, large-scale impact evaluations have been conducted on the CHPS program.

Historical context

The government has been concerned with primary health care (PHC) delivery since independence in 1957. For the last five decades, even prior to the 1978 International Conference and the Declaration of Alma-Ata, Ghana's Ministry of Health (MOH) had emphasized the value of a PHC approach — and the corresponding need to reduce spending on hospital infrastructure and increase investment in community-based care. In a 1977 policy document, the MOH placed priority on addressing preventable diseases and engaging community members in the process, stating, “It [PHC] will involve the virtual curtailment of the sophisticated hospital construction and renovation and will require a re-orientation and re-deployment of at least some of the health personnel from hospital-based activities to community-oriented activities.”¹ At that time, the MOH spend 85% of its budget on hospital care and only 15% on PHC (Figure 1). And, outreach services beyond health facilities accounted for only a small percentage of PHC expenditures.

Figure 1. The health care dilemma in Ghana, 1978²



Background of Community Health Volunteers

In the 1970s, the government began experimenting with the use of community health volunteers (CHVs) as rural health care providers in two large development projects. In 1970, the Danfa Comprehensive Rural Health and Family Planning Project was launched by the Ghana Medical School, and in 1975 the Brong Ahafo Regional Development Project (BARIDEP) was established by the MOH and the World Health Organization.

The Danfa Project was introduced as a service and research project to determine how to optimally deliver family planning services in rural Ghana.³ The project provided family planning services and health education by training and deploying a total of 140 health education assistants, village health workers, and traditional birth attendants.³⁻⁶ These CHVs offered child immunization services, malaria chemoprophylaxis, and growth monitoring.

While the Danfa Project was underway, the MOH launched the BARIDEP Project in a different region of the country. The goal of the project was to foster community participation in the delivery of PHC. To achieve this, communities selected volunteers to be trained for 4–6 months by MOH staff as Community Clinic Attendants (CCAs).⁷ Communities were expected to provide salaries and in-kind support to the CCAs, while the government covered the costs of training, CCA supervision, and pharmaceuticals. In total, 30 CCAs were trained and deployed. Over the course of the five-year project, BARIDEP communities found it difficult to pay CCA salaries, and the MOH was often unable to supply commodities for CCAs or provide regular

supervision.⁸ Not surprisingly, when these programs were scaled up, the challenges experienced earlier with salary and logistical support as well as supervision persisted.⁹

In the 1980s, the MOH departed from volunteer-led PHC programs and introduced a new type of community health worker -- a more highly trained paraprofessional called a Community Health Nurse (CHN).¹⁰ CHNs worked from fixed sub-district health facilities and provided occasional outreach services in communities. Though government sponsorship resolved the challenges posed by a volunteer-led PHC model by providing salaries to CHN along with appropriate supervision, the CHN model faced challenges in reaching residents in outlying villages because CHNs spent almost all of their time in health centers or health clinics and patients needed to travel to them. CHNs occasionally conducted outreach services, but community engagement and mobilization were limited. Further investment in community-based care was forestalled due to the debt crisis of the 1980s which enveloped many low-income countries in Africa and Latin America. In 1985, as a condition of structural adjustment loan agreements with the World Bank, the President of Ghana, J.J. Rawlings, introduced user fees for health services, known locally as the “cash and carry” system, which brought additional hardship to the rural poor.¹¹ With the retrenchment in government funding for the public sector, Ghana’s PHC initiatives flagged. By the close of the 1980s, only a quarter of the MOH budget was allocated to PHC¹² and only 65% of the population had access to public or private health services.¹³

Background of Community Health Officers

When the global economy rebounded in the mid-1990s, the leaders of Ghana’s MOH revived their commitment to developing a strong PHC system. Beginning in 1994, the MOH — in collaboration with an international team of social scientists from Ghana and the United States — developed an experimental study in northern Ghana. This research trial, known as the Navrongo Community Health and Family Planning Project, was situated in a remote district in northern Ghana and led by the Navrongo Health Research Center. The Navrongo Project sought to determine whether deploying CHNs to live in villages and serve a population of approximately 5,000 people around it with support from CHVs would be a more effective method of PHC delivery than the outreach model of the 1970s.^{14,15}

From 1995 to 2003, the Navrongo Project demonstrated that community mobilization combined with the door-to-door services of a resident nurse, known as a Community Health Officer (CHO), dramatically increased service utilization and led to a decline of the under-five mortality rate from 212 to 100 deaths per 1,000 person-years (1995 to 2003) and a decline of 15% in the total fertility rate (also from 1995 to 2003).¹⁶ These results drew Ghana’s PHC orientation away from reliance on a volunteer cadre for provision of health services to utilizing a trained, supervised, and government-employed resident nurse. The MOH adopted this PHC model as national policy in 1999 based on the Navrongo evidence and demonstrated success in replicating the model outside of the experimental setting in a district in the Volta Region.¹⁷ Now known as the Community-Based Health Planning and Services (CHPS) Initiative, the CHPS model is being implemented in all regions and districts of the country and is the main national strategy for the delivery of PHC in Ghana.

CHOs are trained initially as CHNs but are provided with supplemental training in community engagement that includes a community-based internship. As CHPS has progressed, however, the job functions and roles of CHNs and CHOs have converged. Their roles are typically indistinguishable, and the great majority of CHNs are working in CHPS Zones carrying out work indistinguishable from that of CHOs.

Background of the Short-lived Community Health Worker Initiative in 2016

As part of the initiatives to address the high youth unemployment in the country, the government created a program under the National Youth Employment Agency which provided short-term training followed by the deployment of youth to various sectors across the country. Under the youth employment program, a new cadre of workers was introduced to address the challenge of CHV fatigue (by providing a salary) and to strengthen the provision of health activities at the periphery. Those selected included graduates of secondary- and tertiary-level schools. It was envisaged that CHVs who had completed secondary school, had the support

of the community, and had served for three years as a CHV could become a CHW in this program, thereby providing for career advancement and for an opportunity to move from a volunteer to a salaried position.

This new cadre of CHWs received six weeks of structured training using participatory and interactive methods on topics such as community mobilization, disease surveillance, health promotion, management of medical emergencies, home visiting, community-based care for HIV/AIDS, TB, identification and treatment of malnourished children, childhood illnesses, and family health. The youth employment CHW cadre was expected to complement the activities of the CHPS initiative. These CHWs were expected to support the CHOs with home visits, health promotion, and Integrated Community Case Management for Childhood Illness, disease surveillance, and other health interventions at the community level.¹⁸ In early 2016, 20,000 youth employment CHWs were recruited and selected by the Agency and trained by District Health Management Teams to provide health education and services at the community level and support the work of CHOs. The youth employment CHWs were expected to serve for two years and receive a monthly stipend of US\$ 100 from the government's Youth Employment Agency.¹⁹ However, this youth employment CHW program ended at the end of 2016 following a change of government. The program was an attempt to provide a two-year paid-job opportunity to the teeming ranks of unemployed youth who would then exit after two years to make room for a new batch. This program however, ended abruptly after two years of its implementation.

Health needs

In 2010, Ghana was designated a lower-middle-income country by the World Bank.²⁰ Despite improved national economic indicators, maternal and child mortality remained high compared with other countries with similar incomes and health spending levels.²¹ As of 2015, the under-five child mortality rate was 62 deaths per 1,000 live births, a decline from 101 deaths per 1,000 live births in 2000.²² The under-five mortality rate further declined to 50.8 per 1,000 live births in 2018. The infant mortality rate declined from 39.9 per 1,000 live births in 2015 to 35.1 per 1000 live births in 2018.²³

The leading causes of under-five child mortality are pneumonia and malaria, with a high burden of neonatal causes, including pre-term complications and birth asphyxia.²² The top causes of maternal deaths include hemorrhage (25% of maternal deaths) and pregnancy-related hypertension (16% of maternal deaths).²² Ghana also suffers from a high prevalence of stunting and underweight in under-five children at 23% and 13%, respectively.²⁴

The contraceptive prevalence rate among women aged 15–49 was 27% in 2014, only a 2% increase since 2003.²⁵ The percentage of births attended by skilled health personnel increased from 47% in 2003 to 74% in 2014.²⁵

In 2015, 89% of the Ghanaian population had access to improved drinking water compared with 56% in 1990.²² As of 2015, 19% of the Ghanaian population reported practicing open defecation, only a slight decline from 22% in 1990.²² This prevalence of open defecation is even higher in rural communities.²²

Health system structure

The MOH oversees the health sector and is responsible for the development, monitoring, and direction of national health policy. Established in 1996, the Ghana Health Service is an autonomous executive agency of the MOH responsible for health service delivery. The Ghana Health Service operates at the regional, district, sub-district, and community levels.

Within each district, Ghana's PHC system has three tiers to facilitate the provision of PHC services backed by a strong referral system. The three tiers include:

- Level A (community level). This includes the frontline health workers (CHOs and CHVs) operating in village settings from CHPS compounds and conducting outreach services by providing health education along with preventive and basic clinical care in CHPS Zones.

- Level B (sub-district level). At this level, a sub-district health management team works with physician assistants, registered nurses, field technicians, midwives, and CHNs/CHOs to coordinate health services. There are also sub-district clinics and health centers.
- Level C (district level). This consists of the district hospital, the district health administration, and the district health management team. This group is responsible for the execution of all health services in the district, including planning, coordination of supervision, and monitoring and evaluation.²⁶

As of December 2019 there were 5,506 functional CHPS Zones compared to 4,400 in 2016 and 4,000 in 2015 (Level A).²⁷ There were 1,800 health centers/clinics (Level B), and 400 hospitals (Level C), 32 polyclinics, and 326 midwife/maternity facilities.²⁸ Like many sub-Saharan African countries, Ghana's health sector is constrained by a limited supply of physicians.²⁸ As a result, the MOH has had to task-shift services normally provided by physicians to other cadres of staff. In 2014, the MOH employed 3,016 physicians, resulting in a physician-to-population ratio of 1:9,043.²⁸

CHW program features

Due to the government's investment in establishing new Community Health Nurses Training Schools beginning in 2003, the number of CHNs increased from 6,300 in 2010 to 15,900 in 2014.²⁶ As of December 2019, there were 19,273 active CHVs and 2,523 trained CHOs working across the 5,506 functional CHPS Zones. In 2016, a temporary cadre was created called CHWs to provide employment to youth with a secondary- or tertiary-level of education. However, the program ended only a few months later with the transition to a new government.

Scope of work

CHPS is the government's main strategy for attaining Universal Health Care and meeting the health-related Sustainable Development Goals by increasing geographic access to health services. In 2016 the MOH revised the CHPS policy which had been originally adopted in 1999.

At present, the minimum package of services provided by a CHO in a CHPS Zone consists of the following:

- Maternal and reproductive health services, including antenatal care (auscultation; palpation; measuring fetal growth; assessing for anemia, educating about and looking for danger signs in pregnancy, checking for protein in urine; providing iron supplements and malaria prophylaxis; counseling on birth preparedness and breastfeeding), conducting emergency normal deliveries, providing family planning services (described in further detail below), and referring women who need advanced care to the appropriate health facility;
- Neonatal and child health services, including growth monitoring (measuring weight and height), physical examination, immunization against childhood diseases (including polio, TB, pneumonia, tetanus, mumps, hepatitis, influenzas, measles, yellow fever, and rubella) through the Expanded Program on Immunization, as well as providing nutritional education and counseling mothers according to findings;
- Integrated management of childhood illness (IMCI), providing treatment for childhood illnesses such as malaria, diarrhea, pneumonia, and fever, using the IMCI guide, and referring children with more serious illnesses to health facilities such as the sub-district health center/clinic, a polyclinic or a hospital depending on the condition and the care needed;
- Management of minor ailments, prevention and treatment of communicable diseases in adults including malaria, fever, diarrhea, acute respiratory diseases, treatment of minor cuts and wounds; referral of more complicated cases to health care facilities; and monitoring and providing treatment support for TB and HIV patients;

- General health education on sanitation and hygiene practices, and counseling on healthy lifestyles and good nutrition; and,
- Follow-up for patients referred to higher levels of care (e.g., to district hospitals).²⁶

Family planning includes “Counseling on all methods, education on preferred method, administration of method (i.e., condoms, combined oral contraceptives, injectables, implants), and referral for other or permanent methods.”²⁹ Midwives, formally trained and employed by the government, are based at some but not all CHPS compounds. As of 2018, 15% of all CHPS Zones in Ghana had midwives to provide antenatal and delivery care as needed and to work with the traditional birth attendants already in the community to monitor pregnant women. In the absence of a midwife, the CHOs carry out all the responsibilities of the midwife, including deliveries, and refer complicated labor cases to facilities with a midwife or physician.

All clinical care included in the CHPS package of services is provided by the CHO or other nurse or midwife, as available. The range of services may be provided in the CHPS compound or through home visits. On average, CHOs carry out two to three outreach services per week, including holding child welfare clinics and visiting schools and homes, but services vary across CHPS Zones and depend on the number of CHOs in a CHPS compound, the workload at the CHPS compound, the availability of a functional means of transport, and the condition of the roads to the targeted communities. Outreach visits can take a whole day depending on the activities planned (child welfare clinic, antenatal clinic, school visits, home visit), the distance of the community to be visited, and the number of people in the community who may need certain services, e.g., mothers with newborn children, children younger than five years of age, or women who need family planning services. Some CHOs are posted to the sub-district, district, and regional health facilities, such as health centers/clinics, polyclinics, and hospitals in addition to their responsibilities in the CHPS Zone. At these higher-level facilities, they provide family planning and child health services, including immunization and growth monitoring. In this case, the CHOs do not manage antenatal care or treat ailments, but rather providers such as physician assistants, midwives, and registered nurses usually handle such cases.

CHPS is implemented in all 10 regions of the country (In 2019, Ghana created six new regions resulting in a total of 16 regions, but all information in this review is based on the original 10 administrative regions). The CHPS strategy is designed to bring health services to rural communities that have limited access to hospitals and other health services. A key component of the CHPS program is to bring health care services directly to the doorstep of communities through outreach services and home visitation and by mobilizing the community. Although the CHPS compound serves as a focal point for CHPS staff and a facility at which community members can access health services, the original intent of CHPS was for the CHO to visit households to provide outreach services.^{26,29} The new health team at the CHPS compound, according to the CHPS policy and implementation guidelines, should include at least three health staff members: CHO, a nurse, and a midwife.^{26,29}

In its ideal form, CHOs reside at a CHPS compound, which is a building constructed by the community that serves as both a service delivery point as well as accommodations for the CHO and a midwife if one is stationed there. Due to resource constraints, erecting CHPS compounds from district budgets and communal labor proved to be a challenge. As such, a new designation of a “functional CHPS Zone” relaxes the requirement that a zone have a residential CHPS compound by allowing CHOs to provide services from sub-district health centers and conduct outreach services by visiting the Functional CHPS Zone daily.

CHVs support the CHOs to carry out their daily activities, although they are not formally trained to provide clinical care. They assist with referrals, transportation, community mobilization activities, disease surveillance, health promotion, and family health.²⁹

Selection and training

CHOs are not selected by communities; rather, they are assigned by Ghana Health Service managers at the District Health Administration to serve in CHPS Zones.⁹ All CHOs are first trained as CHNs. After

completing the CHN training and orientation when posted to a CHPS Zone, they become CHOs. CHOs usually receive two weeks of additional orientation and training in community engagement and mobilization.

The CHNs' training consists of two years of both didactic and field training on maternal and child health, family health services, disease prevention and control, hygiene and environmental sanitation, and health promotion and communication.⁹ The CHN training curriculum is standardized and disseminated from the national level.⁸ CHN training is conducted by nursing tutors and public health professionals, and field practicums are guided by seasoned CHNs. After successful completion of the two-year training, CHNs are assigned to a CHPS compound or a sub-district health facility and at that time become salaried MOH employees. Some CHNs take an additional two weeks of training and complete an internship. Then they begin work as CHOs deployed to CHPS Zones. Other CHNs are deployed to CHPS Zones directly without this additional training. However, some CHNs work as staff members of health centers, polyclinics, and hospitals.

CHOs receive periodic in-service training from both government and non-governmental organizations in response to identified needs and the provision of new services that require additional training. After 3–5 years of service, CHOs can further their education to become midwives and public health nurses, among other options.³⁰ In addition, CHOs attend trainings and seminars to gain additional skills and certificates. Often, CHOs receive non-financial rewards, including recognition at community events and gifts of local farm products.³⁰

CHVs are nominated from communities by the CHMCs in CHPS Zones. Criteria for CHV selection include community residence, ability to be trusted with confidential information, volunteer spirit, readiness to work under supervision, and honesty. Both men and women can be selected to serve as CHVs. Nominated CHVs are approved by the community at a community gathering, known as a *durbar*. CHVs receive five days of standardized training organized by the District Health Management Teams and Sub-District Health Management Teams using adult-centered participatory training methods. Topics include the CHPS concept, community mobilization and tools, the role of the CHMC, home visiting, reproductive and child health, nutrition education, disease prevention, environmental sanitation, and home management of minor ailments, among others.³¹

Support and supervision

The Ghana Health Service has adopted facilitative supervision, which emphasizes mentoring, two-way communication, and joint problem-solving to improve on the performance of health workers at all levels of service delivery.²⁹ CHOs are supervised monthly by a public health nurse, physician assistant, or a designated Sub-district CHPS Coordinator from a sub-district health facility.²⁹ Facilitative supervision covers service delivery, quality improvement, and managerial activities at the CHPS compound and in the community. Performance is measured against planned activities and targets set for the year. On-the-job training is organized for CHOs to update their knowledge and skills during supervision when necessary. Action plans are developed with CHOs to address gaps identified during the visit. On a quarterly basis, sub-district supervisors also monitor participation of CHOs in CHMC meetings and community *darbars*.²⁶

CHOs, in turn, supervise all CHVs within the CHPS Zone every month on topics such as disease surveillance, vital events registration, home visits, health promotion activities, referrals, and treatment of minor ailments.²⁶ The number of CHVs per CHO varies depending on the needs of the community and what is set forth by the District and Sub-District Health Management Teams. The implementation guidelines stipulate that there should be at least two CHVs per CHO. Monthly supervision of CHOs is less frequent due to transportation, time, and financial constraints.^{32,33}

Nationally, CHPS is monitored quarterly through online health information software known as DHIMS 2, which captures progress on implementation of CHPS in all districts as well as monthly service data from all CHPS Zones.³⁴

CHOs complete monitoring and evaluation forms for program-specific activities. Output indicators that are collected include number of children attending child welfare clinics (and number of immunizations and nutritional and growth monitoring services provided), number of antenatal, postnatal and family planning visits, number of home visits, number of outpatient visits, and number of clients referred.²⁶

Incentives and remuneration

CHOs are full-time salaried employees of the Ministry of Health. The starting monthly salary is around 800 Ghana *cedis* (about US\$ 140). Additional incentives for CHOs include extra paid leave days and the opportunity to advance their education with paid educational leave. CHVs are part-time health agents and do not receive remuneration. Some incentives given to CHVs may include T-shirts, transport per diem, and, on occasion, bicycles.

Community role

Community involvement is central to Ghana's PHC strategy. However, community engagement varies substantially across regions and districts. In many instances, local communities have been actively involved in selecting and providing the land and materials to build the CHPS compound.¹⁰ In addition, communities select local community members to become CHVs and assemble a CHMC to advise and assist the CHO in providing services that are relevant to local needs.³⁵ Active engagement of local community leaders, including chiefs, elders, and local healers, is a key component of the program since the main premise of CHPS is to mobilize communities to take ownership of their own health care.^{9,35}

A CHMC consists of influential community members such as assemblymen, village chiefs and elders, leaders of civil society organizations, teachers, and religious leaders. The CHMC allows for the views and needs of the community to be heard by the CHPS staff, thus enabling CHPS to more effectively address the specific needs of the community it serves.²⁷ There are now 5,062 active CHMCs (meeting quarterly) operating in 5,543 functional CHPS Zones.

Linkages with the formal health system

The CHPS program is the standard PHC program in Ghana and is fully connected to the formal health system. CHNs/CHOs, the key staff of CHPS, are salaried government employees under the Ghana Health Service. Each CHPS is supervised by a sub-district and health directorate, from which they receive logistics and support from staff at the sub-district unit or the health directorate. CHPS staff submit monthly reports to the sub-district which are then forwarded to the regional health directorate and finally from the region to national level.

At the national level, there is a designated department, the Policy Planning Monitoring and Evaluation Division, which is responsible for promoting and overseeing the CHPS program in the country. To date, there are no private CHPS Zones/compounds in the country.

Program scale-up

The CHPS program is a nationwide standard PHC intervention. All regions and districts in Ghana have CHPS programs staffed with CHNs/CHOs. Each region has at least one community health nurses training school to train CHNs/CHOs. Training schools continue to produce more CHNs/CHOs yearly.

Due to the government's investment in establishing new community health nurses training schools beginning in 2003, the number of CHOs increased from 6,300 in 2010 to 15,900 in 2014.²⁶ As of December 2019, there were 2,523 active CHOs working across 5,506 functional CHPS Zones.

Monitoring and data use

At the CHPS-Zone level, CHNs/CHOs keep registers and records on all activities, including the number of children receiving vaccines and related information, number of deliveries, family planning and antenatal services provided, referrals, number of cases of specific diseases treated such as malaria, cholera, and pneumonia, among others. Each month, CHNs/CHOs submit reports to the Sub-District Office or the Health Directorate. The data is then entered into the District Health Management Information System-2 (DHIS-2). The reports are used for monitoring and evaluation purposes at multiple levels. Data are used to monitor the coverage of key indicators at community, district, regional and national levels to identify gaps and access challenges. Data are also used for surveillance purposes to track and identify outbreaks of diseases. Findings from reported data sometimes help to identify training gaps and result in the training of staff at the CHPS through workshops and seminars.

In 2016, the USAID, the Korean International Cooperation Agency and the Samsung Corporation, together with the government of Ghana, started an initiative to digitize the District Health Information Management System-2 (DHIMS-2) starting at the CHPS level. The project includes the distribution of e-tracker mobile devices to CHPS Zones to facilitate timely and accurate data collection and increase data utilization in budgeting and planning, particularly at the sub-national level.³⁶

Financing

Ghana's PHC program is financed by a variety of sources: the local government, the national health insurance scheme, international donor agencies, non-governmental organizations, and out-of-pocket user fees.²⁶ Donor partners include the United States Agency for International Development, United Kingdom Department of International Development, UNICEF, Japan International Corporation Agency, the Korean International Cooperation Agency, GAVI (the Vaccine Alliance), the Global Fund to Fight AIDS, Tuberculosis and Malaria, and the World Bank.^{29,37} Establishing and sustaining CHPS Zones is a costly endeavor. Financing is required for the construction and furnishing of CHPS compounds, conducting community engagement activities, procuring motorbikes, bicycles, and medical equipment, and capacity-building.⁹

For instance, Ghana is currently implementing the World Bank-funded Maternal and Child Health and Nutrition Improvement Project (MCHNP), which seeks to increase the utilization of community-based, high-impact health and nutrition interventions through the CHPS strategy. The target groups for the project are pregnant women and children younger than two years of age. Districts and sub-districts receive funds directly to support the CHOs. They in turn organize outreach growth promotion and immunization sessions, conduct home visits, as well as participate in quarterly community *durbars* and CHMC meetings. Sub-districts also receive funds to supervise CHPS Zones to monitor project activities quarterly. Similarly, District Health Management Teams receive funds to supervise sub-districts. This funding provided by the World Bank has strengthened CHPS operations.³⁸

CHVs are part-time volunteers residing in the community. Occasionally, CHVs receive program T-shirts and transport per diems to attend in-service training programs or meetings at the district level. CHVs may also receive bicycles, rubber boots, and money for maintenance and transportation to training events or to other communities to perform their work. CHMCs and communities are encouraged to provide non-financial incentives to CHVs, such as food and recognition during community *durbars* or festivals, or offer them farm produce.³¹

Impact

Where implemented effectively, CHPS has been shown to improve the health status of the population. Over the last 15 years, research studies conducted in several districts have demonstrated the impact of CHPS. Exposure to CHPS has been shown to increase the odds of women receiving antenatal and postnatal care.³⁹ Other studies demonstrate that, when a health facility is within eight kilometers, the presence of a CHO increases the odds that a woman receives skilled birth care due to CHO referrals.⁴⁰ Compared with pregnant women in non-CHPS areas, pregnant women in CHPS Zones are 2.7 times more likely to seek antenatal

services, 4.5 times more likely to receive HIV testing, and 3.7 times more likely to receive antimalarial prophylaxis during their antenatal care period.⁴¹ Finally, a 2011 study showed that proximity to a CHO at a CHPS facility is associated with increased use of contraceptives.⁴²

On the national level, it is evident that CHPS Zones are increasingly becoming the site of care for the delivery of essential PHC services. In 2015, 30% of family planning services, 36% of polio 3 immunizations, and 10% of outpatient services were provided by CHOs in CHPS Zones.^{27,33} In 2016, 39% of the total national Penta 3 immunizations were given by the CHPS program compared with 36% in 2015.²⁷ In 2016, 13% of antenatal care and 4% of births in Ghana were carried out by CHOs at CHPS Zones.²⁷

Challenges

Though the evidence of the health impact of CHPS is encouraging, CHPS implementation has proven to be challenging. The main constraint cited by Ghana Health Service managers is the lack of dedicated government funding for establishing CHPS Zones and maintaining operations.⁴³ It is estimated that the cost of launching one fully functional CHPS Zone is US\$ 9.50 per capita.⁹ Thus, the scaling-up process has been slow because district managers have been unable to bear the incremental costs of program expansion from their existing budgets and have had difficulty mobilizing the capital costs of building a CHPS compound from external sources.⁹

Fortunately, the CHPS manpower constraints that the government experienced in the first five years of implementation have largely been resolved. The government's investment in Community Health Nurses Training Schools has led to a surplus of CHNs available to serve as CHOs in CHPS Zones. As of 2015, there were 15,900 CHNs compared with 6,300 in 2010.²⁶ However, the government must develop CHO incentive schemes and professional advancement opportunities because research has shown that CHO motivation and job satisfaction are low.³⁰

The centralized recruitment and posting of CHOs creates challenges for local communities and for CHOs. CHOs are often assigned to areas where they are unfamiliar with the local language, social customs, and community organizational structures. This can create a barrier between the community and the CHO.⁹ However, the Upper East Region, unlike other regions, uses a different approach. To address language and cultural constraints, the Upper East Region established a regional CHN training school and recruited CHN trainees from local communities. These trainees were selected and supported financially by their local community with the understanding that they would be assigned to serve as a CHO in their home community after completing their training.⁹ Despite being the poorest region in the country, the Upper East Region is leading in the implementation and scale-up of the CHPS program. As of mid-2008, the coverage of CHPS in the Upper East Region was five times higher than the national CHPS coverage and other regions were behind.⁹ In 2006, out of 6,548 demarcated CHPS Zones through the country, 4,400 (67%) were functional. By the end of 2019, there were 7,014 demarcated CHPS Zones, out of which 5,543 were functional. However, there are notable regional variations; the Ashanti Region had the highest percentage of demarcated zones that were functional: 91% of its 1,108 demarcated CHPS were classified as functional.²⁷

The government has recommitted itself to advancing CHPS. In 2014, President John Mahama made CHPS a signature presidential initiative and directed district government agencies to support the implementation process through local financing mechanisms. In 2016, President Mahama and his ministers and appointees pledged 10% of their salary to construct CHPS compounds across the 10 regions.²⁶ Over a two-year period, the MOH worked with the Ghana Health Service and donor partners to revise the CHPS policy, and in 2016, the revised CHPS policy was launched. The new CHPS policy clarified the CHPS strategy, reinforcing its key tenets while addressing the implementation bottlenecks that had hindered CHPS expansion, such as: construction of CHPS compounds, financing CHPS activities, supervision policies, supply of essential tools and logistics, establishment of career advancement opportunities for CHVs and CHOs, revamping community mobilization and community involvement, and expanding the number of CHVs to increase support for CHOs.²⁶

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

Photo credits: Left: Community Health Volunteer checks a child's mid-upper arm circumference for evidence of malnutrition. Photo credit: UNICEF; Right: Community Health Nurse. Photo credit: UNICEF.

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The Guatemala Community Health Worker Program



Alfonso Rosales¹, Mario Valdez², Henry B. Perry³



¹ Senior Adviser for Maternal and Child Health, World Vision US, Washington, DC, USA

² Curamericas/Guatemala, Calhuitz, San Sebastián Coatán, Guatemala

³ Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

One-page summary

Background

Guatemala has been extending health coverage through community health workers for more than half a century. After the signature of the 1996 Peace Accord, the health system went through an intense health reform which produced the Comprehensive Health Care System (*Sistema Integral de Atención en Salud*, or SIAS). The main objective of the system was to increase service coverage, focusing on the most hard-to-reach populations by contracting out to non-governmental organizations (NGOs) as service providers.

Implementation

In 1997, the Ministry of Health reorganized services by dividing the population into a patchwork of jurisdictions. Each jurisdiction, composed of 10,000 inhabitants, would be served by a different NGO. The SIAS program provided primary health care (PHC) coverage through Mobile Health Teams made up of a physician or professional nurse, an auxiliary nurse and a Rural Health Technician (*Técnico en Salud Rural*). These Mobile Health Teams made monthly visits to rural hard-to-reach communities. In each of these communities there was a CHW who linked with these Mobile Health Teams. There were 27,000 of these CHWs in 2003. Unfortunately, the government closed this program in 2013 and has not yet replaced it with a similar program of well-developed outreach PHC services.

Roles/responsibilities

CHWs facilitated service provision to Mobile Health Teams during their monthly visits, provided basic health services in between team visits by identifying cases for referral, maintained the community census and epidemiological monitoring, and raised awareness on health issues.

Training

Training within the SIAS program was carried out by health staff. *Técnicos en Salud Rural* (Rural Health Technicians) trained the CHWs. The SIAS training courses were based on a standardized curriculum: they focused on preventive care and referral of sick patients to a higher level of care. The CHWs in the SIAS program were not trained in curative care medicine and were only permitted to dispense packets of oral rehydration salts (for treatment of diarrhea) and aspirin.

Incentives and remuneration

The main incentives for CHWs were community recognition, family support (including approval from the CHW's husband), and a government stipend of US\$ 50 per month.

Supervision

CHWs were supervised by the Mobile Health Team. CHWs also reported directly to a *Técnico en Salud Rural* who was under the supervision of a physician or professional nurse.

Impact

The main impact of the SIAS program was the improvement in access to basic health services and a reduction in health inequities among the rural indigenous Mayan population of Guatemala. The effects of closure of the SIAS program are not yet documented.

Historical context

The Guatemalan community health worker (CHW) program has been historically influenced by a strong syncretism between Mayan and Western cultures, high levels of political and violent repression during colonial and post-colonial times—heightened during the most recent civil war and the neoliberal health care reforms more recently—and historical inequities in health outcomes between poor and better-off, Mayans and non-Mayans, as well as rural and urban populations. Before the arrival of the Spaniard *conquistadores*, the Mesoamerica population, of which Guatemalans were a part, was predominantly a collection of Mayan indigenous groups.¹ The United Provinces of Central America, of which current-day Guatemala was a part, declared its independence from Spain in 1821. A series of authoritarian rulers presided through the 20th century. The civil war in Guatemala, from 1960 to 1996, destroyed 440 Mayan villages, led to the death or disappearance of 100,000 civilians (mostly Mayan) and the internal displacement of one million Mayans.²

A peace agreement was signed in 1996 between the Guatemalan government and the Guatemalan National Revolutionary Unit (URGN), which provided civil society institutions with greater political influence on social programs that benefited the poorer Mayan and rural populations. There were 11 total accords, which included a plan for a new health care system.³

The lack of health care services in the Department of Huehuetenango led to efforts by the Catholic Church to provide services to isolated Mayan villages. The Maryknoll Sisters established one of the world's early CHW programs in 1965, training young men sent by Catholic priests for 6-8 weeks to give injections, provide some simple medications, and extract teeth. They became *Promotores de Salud* (Health Promoters).⁴ In 1992, a Catholic parish in a rural mountainous areas of the Department of Huehuetenango established a program called *Seguro Medico Campesino* (Medical Insurance Program for Rural Farmers) through which a doctor and nurse contracted by the Catholic Church provided medical care for the local people. The program was financed by a health insurance program into which local people paid monthly premiums. Out of this program grew Mobile Health Teams that made monthly visits to isolated communities to deliver health promotion and prevention messages along with referral of sick patients. The communities formed a health committee and named a *Facilitador Comunitario* (Community Facilitator), many of whom had already been working as *Promotores de Salud*.

The nascent program encouraged the communities to make a map of the houses, complete a census of the inhabitants, and collect vital events (births and deaths). Officials from UNICEF and international donors became aware of this program and recognized its potential for scale-up throughout the country. In 1997, the government contracted with NGOs to scale up this program through a national effort named *Sistema Integral de Atención en Salud* (SIAS). Though this program eventually lost political support and was abandoned, it did provide the opportunity to mobilize local CHWs (*Promotores de Salud*, *Facilitadoras Comunitarias*, *Vigilantes de la Salud*, and *Comadronas*), provide them with training, and strengthen locally available basic services.

Health needs

Guatemala, with its 15 million inhabitants, is the most populous country in Central America. More than half of its population lives in rural areas and is of Mayan descent. More than 20 different languages are spoken and for 40% of Guatemalans, Spanish (the country's official language) is not their native tongue. Many of them (mostly women) speak little Spanish. The poverty rate is 53%, and 13% are extreme poor. The country's health system has been characterized as having an inequitable distribution of health services, providing low-quality services in many areas, and causing a high level of personal financial burden to families with medical problems.⁵

The consequences are poor health outcomes, with inequitable distribution of this burden among people living in rural areas, and of Mayan descent. According to the latest reported national health survey (2014-15)⁶, the under-five and infant mortality rates were 35 and 34 per 1,000 live births respectively, higher than the Central American averages of 23 and 18 respectively. The maternal mortality ratio was 19% higher than the average for Central America (113 compared to 95 per 100,000 live births), and the percentage of children younger than five years of age with chronic malnutrition was 55% higher than the Central American average (46.5% vs 30%).⁷ More recent estimates provided from government statistics are an under-five mortality rate of 26, an

infant mortality rate of 22, and a maternal mortality ratio of 95.⁸ According to UNICEF statistics for 2018, 78% of the population had access to safe water and only 12% had improved sanitation. Although 91% of pregnant women received skilled antenatal care (ANC), only 48% of women delivered in a health facility. The contraceptive prevalence rate (CPR) was 32% and the child immunization rate was 59%.⁸

Rural and Mayan areas in the Western Highlands of the country have mortality rates that are considerably higher than the national average.⁹ Maternal mortality ratios of 500-1,000 have been documented recently in the Western Highlands.¹⁰

Health system structure

Guatemala's health system shows inequality, fragmentation, and inefficiency. Health inequality in terms of morbidity and mortality rates, access to services, and health financing has been thoroughly documented. Health professional density differences in urban and rural areas are dramatically different (25.7 versus 3.0 health professionals per 10,000 population).¹¹ Marked disparities exist between Mayan and non-Mayan women's access to delivery at a facility by a trained provider: 36% versus 73%.¹¹ The Guatemalan health care system prior to 1996 was composed of a tiered hierarchy of treatment. This system operated at four main levels: specialized hospitals at the national level, department hospitals at the regional level, health centers/health posts at the municipal level, and *Promotores de Salud* at the community level. After the signature of the 1996 Peace Accord, the health system went through an intense health reform which produced the SIAS program. The main objective of the system was to increase service coverage, focusing on the most hard-to-reach by contracting out to NGOs as service providers. In 1997, the Ministry of Health reorganized services by dividing the population into a patchwork of jurisdictions. Each region, composed of 10,000 inhabitants, would be served by a different NGO.

CHW program features

Guatemala started implementing community-based programs in the 1960s as a strategy to address the lack of access to primary health care (PHC) services among poor and rural populations. There have been two main types of CHW programs, each with different capacities and hence different levels of training and roles.¹² *Promotores de Salud*, one of the types of CHWs, began in the 1960s. Trained by either the government or NGOs, their primary role was health promotion and prevention. This program was dissolved by the government and replaced right after the Peace Accord in 1996. Nonetheless, many NGOs are still delivering PHC services through their own *Promotores de Salud*. There is no information about how many of them are still working today.

In 1997, the Guatemalan government implemented the SIAS program. One of the main pillars of this program is the *Guardian de Salud* (Health Guardian), a CHW whose role is to refer individuals in their communities to higher levels of care and connect communities with Mobile Health Teams that would visit isolated communities monthly. The SIAS program was highly effective in recruiting *Guardianes*, and within less than a decade there were more than 25,000 of these.

Scope of work

Just as was the case with the early Catholic program in San Sebastián Coatán in the 1990s, CHWs in the SIAS program facilitated the visit of Mobile Health Teams during their monthly visits to isolated communities. They provided basic health services between team visits by identifying cases for referral, maintaining the community census, epidemiological monitoring, and raising awareness on health issues.

Selection and training

The selection process of community resources in Guatemala had three different possible scenarios. One scenario was that CHWs were selected by community leaders based on their leadership and voluntary trajectory within the community. A second scenario was that community members were selected by health staff based on their previous knowledge of the individual; and finally, some CHWs inherited the position from a family member.¹³

Promotores de Salud were trained through 140-hour courses administered by the Guatemalan government as well as by NGOs. Training within the SIAS program was carried out by the program's health staff. *Técnicos en Salud Rural* (Rural Health Technicians) also trained the CHWs.

SIAS training courses for CHWs were based on a standardized curriculum, focused on preventive care and guidelines for referral of sick patients to a higher level of care. The CHWs were not trained in curative care and were only permitted to dispense oral rehydration salts (ORS) and aspirin.¹⁴ The training was ongoing and lasted for approximately two hours once a month.

Support and supervision

In the SIAS program, CHWs were supervised by a Mobile Health Team. This supervision took place under clearly outlined responsibilities for CHWs. CHWs reported directly to the Técnico de Salud Rural, who were themselves under the supervision of a physician or professional nurse.

Incentives and remuneration

The main incentives were community recognition, family support (including approval from the CHW's husband), and a government stipend of US\$ 50 per month.

Community role

One of the main roles for communities in supporting community programs is to identify and select within their members potential CHW candidates. Also, community leaders are expected to support the CHWs and the Mobile Health Teams. Communities also play a crucial incentivizing role by recognizing the value and service of CHWs.

Linkages with the formal health system

The SIAS program provided access to basic PHC services through Mobile Health Teams made up of a physician or a professional nurse, an Auxiliary Nurse and a Rural Health Technician. These Mobile Health Teams made monthly visits to rural hard-to-reach communities. In each of these communities there was a CHW who linked with these Mobile Health Teams. Their main duties were to facilitate service provision provided by Mobile Health Teams during their monthly visits, provide basic health services in between team visits, identify cases for referral, maintain a community census and epidemiological monitoring, and raise awareness on health issues.

Program scale-up

Following the implementation of the SIAS program in 1998, an extensive network of CHWs (*Guardianes de Salud*) was created. According to one SIAS Director, by 2003 there were 26,565 *Guardianes* throughout the country.¹² This program had strong government support, and it extended basic health services to 3.5 million people, reaching an estimated 77% of the population previously without health coverage. The SIAS program, despite periodic government leadership changes, continuously received political blessings and ministerial support. However, accusations of (1) low quality of health services to indigenous populations, (2) inefficiencies in program operations, and (3) a lack of transparency in the adjudication of contracts to implementing NGOs led to legislation to close the SIAS program in 2013. Suddenly, more than three million people, most of whom were living in the hardest-to-reach rural communities, were without basic health services. A new "*Modelo de Atención y Gestión para las Áreas de Salud*" (Model for Care and Management for Health Areas) strategy was announced in 2015 to reorganize and strengthen the public health services network, promote intersectoral action, and recognize inter-culturalism and the role of social determinants in local spaces.¹⁵ Unfortunately, this program has not yet been implemented.

Monitoring and data use

Since the SIAS program is now closed, there is no monitoring or data use. However, when the SIAS program was operating, NGOs who received contracts to provide outreach services in collaboration with CHWs provided regular monthly reports on numbers of outreach services provided by the Mobile Health Teams in collaboration with CHWs.

Financing

The CHW program in Guatemala was financed under the government SIAS program. The SIAS program was financed by the Inter-American Bank, and it consisted of a private-public collaboration to provide a basic health care package to improve equity, efficiency, and quality of health services. Most of the private providers under the SIAS program are NGOs with operations in rural and hard-to-reach geographical areas who receive contracts from the SIAS program. Nonetheless, it is worth noting that 69% of Guatemala's health expenditures are paid "out of pocket" by families.¹⁶

Impact

CHWs have made important contributions to improving health equity by helping to extend coverage to 3.2 million inhabitants in largely rural, impoverished, and indigenous communities. The SIAS program provided access to 41% of the rural population in those departments of Guatemala that are 75-100% Mayan, decreasing in these areas the population lacking access to health services from 46% in 1996 to only 9% in 1999. However, with the government's abandonment of the SIAS program in 2013 and its failure to replace it with another program, 70-80% of Guatemala's rural population is lacking ready access to basic health services.

Challenges

Guatemala is in a political crisis. Until this is resolved, there will be no opportunities to rebuild a community-based health system with CHWs.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

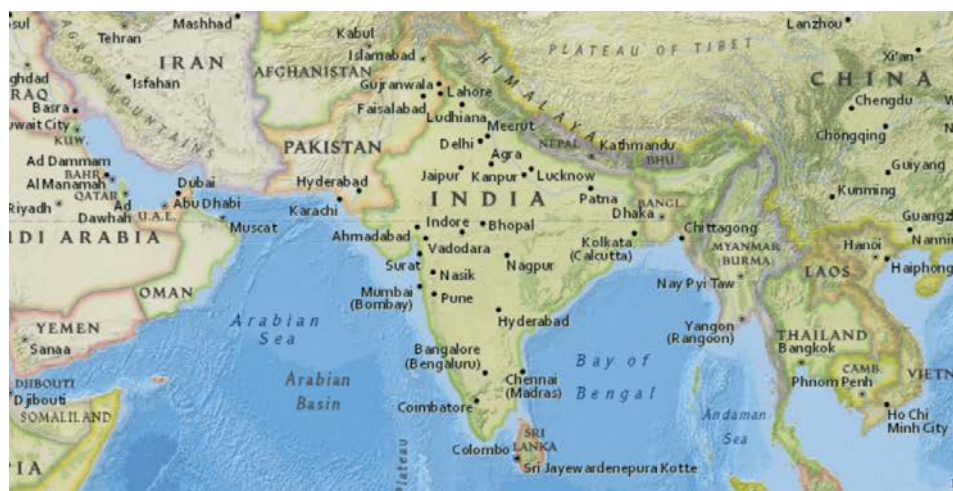
The photograph on the cover page: Left: A CHW provides training to mothers in the preparation of oral rehydration solution for the treatment of childhood diarrhea. Photo credit: Curamericas/Guatemala. Right: A CHW provides health education to a young woman. Photo credit: World Vision/Guatemala.

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India's Auxiliary Nurse-Midwife, Anganwadi Worker, and Accredited Social Health Activist Programs



Kerry Scott¹, Douglas Glandon², Binita Adhikari³, Osama Ummer⁴,
Dena Javadi⁵, and Jessica Gergen⁶



¹ Associate Faculty, Department of International Health, Johns Hopkins School of Public Health, Baltimore, USA
² Associate Faculty, Department of International Health, Johns Hopkins School of Public Health, Baltimore, USA
³ Associate Faculty, Department of International Health, Johns Hopkins School of Public Health, Baltimore, USA
⁴ Oxford Policy Management, Delhi, India
⁵ The Alliance for Health Policy and Systems Research, World Health Organization, Geneva
⁶ CEO at Visualst, Maputo, Mozambique

One-page summary

Background

India has three main cadres of government CHWs: Auxiliary Nurse-Midwives (ANMs), Accredited Social Health Activists (ASHAs), and Anganwadi Workers (AWWs). ANMs and ASHAs work within the Ministry of Health and Family Welfare, while AWWs are part of the Ministry of Women and Child Development.

Implementation

As of 2018 there were approximately 219,000 ANMs, 1.3 million AWWs, and 971,000 ASHAs. ANMs are based at health sub-centers or primary health care centers and conduct village outreach. AWWs work in their village anganwadi centers, which serve as preschools and community health and nutrition centers. ASHAs work in their villages by visiting women's homes, providing assistance to ANMs and AWWs at community health events, and encouraging community members to go to healthcare facilities.

Roles/responsibilities

ANMs have a broad set of responsibilities, focused on providing immunization, health education, and antenatal care, as well as conducting deliveries. AWWs run preschool programs, provide supplementary food to young children, adolescent girls, and lactating women, and provide health and nutrition education to pregnant women, mothers, and adolescent girls. ASHAs promote reproductive, maternal, neonatal and child health with particular focus on encouraging immunization, institutional-based deliveries, and family planning and providing home-based newborn care and some medicines, such as oral contraceptives. They also receive incentives for malaria case identification, TB treatment support, screening for chronic, non-communicable diseases, and conducting village health committee meetings.

Training

ANMs receive 24 months of training. AWWs receive 3-4 weeks, and ASHAs receive 4-5 weeks.

Supervision

ANMs report to Lady Health Visitors and Medical Officers (i.e., doctors). ASHAs report to ASHA Facilitators and AWWs report to Anganwadi Supervisors (*Mukhya Sevikas*).

Incentives and remuneration

Payment varies by state; the amounts noted here are approximate. ANMs are paid a government salary that increases with seniority but averages US\$ 280 per month. AWWs are considered volunteers but are paid an "honorarium" of US\$ 50 – 130 per month. ASHAs receive performance-based incentives for over 64 activities, such as US\$ 9 for facilitating an institutional delivery and US\$ 2.50 for facilitating a child's completion of immunizations. They also receive US\$ 28 per month for satisfactory performance of routine tasks.

Impact

No impact evaluations of ANMs have been published. Assessments of the Integrated Child Development Services and its AWWs consistently note the widespread geographic coverage of the program but vary in terms of their conclusions about the program's impact on child nutritional outcomes. The ASHA program has been associated with improvements in neonatal health, some aspects of care-seeking, and increased immunization and health-related awareness in certain areas. However, research has also identified ASHA knowledge gaps, inadequacies in ASHA training or supervision, low community engagement with and awareness of ASHAs, challenges related to referrals (limited transportation, coordination and health facility resources), and subpar performance or coverage.

Historical context

Primary health care (PHC) centers were established in the late 1940s, shortly after India's independence in 1947. When PHC sub-centers were created below the PHC center level in the 1960s, lower-level temporary health workers were required to staff them.¹ In response to this demand, the Indian Ministry of Health and Family Welfare (MOHFW) created the ANM cadre.² This was followed in the mid-1970s by the establishment of anganwadi centers staffed by AWWs within the Integrated Child Development Services (ICDS). The ASHA program was launched in the mid-2000s as a core component of the MOHFW's National Rural Health Mission; ASHAs work at the village level without a facility.

In 2018, the MOHFW launched a comprehensive primary health care program that added universal screening, prevention, and management of chronic, non-communicable diseases. This program envisions the transformation of existing PHC sub-centers and PHC centers into health and wellness centers and expands the roles of frontline health workers.³

Background of Auxiliary Nurse Midwives

At the time the ANM program was launched in the 1960s, ANMs received two years of training on maternal and child health, with midwifery being the focus of nine out of the 24 months of training.^{4,5} ANMs were envisioned to be village-level midwives with “less than full qualifications.”⁴ Within a decade, in the early 1970s, the role of ANMs was expanded to include a wide range of preventive and curative work at the village level, particularly around family planning and immunization.² In turn, the midwifery aspect of their training and profile has gradually diminished.⁶ With the expansion of their role, ANMs transitioned from temporary to permanent staff within the health system.¹ At the same time, ANMs were reclassified from a nurse-midwife to a female multi-purpose worker.⁷ In response to the Srivastava Committee's call for ANM training to reflect their multipurpose role,⁸ in 1977 the Indian Council of Nurses approved a syllabus for ANM training that focused on an expanded set of responsibilities and reduced the midwifery component of the training from nine to six months.⁵ While the number of subjects included in the training increased, the duration of training was reduced from 24 to 18 months because, as multi-purpose workers, ANMs were no longer considered to require extensive and specialized training.^{4,9}

The National Rural Health Mission, launched in 2005, presented a broad vision for improving comprehensive primary health services for the rural poor in India. The mission sought to increase public health care expenditure from 0.9% of the gross domestic product to 2%–3% and to expand state-level efforts to improve accountability and community engagement in the public health care sector.¹⁰ The National Rural Health Mission doubled the number of ANM positions sanctioned for PHC sub-centers from one to two full-time staff.¹¹ ANM roles expanded to include communicable and chronic, non-communicable diseases, in addition to her reproductive, child and maternal health functions. ANM training increased to two years duration.¹² In 2013 the National Rural Health Mission and the more recently created National Urban Health Mission were subsumed into the National Health Mission.

India is quickly moving towards an even broader vision for the comprehensive primary health care services for rural India. The new national health protection scheme called *Ayushman Bharat*, launched in September 2018, has further expanded the package of primary health services to be provided by ANMs to include screening and management of NCDs, elderly and palliative care, paramedical services, some diagnostic tests, maintenance of digital health records, and patient support groups.¹³ Officially, ANMs have been re-named Multipurpose Workers (Female) (MPW-F) to reflect their broad role,¹⁴ although across India and even in government documents, they continue to be referred to as ANMs.

As of 2018, there were 219,000 ANMs working in government facilities; about 15% of ANM positions were vacant.¹⁵

Background of Anganwadi Workers

In 1972, the central government released an inter-ministerial survey suggesting that existing social welfare and nutrition programs in India were not improving the nutritional status of children.¹⁶ The government attributed these program failures to resource constraints, inadequate coverage, and fragmentation.¹⁶ To address some of these shortcomings, the Government of India initiated the ICDS scheme in 1975. Anganwadi centers, staffed by AWWs, are the central implantation mechanism of the ICDS. The term anganwadi comes from the word *angan*, meaning courtyard. The *angan* is traditionally an open space at the center of the house where families can gather and where food is often prepared.

The ICDS program began with a two-year pilot phase involving 4,981 anganwadi centers in 33 blocks^a throughout India.¹⁷ An evaluation found that the program increased the population coverage of immunizations and vitamin A supplementation and provisions of supplementary food, resulting in improved child nutrition status.¹⁸ Subsequent evaluations in 1978 and 1982 found further positive outcomes, and the scheme was scaled up throughout the 1980s. Program coverage expanded rapidly, from 33 blocks in 1975, to 4,200 in 2000, and to over 5,500 in 2003.^{6,19,20} During the 1990s, the program's budget and number of beneficiaries almost doubled.²⁰

ICDS initially focused on the health issues of children from birth to six years of age.²¹ However, over the decades, ICDS has expanded to include nutritional support and health education for adolescent girls (under the *Kishori Shakti Yojana* scheme) and lactating women. In some states, the AWW has been envisioned as a curative health care provider and equipped with drug kits to address common illnesses among young children.^{22,23} However, more recent ICDS reports have indicated that this component of responsibility for drug provision has been eliminated from AWW's work.

As of 2018, there were approximately 1,294,000 AWWs and 1,167,000 Anganwadi Helpers.²⁴ The government has sanctioned 1,400,000 anganwadi centers, which require one AWW and one helper each.²⁴ There is a shortfall of approximately 7% AWWs and 9% Anganwadi Helpers.²⁴ Many existing anganwadi centers do not have required facilities. For instance, as on September 2016, only 70% of anganwadi centers had drinking water facilities and only 63% had toilet facilities.²⁵

Background of the ASHA Program

In the early 2000s the Government of India was in the final stages of developing the National Rural Health Mission, which was seen as an “architectural correction” for the rural primary health care system.¹⁰ The initial draft proposal for the National Rural Health Mission included a provision for a national CHW cadre focused completely on mobilizing family planning and promoting institutional delivery. Civil society actors argued that such a narrowly defined role for CHWs would be a lost opportunity and was “not in conformity with the spirit and experience of CHW programmes.”²⁶ The MOHFW responded by creating a stakeholder task force to design the ASHA program. This task force, together with the MOHFW, developed the ASHA Guidelines that became central to defining the program's scope.²⁶ When designing the ASHA program, the task force drew lessons from successful state-run CHW programs, particularly Chhattisgarh's state-run Mitadin program (2003–present), and from several successful civil society-run programs.²⁶ These civil society programs included the Comprehensive Rural Health Project in Jamkhed, Maharashtra (1970–present)^{27,28} and SEARCH in Gadchiroli, Maharashtra (1980–present).²⁹ These programs showed that female CHWs with minimal formal education can bring about significant improvements in rural health conditions, provided they have strong training and support.

In 2005, when the National Rural Health Mission was launched, one ASHA for every 1,000 people was a key feature.²⁶ In many states, the ASHA program built upon pre-existing CHW programs. For instance, in Rajasthan, Anganwadi Helpers were nominated to become ASHAs. Andhra Pradesh's Women Health Volunteers were renamed ASHAs. The Chhattisgarh Mitadin CHW program, launched in 2003 as a precursor

^a Blocks are rural jurisdictions ranging in population from fewer than 100,000 to more than three million; several blocks (approximately 10) make up a district and several districts (from two in Goa to 75 in Uttar Pradesh) make up a state.

to the ASHA program, has retained the name “Mitaniin” for their health workers, but has otherwise been absorbed by the ASHA program.³⁰ Initially (2005–2008) the ASHA program was a component of the National Rural Health Mission only in 18 high-focus states and in the tribal districts of other states. In 2009, the program was extended to cover the entire territory of 31 States and Union Territories, although Tamil Nadu opted to continue limiting the ASHA program to tribal areas only. In 2013 the National Urban Health Mission³¹ expanded the ASHA program to urban areas at a ratio of one ASHA per 1,000–2,500 population.^{31,32}

Within India’s Comprehensive Primary Health Care Program launched in 2018, ASHAs are trained to conduct population enumeration as well as community-based health risk assessment and health promotion for chronic illnesses.³ Also in 2018, the MOHFW and the Ministry of Women and Child Development jointly launched the *Poshan Abhiyaan* (“Nutrition Mission”), which includes the addition of home-based care for young children. ASHAs were already responsible for home-based newborn care (conducting six home visits in the first 42 days of life—seven in cases of home deliveries) and are now to undertake five quarterly home visits with the support of AWWs at three, six, nine, 12 and 15 months.^{33,34} Additionally, a joint training of front line workers—ASHAs, ANMs and AWWs—is envisaged to bring about role clarity and build synergy of actions.³³

As of early 2019 there were 971,000 ASHAs, against a target of 1.0 million, which translates to just a 5% shortfall.³⁴

Health needs

In the 70 years since independence, the health status of Indians has improved markedly. The IMR has declined from 120 per 1,000 live births in the 1970s to 30 in 2018.³⁵ Life expectancy at birth has risen from 36 years in 1951 to almost 66 years in 2016.³⁶ In 1951, women had a total fertility rate of 6.0, while in 2016 it was 2.2.³⁶ The maternal mortality ratio has also declined from 400 maternal deaths per 100,000 live births in 1998 to 145 in 2017.³⁶

However, despite its economic growth over the last 30 years,³⁵ India has consistently failed to meet national and international health targets.³⁶ The health status of Indians has also improved more slowly than other Asian countries such as Bangladesh, which has a lower gross domestic product per capita but better health indicators.³⁷ Almost 8% of children younger than five years of age are severely wasted and 36% are underweight.³⁸ India continues to have high rates of maternal and child mortality from communicable diseases along with poor management of chronic diseases of adulthood.³⁹ India’s rank in the United Nations Development Program’s Human Development Index among 189 countries has failed to improve: it was 128th in 1999 and 129th in 2019. Rural people, lower-caste people, religious minorities, women, and the poor all suffer from the marked health inequalities that exist in India which are due partly to lack of access to good-quality care because of social, geographic, and economic barriers.⁴⁰

India is facing a double burden of disease, with large proportions of mortality in the population still attributable to communicable disease and a growing proportion to chronic, non-communicable diseases. Chronic diseases now account for more than one-half of deaths in India,⁴¹ and communicable diseases still account for 29%.⁴² The remaining mortality is from injuries (10%), perinatal conditions (7%), and maternal conditions (1%).⁴²

Health system structure

The Indian government’s health and nutrition system can be understood from the village up to the national level, as shown in Table 1. The government mandates one ASHA and one AWW for every 1000 people, which often translates into one ASHA and one AWW per village (in rural areas). However, villages range widely in population, with an average size of 1,200 people, so larger villages may be allocated two or more ASHAs and AWWs. Each village should have at least one anganwadi center⁴³ and each group of four to six villages is to be served by a PHC sub-center staffed by two ANMs.

The next administrative unit is the block, composed of about 300 villages. Each block has several PHC centers and one community health center. Guidelines stipulate that there should be one PHC center for every six PHC sub-centers. PHC centers are supposed to have five inpatient beds, function around the clock, and be staffed by a doctor (called a Medical Officer, or MO) plus 14 additional health workers including ANMs.⁴⁴ Community health centers are supposed to function as hospitals, with 30 inpatient beds and 25 staff, including at least one surgeon, one general physician, one gynecologist and one pediatrician. Community health centers are run by the Block Chief Medical Officer, who also oversees all government health care in the block.

Districts have a district hospital and a District Chief Medical Officer in charge of the whole district's government health system. District hospitals vary greatly in size from 75 to 500 beds depending on the terrain and population of a district, but an average sized 300-bed hospital is supposed to have 50 doctors, 200 nurses and paramedical staff, and 50 administrative staff.

Table 1. Public primary health care system organization, from village to national level

Sector	Health			Nutrition	
Administrative unit	Community engagement staff	Health facility	Health staff	Nutrition facility	Nutrition staff
Village ~1,200 people	ASHA	--	--	Anganwadi center	AWW + Helper
~5 villages	ASHA Facilitator	Health sub-center	ANM MPW-M	--	Anganwadi Supervisor
Block ~300 villages	Block Community Mobilizer	Community health center PHC center	Lady Health Visitor, Block Chief Medical Officer, Medical Officers	--	Community Development Officer
District ~3,000 villages	District Community Mobilizer	District hospital	District Chief Medical Officer	--	District Program Manager
State	Department of Health and Family Welfare			Department of Women and Child Development	
National	Ministry of Health and Family Welfare			Ministry of Women and Child Development	

Adapted from Scott.⁴⁵

ASHAs and their supervisory hierarchy (ASHA Facilitators, Block and District Community Mobilizers), ANMs, Multipurpose Worker-Male, Block Chief Medical Officers, and District Chief Medical Officers are all functionaries of the MOHFW. The AWWs and their hierarchy (Anganwadi Supervisors, Community Development Officers, and District Program Managers) are within the Integrated Child Development Service (ICDS), run through the Ministry of Women and Child Development.

India also has a prominent private health care sector. This private sector is highly heterogenous, ranging from informal and largely apprentice-trained individual health providers in rural areas to super-specialist hospitals in urban metropolises. The majority of Indians seek care at private facilities rather than at free government health centers because of convenience, ease of accessibility, and perceived superior service. Even the poorest quintile of the population seeks private care for 76% of their outpatient medical care and 58% of their inpatient care.⁴⁶ While health care spending composes approximately 3.7% of India's gross domestic product,⁴⁷ over 70% of this expenditure is out-of-pocket spending by households.⁴⁸

CHW program features

ANMs are women with two years of training who manage family planning, immunization, and maternal and child health programs. ANMs can be assigned to PHC sub-centers and PHC centers.⁴⁹ Guidelines stipulate that the ANMs open the PHC sub-center for part of the day and spend the remainder of the work hours traveling to the villages in the cluster to provide immunization, antenatal care, and health education.

AWWs are female nutrition and child development workers who receive one month of training. They run preschool centers and provide nutritional supplementation for children, lactating and pregnant women, and adolescent girls. The AWW is supported by a part-time assistant, called an Anganwadi Helper or sometimes a *Sabayika*. They are based out of anganwadi centers, which serve as preschools and spaces for the storage and preparation of supplementary foods.⁵⁰

ASHAs are female CHWs who are based in the village and encourage women to seek ANC and give birth in health facilities, assist the ANM with health activities and provide basic first aid and drugs.¹⁰

Given that these CHWs are expected to deliver an integrated package of health and nutrition services to the population despite working in two separate government ministries, each with distinct albeit overlapping mandates, the government of India has highlighted the critical importance of inter-sectoral convergence at all levels of program implementation, particularly at the front line.^{43,51} AWWs and ASHAs are expected to coordinate at the village level in what is termed the “triple A” or AAA coordination (an acronym drawn from ANM-AWW-ASHA). ANMs, AWWs and ASHAs are expected to jointly organize a weekly village health and nutrition day at the anganwadi center, when the ANM visits the village and provides antenatal care, immunization and other health services.⁵²

Scope of work

ANMs working at PHC sub-centers have six main areas of work: (1) outpatient services; (2) outreach for immunization sessions and Village Health and Nutrition Days; (3) services delivered during home visits and visits to the community; (4) inpatient midwifery; (5) work planning, preparation of reports, maintenance of records, building her capacity; and (6) referral of high-risk pregnancies, sick neonates and patients with emergencies.⁵³ Her work focuses primarily on antenatal, reproductive, maternal and child health care, but as of 2018 her role expanded to include screening for chronic, non-communicable disease.

Each AWW is expected to run an anganwadi center as a preschool and to provide supplementary nutrition for children younger than six years of age, adolescent girls, and pregnant and lactating women. She, along with an Anganwadi Helper, cook and serve food to children who come to the center and provide take-home rations for adolescents and pregnant and lactating women. They are also expected to monitor the growth of children younger than two years of age, educate families about nutrition, support the ANM at Village Health and Nutrition Days, and conduct regular home visits to pregnant women and children younger than two years of age.⁵⁴

ASHAs have three roles: bridge, educator and activist. (1) They act as bridges between the community and health services by encouraging immunization, timely antenatal care and delivery in health facilities, and by referring patients with health problems and emergencies. (2) ASHAs provide health-related education and counseling to community members, in particular information on family planning options for couples and home-based newborn care. (3) They also engage the community in collective action to improve local well-being and improve the functioning of health services, particularly through facilitating village health and nutrition committee meetings. ASHAs carry drug kits with basic medical supplies such as oral rehydration salt packets (for treatment of diarrhea), condoms, and iron/folic acid tablets. They also conduct population enumeration activities and, as of 2018, conduct community-based health risk assessment for chronic, non-communicable diseases.^{33,34,55,56}

Selection and training

Selection

ANMs must have finished 12 years of school, be female, and between 17 and 35 years of age to apply to ANM training programs in nursing schools across India.⁵⁷ They are hired by the district-level health administration.

AWWs must be female, aged 21–45 years, middle-school educated and “acceptable in the local community... so that the children of scheduled castes and other weaker sections of society are ensured free access to the *anganwadi*”.⁵⁸ Scheduled caste people are members of the most discriminated-against caste group in India; children from this caste group may be denied access to nutritional supplementation if the center is operated by a higher-caste *Anganwadi Worker* who engages in discrimination. AWWs are selected by a committee of district- and block-level officials, including elected members of the local village-level government, called the *Gram Panchayat*.

ASHAs are to have a grade 10 education or higher and preferably be between the ages of 25 and 45. States were afforded the flexibility to select ASHAs with lower literacy levels in order to ensure local residence and community representation. ASHAs are to be selected through a participatory process by the community and accountable to the *Gram Panchayat*.⁵⁵ However, in reality many ASHAs are selected by and consider themselves accountable to ANMs and other health system actors.^{59,60}

Training

ANMs complete two years of training.¹² There are 1,909 ANM training institutions in India that are recognized by the Indian Nursing Council.⁶¹ Upon completing their training, ANMs are considered to be Female Multi-Purpose Workers but not skilled birth attendants. The MOHFW is now offering an additional three- to six-weeks of skilled birth attendant training to ANMs whereby they can learn to better identify danger signs for referral as well as how to actively manage the third stage of labor (particularly with oxytocin or misoprostol) and conduct other emergency measures.⁶²

ANMs can also obtain training in the insertion of intrauterine devices and gain permission to insert them. Once an ANM has five or more years of experience, she can seek six months of promotional training to become a Lady Health Visitor (LHV).

Additional ANM training has been recommended under the updated Comprehensive Primary Health Care strategy of *Ayushman Bharat*. States have been requested to develop training programs for ANMs to provide NCD screening and management, mental health services, palliative and elderly care services, emergency medical services, management of digital family health records, performance of some diagnostics tests, and support management of patient supports.³

AWWs should receive 26 days of training over the course of one month; 22 days are for classroom education with mock sessions and four days are for supervised practice at the *anganwadi* center.⁶³ However, more recently this has been upgraded to three months of training.¹⁶ AWWs are also supposed to receive a seven-day refresher training at various points throughout their careers, but it is not clearly stated how often these trainings are to occur.⁶⁴ In 2011–2012 only 47% of the AWWs targeted to receive initial training and only 51% of the AWWs targeted to receive refresher training actually received it.¹³

ASHAs receive 28 days of training (eight days of induction and 20 days of skill-based training) on reproductive, maternal, neonatal and child health (RMNCH) and five days of training on NCDs.^{3,65}

The 20 days of skill-based training are completed in four rounds (with five days in each round) within 18 months of joining. This is a skill-based training for RMNCH, including nutrition, malaria and TB for mothers and children. Then they are supposed to receive at least 15 days of additional training each year thereafter.^{65,66}

In 2014, the MOHFW launched an ASHA accreditation program that includes 10 days refresher training. ASHAs are also to receive five additional days of training on NCD screening, prevention and management and 3 days on conducting home-based newborn care visits.^{33,34}

Support and supervision

ANMs are supervised by a Lady Health Visitor. Every six PHC sub-centers is supervised by one Lady Health Visitor (who is an experienced ANM who has also received additional training). This person is tasked with supervising and providing technical guidance to the ANMs at the PHC sub-centers. The Lady Health Visitor reports to the Medical Officer.¹

The government's new Comprehensive Primary Health Care Program *Ayushman Bharat*, launched in 2018, has introduced a mid-level health provider (MLHP) with a bachelor's in community health or nursing midwifery who is expected to supervise all cadres of CHWs. Under this new scheme, ANMs would report to MLHPs directly. Many states of India are gradually adopting these changes in their health system.³

AWWs are supervised by an Anganwadi Supervisor and a Child Development Project Officer (CDPO). The CDPO is responsible for the ICDS at the block level. The Anganwadi Supervisor oversees 25 AWWs. The CDPO is supported by a statistical assistant at the block level. The AWW is also supported by the ASHA and ANM for MOHFW programs (for immunization, health checkups, and health-related referrals). There are many vacancies in the supervisory structure for the anganwadi system. As on March 2017, 39% of sanctioned positions for CDPOs and 35% of sanctioned positions for supervisors were vacant across the country.²⁵

ASHAs are supervised by an ASHA Facilitator. According to national guidelines, there should be one ASHA Facilitator for every 20 ASHAs. The ASHA Facilitator is supervised at the block level by the Block Community Mobiliser, who is in turn supervised by the District Community Mobilizer under District Mobilization/Coordination Unit, which liaises with the state-level ASHA Resource Center.⁶⁵ At the national level, the ASHA Mentoring Group meets biannually and advises the MOHFW on ASHA policy and programming. The National Health Systems Resource Center is the technical support unit under the MOHFW and serves as the Secretariat for the ASHA Mentoring Group.⁶⁷

An ASHA monitoring system has been developed by the MOHFW. The main source of performance monitoring arises from monthly meetings of the ASHA Facilitator with the 20 or so ASHAs she or he oversees. The reports on ASHA functionality involve recording whether ASHAs are completing key tasks, including visiting newborns, attending immunization camps, visiting households to discuss nutrition, and acting as providers of directly observed treatment for TB.⁶⁵ These reports are then submitted to the Block Community Mobiliser on a monthly basis and assessed quarterly to determine what percentage of ASHA workers who are functional. These results are then submitted to the District Coordinator, who grades each block in the district based on ASHA functionality. Finally, the monitoring data is consolidated at the state level and each district is graded.⁶⁵

Incentives and remuneration

Payment of all three frontline health workers varies by state because state-level governments can contribute funding to increase payment levels set by the national government. Therefore, the rates noted in this section are approximate.

ANMs received a salary of US\$ 280 (Rs. 20,000) per month, paid from the national health budget.⁶⁸

AWWs are considered "honorary workers" who receive a monthly honorarium. However, this honorarium serves as a salary. The payment is composed of a core honorarium from the central government that is often supplemented by additional payments from the state-level government to compensate AWWs for additional work on schemes beyond ICDS. AWW income ranges from US\$ 50-130 (Rs. 3,600-9,400) per month depending on the state, as well as on the AWW's educational qualifications and experience.³⁴ Anganwadi Helpers receive about US\$ 21 (Rs. 1,500) per month.⁴³

ASHAs are considered volunteers who receive performance-based payments, averaging US\$ 42-56 (Rs. 3,000 to 4,000) per month. ASHAs have 64 specific tasks ranging from providing home-based newborn care to detecting possible TB cases for which they receive performance-based incentives, the most lucrative being US\$ 9 for facilitating an institutional delivery. After longstanding demands for regularized payments, in 2018 the Government of India introduced a fixed incentive of approximately US\$ 29 per month (Rs. 2,000) for completing routine and recurring tasks, such as convening the monthly village health, sanitation and nutrition committee meeting. ASHAs are also enrolled to receive the social security benefits of life insurance, accident insurance and pension.³⁴

Some states have also begun supplementing the income of ASHAs by providing a fixed monthly honorarium from state funds.³⁴ Also, some states have introduced ASHA motivation and recognition initiatives such as cash awards for the best-performing ASHAs, newsletter and radio programs, bicycles for all ASHAs, and career development opportunities by giving scholarships to study nursing.⁶⁷

Community role

In rural areas, the ANM, ASHA, and AWW are all members of the village health, sanitation and nutrition committee. The ASHA is member secretary and convenor.⁶⁵ Village health, sanitation and nutrition committees are village-level voluntary health groups supported by the local level of the elected government (the *Gram Panchayat*) under the National Rural Health Mission.⁶⁹ In urban areas, ASHAs are member secretaries of *Mahila Arogya Samitis*.³² *Mahila Arogya Samitis* are slum-level voluntary women's collectives with linkages to AWWs, ANMs, community organizations, local urban organizations, NGOs, and other women's groups under the National Urban Health Mission.³²

Linkages with the formal health system

As discussed in section on health system structure above, ANMs, ASHAs and AWWs are official positions within the government health and nutrition system. ANMs are formal employees of the MOHFW, while ASHAs are considered volunteers within the same ministry. Anganwadi Workers are volunteer social workers within the Ministry of Women and Child Development. Nonetheless, all three frontline health workers have clear reporting structures and job duties within the formal health system.

Program scale-up

All three programs operate at national scale. ANMs have been a feature of the national PHC system since the 1960s and were deployed at national scale from the start. The AWW program was first implemented in 1975 on a pilot basis in 33 blocks around the country before being scaled up nationally in the 1980s.⁶ The ASHA program design was based on several small scale and state-level initiatives, as discussed in the background section. Then it was deployed at scale in 2005.

Monitoring and data use

AWWs are monitored by Lady Health Visitors (who are themselves Senior ANMs), while also being accountable to the Medical Officers (doctors) in their local PHC center. ASHAs are monitored by ASHA facilitators but also report to ANMs and Medical Officers for verification of records. AWWs are monitored by Anganwadi Supervisors.

Financing

ANMs: There is no budget line item for specific cadres of health workers in the MOHFW's expenditure planning or reporting, so it is difficult to determine the cost of ANM salaries and support. ANM salaries and support are paid from the national government's Health and Family Welfare budget (which totaled Rs. 47,353

crore^b, approximately US\$ 6.5 billion in 2017⁷⁰) as well as additional funding from state budgets, which accounts for about three-quarters of all government health spending.⁷¹

AWWs: With respect to the financing of AWWs, US\$ 2.31 billion (Rs. 16,335 crore) was allocated to Anganwadi Worker services in 2018-19. Financing for AWW payments and the upkeep of anganwadi centers comes from both the central and state governments, with the central government contributing 90% and the states contributing 10%. The cost of the food provided by AWWs through ICDS is shared 50-50 by the central and state governments.⁴³ In 2017, the Government of India revised the cost norms for the supplementary nutrition provided by AWWs from US\$ 0.08 (Rs. 6) per day per child to US\$ 0.11 (Rs. 8) per day per child aged six months-six years of age; US\$ 0.10 (Rs. 7) to US\$ 0.13 (Rs. 9.50) per day for pregnant and lactating mothers; and US\$ 0.13 (Rs. 9) to US\$ 0.17 (Rs. 12) per day for severely malnourished children.

ASHAs: The ASHA program had a budget in 2006 of US\$ 163 (Rs. 10,000) per ASHA per year across 18 high-focus states. This included the cost of the selection process, social mobilization, training, drug kits, identity cards, and support for ASHA workers by the PHC center and the ASHA Facilitator (supervisor). This amount did not, however, include the cost of ASHA worker remuneration, which was supposed to come from the budgets of various other MOHFW initiatives such as *Janani Suraksha Yojana* to support institutional delivery in rural areas.⁶⁷

The program has consistently absorbed less than 50% of its allocated budget because of lack of support structures and other support activities, limited internal capacity, and reluctance to provide support for entities outside of the public sectors, such as NGOs.⁶⁷ Absorption varies across states, ranging from 20% in Delhi to 96% in Chhattisgarh, depending on the status of the support structure and the state's commitment to the program. The states with greatest need, such as Rajasthan, Jharkhand and Uttar Pradesh, also have the poorest budget absorption due to the slow pace of training on account of issues of procurement of equipment and training modules.⁷²

Impact

There is surprisingly little published evidence of ANM effectiveness, which may be linked to their ubiquity in the health system and the difficulty of disentangling their contribution from all other aspects of government health services. A placebo-controlled trial from 2002 to 2005 found that ANMs could effectively administer oral misoprostol to reduce rates of acute postpartum hemorrhage and acute severe postpartum hemorrhage.⁷³ Coverage of antenatal home visits and newborn care practices were positively correlated with the knowledge level of ANMs (as well as of AWWs) ⁷⁴ Specifically, when comparing women visited by AWWs or ANMs who had better knowledge compared with those with poor knowledge, initiation of breastfeeding in the first hour of life, clean cord care, and thermal care were significantly higher among women visited by ANMs or AWWs with better knowledge.

Concerning the work of AWWs, although early evaluations of ICDS were promising, more recent assessments have been less encouraging. Assessments of the ICDS program and the work of AWWs consistently note the widespread geographic coverage of the program, but they vary in terms of their conclusions about the program's impact on child nutritional outcomes. In Lokshin et al.'s study,⁷⁵ anthropometric measures of children obtained from the National Family Health Survey were compared in villages covered by ICDS and in matched villages not covered by ICDS. Their analysis found little overall effect of ICDS on nutritional outcomes. Deolalikar found that the presence of an anganwadi center is associated with a 5% reduction in the probability of being underweight for boys, but not for girls.⁷⁶ Another study by Bredenkamp and Akin found that the presence of an anganwadi center has no significant effect on the nutritional status of children.⁷⁷ In contrast, studies by Jain⁷⁸ and Kandpal⁷⁹ found significant benefits from ICDS supplementary feeding on anthropometric outcomes and on long-term malnutrition, respectively, among children beneficiaries. Both of these studies sought to address methodological limitations noted in one or more of the earlier evaluations listed above, including study designs that did not account for individual-level exposure to the program (i.e., individual children were considered "treated" if there was an anganwadi

^b Crore refers to ten million.

center in their village regardless of whether or not they actually received ICDS services)⁷⁸ or did not estimate program effects specifically for the most at-risk children.⁷⁹

In terms of ASHA impact, a 2019 literature review on the ASHA program⁵⁹ identified a range of regional studies and concluded that the ASHA program was associated with improvements in neonatal health, some aspects of care-seeking, and increased immunisation and health-related awareness.⁸⁰⁻⁸⁵ A 2019 national level evaluation found that exposure to ASHA services was associated with a statistically significant 17% increase in receiving at least one ANC visit and a statistically significant 28% increase in facility births.⁸⁶

Operationally, there is substantial variation in ASHA service coverage across the country. While 66% of women in northeastern states received ASHA services, only 30% of women in high-focus states and 16% of women in other states received these services.⁸⁶ Agarwal's analysis found a pro-poor bias: in areas where active ASHA activity was reported, the poorest women, and women belonging to scheduled castes and other backward castes, had the highest odds of receiving ASHA services.⁸⁶ However, a governmental review of the program in three states (Jammu & Kashmir, Mizoram and Tripura)^{87,88} found that ASHAs were missing the most vulnerable community members. Additional research has also noted problems related to subpar ASHA performance or coverage.^{84,89-96} The 2019 review⁵⁹ indicated that the majority of ASHAs are reasonably well known and trusted as a source of health information and referral in their communities and are providing many households with health information and services, particularly by encouraging antenatal care, institutional delivery and childhood immunisation.⁸⁷ A "time use" study⁸⁷ found that ASHAs spend an average of 4-6 hours per day in Jharkhand and 1-4 hours per day in Delhi on ASHA-related work, with nearly one-third of that time spent on travel.

While some studies have reported that ASHAs had a reasonable grasp of core health concepts^{89,97-102} others have identified major knowledge gaps^{80,100,101,103-105} The government's review of the ASHA program in Jammu and Kashmir states as well as in the states of Mizoram and Tripura assessed whether ASHAs could explain how to make oral rehydration solution and found that only 64%, 58% and 11% could do so, respectively.⁸⁷

Challenges

Challenges within the ANM program include a lack of meaningful supervision and mentoring.¹⁰⁶ Even though an ANM can become a supervisor (Lady Health Visitor) after five years of experience and a six-month training course, this six months of training does not include any focus on supervision or human resource management.¹ Medical Officers in particular are often serving a population of over 20,000 people leaving them very little time to support ANMs.⁷ ANMs are thus often left to manage the PHC sub-centers largely on their own.

Security is another primary concern to ANMs. Iyer and Jesani report how stories of ANMs being called out to homes on false pretenses and sexually assaulted circulated among ANMs in their case study areas.⁵ ANMs may be placed at remote PHC sub-centers. Many refuse to go out at night to medical emergencies; some even choose to live away from the PHC sub-center so they are not available for night calls. Unmarried ANMs have reported being verbally harassed by young men in the village and having had stones thrown at them.¹⁰⁷

Furthermore, ANMs are transferred every four years on average, which can often place a major strain on their family and social lives.¹⁰⁷ Many ANMs end up living away from their husbands and children at some points in their careers.¹⁰⁷ Mavalankar and Vora highlight the problem of "non-resident" ANMs, citing a 2007^c study that found less than one-quarter of all ANMs actually living at the PHC sub-center.¹ If ANMs do not make the PHC sub-center their primary residence, they are unable to provide 24-hour medical assistance and are more likely to be absent due to commutes or extended leave times to visit family. It is not surprising that ANMs choose to live away from the PHC sub-center. Beyond the security concerns mentioned above, living at PHC sub-centers places ANMs "on call" at all times. Moreover, PHC sub-centers are often little more than concrete rooms and often lack electricity and water.

^c The URL to access this data was no longer operational when the authors sought to check it, on 8 April 2013. The reference given was: Key Indicators, India, Facility Survey, 2003. http://www.rchindia.org/sr/ki_india.pdf. Accessed September 5, 2007.

AWWs and their ICDS program face major challenges as well. From the beginning, the ICDS program has been implemented with uniform norms, giving rise to critiques of inflexibility and incapacity to adjust to address pockets of more severe malnutrition.¹⁰⁸ The top-down implementation of the program has left very little space for community involvement and has resulted in many ICDS workers (including AWWs) having very little accountability to the communities in which they operate.¹⁹ Many studies have identified implementation problems with the ICDS program in general, and have specifically identified insufficient AWW training and support as a major barrier to program success.^{19,77,109-111} AWW duties require detailed understanding of child nutrition, maternal health and preschool education. “Supply leakage,” particularly related to pilfering and resale of food grains from ICDS program stocks, has severely undermined nutrition supplementation efforts. What food does get distributed has been found to focus on children between the ages of four and six years, which is actually too late to optimally influence growth.¹⁰⁹

In 2000, Greiner and Pyle identified low community involvement in the ICDS programs as a central barrier to program success.¹⁹ Although community selection and support of the AWW are featured in government documents, and although AWWs are members of the communities that they serve, they generally receive little help or support from their fellow community members for their work. Similarly, ICDS employees may feel low affinity for the communities in which the ICDS program operates.

Furthermore, major gaps in intersectoral convergence between the community-level nutrition activities managed by the AWW and health services managed by the ASHA and ANM have been highlighted.¹¹² Although AWWs and ASHAs are expected to coordinate at the village level in what is termed the “triple A” or AAA coordination, this is often not happening,

While the ASHA program is progressively becoming stronger, not only in terms of health impact but also improving ASHA compensation and support¹¹³, a range of programmatic challenges have been noted. These challenges generally related to insufficient training and supervision^{85,103,114-118}, low community engagement with and awareness of ASHAs^{60,119}, challenges related to referrals (limited transportation, coordination and health facility resources)^{102,120-123}, dissatisfaction among ASHAs with their remuneration or support¹²³⁻¹²⁸, and lack of supplies.^{85,127,129,130}

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The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are as follows: Top left: An ANM helps a mother learn kangaroo mother care—important for newborn growth—at District Hospital, Shivpuri district, Madhya Pradesh, India. © 2012 Anil Gulati, Courtesy of Photoshare. Top right: An AWW feeds a group of children at an Integrated Child Development Services Center in Bagnan, India. © 2012 PAB, Kolkata, Courtesy of Photoshare. Bottom left: Women in India work to become ASHAs. © 2008 Meenakshi Dikshit, Courtesy of Photoshare. Bottom right: A group of ASHAs in India. © 2008 Meenakshi Dikshit, Courtesy of Photoshare.

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India's National Village Health Guides Scheme



Rachel J. Strodel¹ and Henry B. Perry²



¹ School of Medicine, Johns Hopkins University, Baltimore, MD, USA.

² Department of International Health, Health Systems Program, Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD, USA.

One-page summary

Background

Based in part on the success of India's early community health worker (CHW) programs, the Government of India launched in 1977 a national CHW scheme—the Village Health Guides (VHGs)—to provide preventive, promotive, and basic curative care to rural populations. Surprisingly, given the scale and importance of the VHGs Scheme and its pioneering nature as a national CHW program, little has been published describing this experience. Unfortunately, little is known about the history of this program because it quietly disappeared. There is little documentation of the implementation of the program or evaluation of it after it was underway.

Implementation

The planning and implementation period was very short. There was poor communication between the government and health centers about the role of the VHGs as well as a lack of support from the formal health sector. Nonetheless, over the course of five years (1977-1982), 500,000 VHGs were trained.

Roles/responsibilities

VHGs provided a broad array of preventive, promotive and curative services, but curative activities came to dominate their work. They treated minor ailments and referred patients with more serious conditions to the PHC center. They were expected to identify cases of malaria, TB and leprosy and to assist staff from the PHC center in their outreach work related to immunizations, family planning, and maternal and child health.

Training

Community leaders selected VHGs, more on the basis of their political connections to the leadership than on competence and motivation to serve the community. Most VHGs were men. The VHGs received three months of training from the local PHC center to which they were attached.

Supervision

There was no formal supervision. VHGs went to the PHC center to collect their paycheck and connect with the staff there.

Incentives and remuneration

VHGs received a salary of approximately US\$ 24 (in current value) per month. They received more than that during their training, and they also received some medicines and supplies from the PHC center to dispense to their patients.

Impact

Although the VHGs Scheme was inspired by smaller highly successful programs, it failed to deliver the anticipated impact at scale and was abandoned quietly in 2002. The experience informed plans for the successful national ASHA program, initiated in 2005, as was described in the preceding chapter.

Historical context

The VHG Scheme emerged from a health system in which the well-being of rural peoples had been largely ignored. British colonial rule in India gave little attention to rural health services since the health system established by the British was developed to cater to the needs of military and bureaucratic officials.¹ At the time of independence, only approximately 10% of the Indian population had access to appropriate medical care.²

In the years leading up to independence in 1947, this widespread neglect resulted in grassroots efforts calling for greater access to promotive, preventive, and curative services. Several committees articulated this vision for improving the health of the people of India through community-based initiatives. In 1940, the National Health (Sokhey) Sub-Committee of the National Planning Committee called for a CHW program with one worker for every 1,000 village population to provide basic curative and preventive services.³ Like the Sokhey Subcommittee, the Bhore Committee advocated for the integration of preventive and curative services in its influential report published in 1946.⁴ This report made clear that community engagement was necessary to transform the existing health system: “The closer the health service can be brought into contact with the people whom it serves, the fuller will be the benefit it can confer on the community.”⁴ Together, these declarations seemed to signal a shift toward addressing the longstanding neglect of the health of Indian people, particularly those living in rural areas.

Despite the ambitious visions of justice and community engagement articulated by the Bhore report and Sokhey Subcommittee, the health system continued to reflect India’s deep-seated inequalities. Physicians comprised an elite class of professionals incentivized to become highly specialized and practice in urban areas.² Throughout the 1960s and 1970s, there was little progress toward improving health services in rural areas. During the 1960s, the government trained extension workers to conduct home visits and deliver specific, targeted interventions (e.g., family planning services or immunizations). However, with only one worker per 10,000-25,000 population, these paramedics were unable to reach all individuals in their catchment area.⁵ Communities were also generally unengaged in the preventive activities the workers promoted.⁵ As a result, high fertility and high infant mortality continued unabated, as did health disparities between urban and rural regions. In the early 1970s, the crude death rate in rural regions was nearly double that of urban regions.⁶

The Ministry of Health and Family Welfare launched the Health and Medical Education Committee (commonly referred to as the Srivastava Committee) in 1974. The aim of the Srivastava Committee was to align medical training with the country’s needs and establish guidelines for a new group of health workers to improve coordination between Multipurpose Workers and Medical Officers.⁷ This Committee’s report would later become the foundation for the planning of the Village Health Guides (VHG) Scheme. The Committee’s vision was to “make the community self-sufficient in the provision of simple, promotive, preventive and curative health services.”⁸

In its report, the Srivastava Committee recommended principles to govern the development of a new community health worker (CHW) program. The workers in the program would include existing health workers who provide outreach (e.g., auxiliary nurse midwives), but the program would also train community members such as schoolteachers and educated unemployed women with the skills necessary to become CHWs. In order to prevent these new CHWs from becoming an extension of the bureaucracy, the committee recommended that they be neither remunerated nor supervised by the state, and instead be “free to work with the community on the basis of the trust and confidence they can generate.”⁷ The primary aim of this new cadre would be to increase access at the community level to preventive, promotive, and curative care services and to create a link between rural communities and the formal health sector.

When the Janata Party (with its stronger orientation to Gandhi’s principles than Nehru’s⁹) defeated the Congress Party in the 1977 election, the new government began to draw up plans to institute the health worker program outlined by the Srivastava Committee. The government also drew inspiration for the CHW program from smaller projects, particularly the Jamkhed Comprehensive Rural Health Project (CRHP) and

CRHP's co-founder, Rajanikant Arole, who was a government advisor for planning the Rural Health Scheme (Raj Arole, personal communication, 1997) and 13 other projects in India highlighted at a symposium in 1976.⁹⁻¹⁴

In the first few years of the new government, leaders felt pressure to regain the confidence of India's rural populations and saw the implementation of a CHW program as a step that would demonstrate a commitment to their well-being. Rapidly implementing this CHW program would also reduce the risk of the medical community organizing against the reform, as it had done previously.¹⁵ However, this haste resulted in a program that deviated in many important ways from the Srivastava Committee's original vision.¹⁵

On October 2, 1977, less than seven months after the Janata Party had been elected, the VHG Scheme was officially instituted. The scheme was first called the Community Health Worker Scheme, but in 1979 was renamed the Community Health Volunteer Scheme and finally in 1981 designated the Village Health Guide Scheme.^{9,16} Here, we use the term Village Health Guide to refer to this cadre of CHWs throughout the life of the program.

Health system structure

Although the Government of India adopted the Bhore Committee's recommendation of establishing primary health care (PHC) centers, the actual implementation of these health centers languished. Rural PHC centers designed to serve 40,000 individuals were stretched to cover 100,000. The catchment area of these centers included villages that were 15-20 kilometers away. Utilization was feasible only for those within 4-5 kilometers of the center since the only available transport was by foot or cart.¹⁵

CHW program features

The program drew heavily on a 40-year-old scheme of the National Planning Committee that had never been set into motion.^{9,12-14,17} Because the VHGs were paid by the government, the communities, health system personnel, and VHGs themselves came to regard VHGs as another level of government employees.¹⁸ The payments shifted the role of the VHG away from that of a community advocate, educator, and link to the formal health system. Instead, VHGs' duties became centered on basic curative care and tasks assigned to them by medical personnel. VHGs were expected to work 2-3 hours per day.^{5,15,18}

Scope of work

The VHGs were intended to be a cadre tasked with a broad array of duties related to preventive, promotive, and curative services.⁹ Due to poor communication between the central government and rural communities, the VHGs' promotive and preventive roles fell by the wayside, and their work became centered on curative tasks. Weak coordination between the central government and state actors jeopardized even those curative responsibilities, with almost half of all VHGs lacking their essential drug kits.¹⁹

The VHGs were tasked with identifying cases of communicable diseases such as malaria, TB, and leprosy; administering first aid; treating minor ailments; helping paramedics in their work related to immunization, family planning, and maternal and child health; rallying the community around sanitation and hygiene; and generally promoting health education.^{9,18} If a particular case required medical skills beyond the training of a VHG, the VHG was expected to refer it to the PHC center, the district hospital, or another specialized facility.⁹

Selection and training

Although the communities were supposed to play a key role in selecting their own VHGs¹⁸, in reality this task was often delegated to just a handful of individuals, including Medical Officers at the PHC centers and the village leadership (members of the Village Panchayats).^{9,18} In some cases, political parties and elected representatives took advantage of the selection process to advance their own interests.

The selection criteria for VHGs deviated from the Srivastava Committee's recommendations. The Srivastava Committee suggested training one male and one female worker per 5,000 population.⁷ Smaller pilot projects, including the Jamkhed Comprehensive Rural Health Project,²⁰ found success with training female CHWs. However, the program planners did not specify any criteria regarding the gender of the VHGs beyond advising that the workers be female when possible. This guideline was hardly ever upheld, and 75–94% of VHGs were male,^{16,21–23} making it in effect a part of the political patronage system.¹⁴ The selection of predominantly male workers was based more on political considerations and on connections to local leaders than on a desire to serve (R Arole, personal communication, 1997). This politicized selection process ultimately became a major factor undermining the effectiveness of the VHG Scheme.²⁵

VHGs had three months of formal training provided at the PHC center to which they were linked.¹⁸

Support and supervision

VHGs had no formal supervision. The government intended for communities to be responsible for supervising the VHGs and for the PHC center to provide technical support and hire an additional Medical Officer to support the new workers.⁵ However, this did not happen.

Some major problems that were documented during program scale-up included lack of a functioning supply chain for the VHGs, lack of supervision, and lack of community engagement. Finally, the VHG Scheme failed to provide supportive supervision to the VHGs themselves, which affected their accountability, job satisfaction, and motivation.⁹

Incentives and remuneration

Although the Srivastava Committee recommended that the government not remunerate the new cadre of VHGs, paying the new workers would help legitimize the new government: the Janata Party could point to the program as a success in providing jobs for the educated but unemployed youth in India's rural population.¹⁵ The decision was made to pay the VHGs a small monthly "honorarium" to cover expenses—Rs. 200 during training and Rs. 50 per month post-training (approximately US\$ 25 and US\$ 6 in 1978 currency, respectively, or US\$ 100 and US\$ 24 in 2019 currency), in addition to providing Rs. 50 worth of medicines and supplies per month.⁹

Community role

As mentioned previously, community leaders selected VHGs, often based on political considerations rather than on a desire to serve the community. If the community felt that the VHGs were not performing satisfactorily, it could replace the worker, but it would have to raise the funds for training the new VHGs.⁵ However, this rarely happened. The central level planned for the community to supervise the VHGs, but this plan was never a practical one and never implemented.

Linkages with the formal health system

The salaries of VHGs were channeled to the PHC centers. The PHC centers to which VHGs were attached were supposed to provide training, supervision and logistical support to the VHGs. Unfortunately, the PHC centers were ill-equipped to perform these duties.

Program scale-up

The newly elected Janata Party was under pressure to regain the confidence of rural populations after the sterilization campaigns of the 1970s. For this reason, the scale-up was rapid, and perhaps hasty. Over the course of five years, some 500,000 VHGs were trained in rural India with the goal of having one VHGs for every 1,000–2,000 people.^{9,17}

The first wave of training involved 741 PHC centers in 28 districts throughout India and approximately 8,000 new VHGs.⁹ Eighteen months later, there would be approximately 66,000 functioning VHGs across India.¹⁴ By 1980, 150,000 VHGs had been trained, reaching one-third of India's rural population.¹⁹ This figure would rise to 400,000 by the end of 1987.^{9,23}

The planners did not pay enough attention to the fact that the health system in which the VHGs would operate was apathetic, or even antagonistic, toward the type of preventive care, health promotion, and social mobilization that the VHGs would advocate. As a result, state officials did the bare minimum to implement the program, at times even opposing the scheme.¹³ Very few PHC center staff members received instruction in how to train the new VHGs, leading the PHC centers to consider the VHGs as just another level of government worker. All this, plus weak communication from the central and state levels of the Ministry of Health and Family Welfare to the district level and to the local PHC centers reduced community participation in the selection and monitoring of VHGs. The VHG Scheme's weaknesses highlighted the importance of clear communication and buy-in—from the central government all the way through to the local PHC center. Table 1 presents a detailed analysis of the various influences on the scale up, effectiveness and sustainability of the VHG Scheme.

Monitoring and data use

VHGs came to the PHC center for monthly meetings. Further information about routine monitoring and data use is not available, but it is likely that no formal system was implemented. There were several external evaluations carried out early in the course of implementation of the VHG Scheme, the findings of which are described in the Impact section.

Table 1. Factors influencing scale-up, effectiveness and sustainability of the Village Health Guides Scheme

Program element	Element of health system			
	Community	District/block/frontline workers	State	National (central level)
Planning of program	No involvement, received limited information about the program	No involvement, received limited information about the program	No involvement, received limited information about the program	Carried out exclusively at the central level and driven by a tight time-schedule in order to reap political benefits in a forthcoming national election, conveyed to states in a top-down manner
Building of political support			Seen as the national government's program, with few states interested in taking ownership	Strong political support at outset, but this dissipated when the controlling party lost the election
Building of initial and long-term financial support			Seen as the national government's program, with few states interested in taking ownership	Minimal financial commitment to the Scheme from the central government
Integration with health system	Considered VHGs as employees of the health system	PHC centers were not prepared for or oriented toward the training and supervision of VHGs; considered VHGs as employees of the health system; PHC doctors hostile to the vision of prevention and community mobilization for VHGs and shifted the vision toward curative care and the provision of this care at the PHC center		
Recruitment and selection of VHGs	In practice, at the outset only a select group of community leaders were involved creating a system of selection dominated by political patronage and selection of almost all male VHGs even though the plan at the central level called for equal numbers of male and female VHGs	Selection later guided by district-level officials after patterns of political patronage became apparent		Communities were supposed to select and supervise their own VHGs

Program element	Element of health system			
	Community	District/block/frontline workers	State	National (central level)
Training of VHGs		PHC centers ill-equipped to perform this function.		
Remuneration	VHGs, since they receive government remuneration, were regarded by the community as government workers rather than community advocates and educators	Salary payments channeled through health centers with no community involvement, thus creating VHGs as extensions of the health bureaucracy	Few states willing to take responsibility for paying VHW salaries when the central government stepped back	Central government unable/unwilling to sustain its support for salaries
Supervision and support of VHGs	The central level planned for the community to supervise the VHGs, but this plan was never a practical one and never implemented	In practice, the local PHC centers were expected to provide supervision and support, but they were ill-equipped to do this	Plans for supervision and support inadequate	Plans for supervision and support inadequate
Consideration of feedback from VHGs and their needs for adequate job performance	None	None	None	None
Consideration of long-term career development of VHGs	None	None	None	None
Ongoing formal monitoring and evaluation of the VHGs Scheme and program adjustment	None	Some limited evaluations carried out at the district level	Some limited evaluations carried out at the state level	No mechanism in place to adjust the program once it had been implemented and deficiencies began to appear

Financing

The VHG stipend became the crux of several issues plaguing the program. Providing a monthly stipend to each VHG created a substantial burden for the central government. In 1979, the National Development Council asked the state governments to cover half the cost of the scheme, causing several states to terminate the program.⁹ The stipend also impacted how the VHGs viewed their responsibilities.

After the Janata Party government dissolved toward the end of 1979 and the Congress Party returned to power, the government mandated that the cost of the scheme be equally borne by the states, and most states dropped the program.⁹ The VHG scheme was abandoned for a year. In 1981, the Congress Party government resuscitated the program as a centrally-funded scheme, mandating that villages form health committees to guide, monitor, and supervise the work of the CHWs (who were then named VHGs).⁹ By 1982, VHG Schemes were operating in all States of India except for three, which had their own alternative scheme.²⁴ Throughout the 1980s and 1990s, the government neglected the VHG scheme and did little to address its well-established failures. In 1986, the government attempted to phase out male VHGs and re-orient the scheme toward maternal and child health.¹⁸ However, this led male VHGs to unionize and petition against their removal since they considered themselves government employees.²² The amount of the honorarium also became a source of tension between VHGs and the government. By 2001, at least 23 legal cases had been brought to trial to raise the honorarium—but as VHGs were technically volunteer workers, none succeeded in court.¹⁸

Impact

A 1979 national evaluation found that 57% of respondents had had contact with a VHG and a similar evaluation in 1984 found that 54% had had contact.¹⁹ One study from Karnataka reported VHGs were seeing on average 8.6 patients per day.¹⁹ A 1988 evaluation in Barasia block of Bhopal district²⁵ found that 82% of those interviewed had utilized a VHG and that 72% were fully satisfied with the VHGs' services. The main cause of dissatisfaction was lack of drugs. In a 1998 evaluation in the Punjab State, for instance, 70% of households interviewed had obtained care from a VHG and 65% had received a home visit from a VHG.¹⁶ Other evaluations carried out during this period reported similar high levels of contact of VHGs with the population and of satisfaction with the work of the VHGs.^{26,27} All evaluations carried out revealed a high level of contact of VHGs with the population they were serving and a high level of satisfaction with the curative care that they provided.

However, in 1979, two years after the program had been deployed, an evaluation of the program found that 40% of VHGs reported not receiving their drug kits, and over 60% had not received the supplementary materials for community health and counseling.²⁸ In addition, about 50% of VHGs reported not receiving the CHW manual that was supposed to be used as a reference guide for village activities.²⁸

Soon after implementation began, the challenges of implementing a grassroots program through a top-down approach directed by a central government bureaucracy became apparent. The government issued several statements announcing the new program, but communities, health personnel, and even the VHGs received little clarity as to how the responsibilities of the new VHGs would fit into the existing health system.

When physicians in Bengal spoke up about this exploitation of the system, the selection of VHGs became standardized and controlled by district-level officials to prevent this type of interference.¹⁵ As a result, communities—which were intended to be central participants in VHG selection—were sidelined.

Once selected, the training that VHGs received at their local PHC centers failed to provide them with the skills necessary to carry out their assigned responsibilities. The PHC centers themselves were overcrowded, and groups of trainees sometimes had to sit outside in the PHC center courtyard when there was no room for their class to meet.¹⁵ The legacy of aggressive family planning campaigns through these centers during the 1960s and 1970s left few resources to be dedicated toward strengthening other health services. The instructors training the VHGs were often unaware of the overall goals and methods of the VHG Scheme, and only one-half of the VHG trainees received training manuals.^{13,19} Merely 3% of VHGs received their medical

kits during training, further impeding the learning of new skills.¹⁵ Though the curriculum included practical skills such as latrine building and water purification, it did not include education on broader social factors affecting health. In reality, it was as if the VHGs were being trained as assistants for the PHC center rather than as community advocates.¹⁶

VHG Scheme evaluations in the late 1970s and early 1980s reflected numerous deficiencies and an emphasis on curative care. A survey conducted by the National Institute of Health and Family Welfare in 1979 found that VHGs responded correctly to only 20–30% of questions about patient referral, disease prevention, and emergency care.¹⁹ This same evaluation found that VHGs responded correctly less than 30% of the time to questions assessing knowledge of disease prevention; conditions requiring referral to higher level facilities; emergency treatments; and general preventive, promotive, and curative services.¹⁹ Following this evaluation, little was done to address these shortcomings. The VHGs also failed to constitute a link between the community and the PHC centers, referring on average fewer than two patients to the PHC centers every two weeks.¹⁵ A study in the Mysore district of Karnataka found that although 80% of VHGs correctly identified malaria symptoms, only 20% knew how to make oral rehydration solution to treat diarrhea.¹⁹

Communities themselves perceived the VHGs primarily as a provider of curative care. In one study, 74% of the population thought that the most important task of the VHGs was to treat minor ailments, while only 0.4% said that community health education was most important.²⁹

From 1997 to 2001, a high-level committee from the Government of India evaluated the VHG Scheme to determine whether the program had achieved its aims and if the Government should continue supporting the scheme in the future.^{18,30} Based on the recommendations of this committee, the government formally terminated its financial support for the VHG Scheme in April 2002, although states were encouraged to continue funding the scheme out of their own budgets.¹⁸

The author of the Bhopal district evaluation concluded “it is evident that ... the role of the V.H.G. [as] essentially that of change agent to educate the community on health, nutrition, immunization, maternal and child health and environmental sanitation has not been fulfilled so far.”²⁵ In other words, the VHGs were largely not fulfilling their mission to engage their communities in preventive activities. The choice to not require VHGs to be female also stunted the program’s effectiveness.

Challenges

Some of the challenges that the VHG Scheme faced were lack of government buy-in and support following program implementation. Moreover, lack of community engagement in program design and deployment inhibited the program’s acceptability and sustainability at the rural community level. The stipend provided to the VHGs caused them and their communities to think of them not as community agents, but instead as simply another level of government employee. Remuneration also became a large burden for the Central government.

The VHG Scheme failed to provide the funds required to assure that supervision and the needed materials and supplies were available. The government’s financing of the program was heavily dependent on external aid, and the program was poorly managed. Furthermore, the government failed to integrate the community health efforts of the VHGs with responses to other public health problems, such as water supply, and with economic growth opportunities like agricultural inputs and land reclamation.

India’s attempt to take to national scale a community health worker program based on several small-scale projects—such as the Comprehensive Rural Health Project at Jamkhed, Maharashtra—was a bold and visionary step to address unmet health needs in the country. The history of the VHG Scheme, along with substantial national experience at that time in India and since, point to the importance of careful planning by engaging health system actors at multiple levels, engaging the community, integrating the program with the health system, and obtaining buy in for long-term political and financial support to ensure sustainability and

long-term effectiveness. The VHG Scheme provides a unique glimpse into how a country's politics and health system norms can shape the scale-up of CHW programs.

The VHG Scheme was an important early attempt to extend basic and essential health care at scale in India, and the lessons learned have been valuable for India and are valuable today in the current global context of striving for Universal Health Coverage, Ending Preventable Child and Maternal Deaths, and the continuing the quest for "Health for All."³¹ The VHG Scheme was eventually followed in 2005 by the Accredited Social Health Activist (ASHA) program, introduced on a national scale in India by the government's National Rural Health Mission, which drew on lessons from the VHG Scheme. Now, there are almost one million ASHA workers, all of whom are female. There is a well-planned supervisory and management structure for the ASHA workers with efforts to embed them both in the community and in the broader health system (Smisha Agarwal personal communication, 6 June 2019). The program is much more effective and enjoys broad political national and local support as well as strong ongoing financial support for the program (Rajani Ved, personal communication, 28 June 2016).

The VHGs Scheme was one of the first efforts to scale up a CHW program. The lessons from this experience could not be more relevant than for today, when there is global recognition of the potential contributions of CHWs to strengthening health systems.

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The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

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The photograph on the cover page are as follows: Village Health Guide talking with a mother (source: <https://healthpeopleus.blogspot.com/2019/06/village-health-guide-scheme-in-india.html>)

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Indonesia's Community Health Workers (*Kaders*)



Apriani Oendari¹ and Jon Rohde²



¹ Center for Community Health Education Research and Service (CCHERS), Boston, Massachusetts
² James P. Grant School of Public Health, BRAC University, Dhaka, Bangladesh

One-page summary

Background

Built on the national women's Family Welfare Movement (*Pemberdayaan Kesejahteraan Keluarga*, PKK) of the 1970s, volunteers called *Kaders* were trained to conduct health and nutrition promotion activities in each village. In the mid-1980s, the *Pos Pelayanan Terpadu (Posyandu)* program was formally recognized by the Ministry of Health (MOH). For more than 35 years, this community-driven program has continued to thrive.

Implementation

A *Posyandu* is a health post in the community that is staffed by *Kaders*. Each *Posyandu* serves approximately 100 children younger than five years of age or about 700 persons in the community. In 2018, there were more than 173,000 active *Posyandus* and more than 500,000 trained *Kaders* across the country, almost exclusively women.

While the ideal *Posyandu* is run by five or more *Kaders*, many are still struggling to reach this desired number. Sessions of the *Posyandu* are held monthly, at which time mothers and infants receive services at five tables: (1) for registration, (2) for weighing, (3) for result recording, (4) for advice and counseling on growth and development, and (5) for health services (such as immunization, family planning commodity resupply, supply of take-home oral rehydration packets, and iron tablets).

Roles/responsibilities

Kaders conduct the monthly *Posyandu* sessions. Outside of the *Posyandu* sessions, *Kaders* carry out follow-up visits in the community, attend community committee meetings, and update *Posyandu* target and utilization data. *Kaders* work about 10–20 hours monthly.

Training

Kaders receive less than one week of formal training, but over time they continue to develop their skills. Many are trained by more experienced *Kaders* “on-the-job.”

Supervision

While the nearest community health center (*Puskesmas*) provides technical guidance and support, the real accountability of the *Kaders* is to the village committee that appointed and supports them in their work. *Kaders* undertake to do “welfare work” for their community, and the monthly *Posyandu* session is seen as an important function and contribution to the welfare of the community.

Incentives and remuneration

Kaders provide voluntary service without financial compensation, except for small reimbursements for their transportation expenses. However, *Kaders* may receive informal types of compensation, such as free medical treatment from higher levels in the health system. There is a high cultural value placed on doing something for one's neighbors, so volunteering as a *Kader* is highly esteemed.

Impact

The latest 2014 figures from the Indonesia MOH indicate that 81% of under-five children had been weighed and 87% had received their complete set of basic immunizations.¹ The MOH has stated that the decreases in maternal and child mortality as well as the increase in life expectancy in Indonesia are partly attributable to the work of the *Posyandus* and *Kaders* in the community.

Historical context

The National Nutrition Survey in 1973 highlighted the high prevalence of malnutrition in Indonesia, with over half of the children younger than five years of age undernourished. Throughout the 1970s, various program approaches were undertaken to improve nutrition at the village level.^a The well-established Family Welfare Movement (*Pemberdayaan Kesejahteraan Keluarga*, PKK) organization of local women was endorsed by the Ministry of Home Affairs and active in thousands of villages throughout Java promoting self-help activities.² Working with local health departments, university departments of pediatrics, and the National Population and Family Planning Board (*Badan Kependudukan dan Keluarga Berencana Nasional*, BKKBN), the PKK became the locus of a set of activities, all organized and carried out by female volunteers called *Kaders*.^{2,3}

Once a month, mothers gathered at a common place in the village to weigh their children, discuss child health issues, and cook nutritious meals together. In more developed villages, the meetings might have taken place at the Village Office. *Posyandus* were frequently held at the front yard of a prominent or wealthy villager's house. In some remote areas without adequate infrastructure, it was not uncommon for *Kaders* to hold *Posyandu* meetings at an outdoor space, such as a garden under the shade of a large tree. The sessions started in response to PKK mothers asking how they would know if their children were healthy and growing well. Traditional bar scales for market commerce (*dacin*) were used, as virtually all rural women were already skilled in their use. Growth charts that displayed multiple green channels getting greener at the top (like rice that grows greener as it is fertilized) were used to demonstrate where children were located based on their weight for age and whether their weight was increasing. *Kaders* demonstrated healthy recipes and mothers were allowed to ask questions or share their own ideas. Some mothers may have received family planning counseling from *Kaders* and family planning services from the village's midwife. These activities were named *Karang Balita* (the child nutrition post) and *Pos Keluarga Berencana Desa* (the village family planning post).^{2,4}

Kaders were given a brief training from the local community health center personnel before starting their volunteering work and thereafter on a regular basis. At the time of the monthly gathering session, they were equipped with simple health education aids and followed standard prescribed activities focused on family health and child nutrition. The teaching-learning process during the sessions relied heavily on “wisdom of mothers” (*kebijaksanaan ibu*) as *Kaders* transformed the nutrition science they received from the training into practical and easier-to-understand information. Affordable local ingredients from farmers' markets were used for the recipes *Kaders* demonstrated with mothers. This method reduced the need for costly food supplements commonly used by other countries at the time.

The Family Planning-Nutrition (*Keluarga Berencana-Gizi*, KB-*Gizi*) Program grew dramatically during the Third Five-Year Plan (1979–1984), at which time it reached over 30,000 villages.⁵ By 1984, over 80,000 family planning-nutrition posts in 34,000 villages, run entirely by *Kaders*, were providing basic nutrition and growth monitoring services as well as resupply of pills and condoms.³ Three other functions were later added to the program as the Ministry of Health (MOH) began to use these monthly gatherings as a convenient means to expand immunization coverage (*Pos Imunisasi*, or the Immunization Post), provide medical consultations (*Pos Kesehatan*, or the Health Consultation Post), and promote diarrhea control and prevention (*Pos Penanggulangan Diare*, or the Diarrhea Control Post).³

To simplify resource allocation, these five various posts were merged into a single post called the *Posyandu*^b in 1984 under a joint instruction from the Minister of Home Affairs, Minister of Health, and director of BKKBN.^{3,6} Two years later, the *Posyandu* Program was officially introduced as a national movement by then-president Suharto.³ It thrived during the 14-year period from 1984 to 1998 under his rule, expanding to more than 65,000 (86%) villages in Indonesia with some 250,000 *Posyandus* run by more than one million *Kaders*.^{7,8}

Full government support was often cited as the main contributor to the success of the *Posyandu* Program during the 1980s and 1990s.^{4,9} The PKK movement was included in the Broad Guidelines of the National

^a In Indonesia, the word “village” refers to the lowest administrative level in the urban community (which is called “kelurahan”) and in the rural community (which is called “desa”).

^b The term *posyandu* is an abbreviation of *Pos Pelayanan Terpadu*, which literally means “integrated service delivery post.”

Policy (*Garis-Garis Besar Haluan Negara*, GBHN), and the *Posyandu* became a key strategy to improve the nation's health and welfare status.¹⁰ Campaigns to promote the *Posyandu* were massive, including through the popular nursery rhyme, “*Aku Anak Sehat*,”^c which was frequently played on national television and radio and whose lyrics exactly reflected the *Posyandu*'s activities.⁸ Additionally, sign boards displaying PKK goals were installed in almost every alley in many villages.¹⁰

During this period, *Kaders* represented the state by serving its citizens.¹⁰ Initial skepticism around volunteerism and worry about attrition of *Kaders* gave way to pride and recognition for the important community service they provided. Women wishing to retire from their role recruited and trained their replacements, thereby developing a self-perpetuating system of local health and nutrition care.⁴

However, the economic crisis during 1997 significantly impacted *Posyandu* performance.^{3,9} Some reports indicated that up to 70% of the *Posyandus* stopped functioning because many *Kaders* had to give priority to earning money for the survival of their families and therefore were no longer able to serve the community.^{4,9} Following the fall of Suharto's regime in 1998, the program suffered a setback due to lack of support and shifts in government priorities.^{3,4,8,9}

Health needs

The *Kader* program was developed first as a response to addressing childhood malnutrition, approaching 50%, which was identified as the greatest threat to Indonesian children in the 1970s. Over the next two decades, with regular attention to monthly monitoring of child growth and use of locally grown foods and recipes, malnutrition declined significantly without a concurrent government food supplementation program, which was popular at that time in many other countries.² Among children aged between two and five years, the prevalence of underweight had continued to decline from 35% in 1993 to 21% in 2007 and so had stunting prevalence, from 51% in 1993 to 36.7% in 2007.¹¹

Indonesia has recorded a significant improvement in maternal and child health indicators over the last 40 years. The maternal mortality ratio (MMR) decreased by over two-thirds, from 446 deaths per 100,000 live births in 1990 to 126 deaths per 100,000 live births in 2015. Infant mortality steadily declined from 142 deaths per 1,000 live births in 1967, to 68 deaths per 1,000 live births in 1990, to 23 deaths per 1,000 live births in 2015. Moreover, the under-five mortality rate declined from 84 deaths per 1,000 live births in 1990 to 27 deaths per 1,000 live births in 2015.¹²⁻¹⁴

However, there are still problems to address beyond the decline in the above rates. Since 2000, the rates of maternal and child mortality reduction have been slower than they were in the previous years.^{12,13,15} The 2015 MMR was still higher than the national target of 102 deaths per 100,000 live births.^{13,15} Although neonatal mortality declined by half from 30 per 1,000 live births in 1990 to 14 per 1,000 live births in 2015, almost two-thirds of infant deaths occur within the first month of life, mainly due to acute respiratory infections, perinatal complications, and diarrhea. All of these indicate the need for increased quality of delivery and postnatal care.^{12,13} Indonesia is still lagging behind other low-to-middle income countries in regard to mortality reduction. In addition, there continue to be wide gaps between well-performing and underperforming regions in Indonesia for key health status indicators.¹³

In the 1970s, diarrhea was the leading cause of child deaths. The availability of oral rehydration at the *Posyandu* and the monthly attention to nutrition and hygiene along with early rehydration in the home for diarrhea cases significantly reduced diarrhea deaths.¹⁶ However, other communicable diseases are still a serious threat to public health. TB is the third-highest cause of premature deaths among adults, and the prevalence of multidrug resistant TB has continued to rise.^{15,16} Since 2010, new HIV infections have increased by 68%. There were approximately 620,000 people living with HIV in 2016, including pregnant women and children, yet only 13% of them were receiving antiretroviral therapy.¹⁷ Malaria is still highly prevalent in the eastern part of Indonesia, and the government has set a target to eliminate the disease by 2030. Neglected tropical diseases, such as leprosy, lymphatic filariasis, and schistosomiasis, remain a problem in some areas of the

^c The English translation for “*Aku Anak Sehat*” is “I am a Healthy Child.”

country. Meanwhile, dengue, chikungunya, measles, and diphtheria outbreaks are still occasionally reported each year.¹⁵

In addition to persistent problems of maternal and child health, malnutrition, and communicable diseases, Indonesia is also dealing with the gradually increasing prevalence of non-communicable diseases and their associated risk factors. Stroke has been the leading cause of death among adults, followed by cancer, ischemic heart diseases, diabetes, and chronic respiratory diseases.^{13,15,16} The weak tobacco control policy is a lingering problem and Indonesia has one of the world's highest smoking rates. It was estimated that two out of three adult males in Indonesia were smokers, and the number of children who smoke has been increasing.¹⁸

Health system structure

Since 2001, Indonesia has implemented a decentralized system, with a transfer of authority from the central government to more than 500 district-level governments. This system grants cities (or regencies)^d and villages greater autonomy to manage health budgets and create health programs that suit local needs and resources. The roles of the MOH at the national level and its provincial agencies are largely to set norms and provide guidance for the lower-level administrators.^{13,19}

Individual health care services in Indonesia are provided by the public and private sectors. Referral hospitals are owned by the government and located only in large cities. At the city and district levels, there are government-owned district hospitals and private hospitals. Primary health care services at the village and sub-district levels are provided by the *Puskesmas* (community health centers) and private clinics (which are located mainly in urban areas). Private health facilities are owned by individuals, companies, or religious-affiliated organizations.^{13,19}

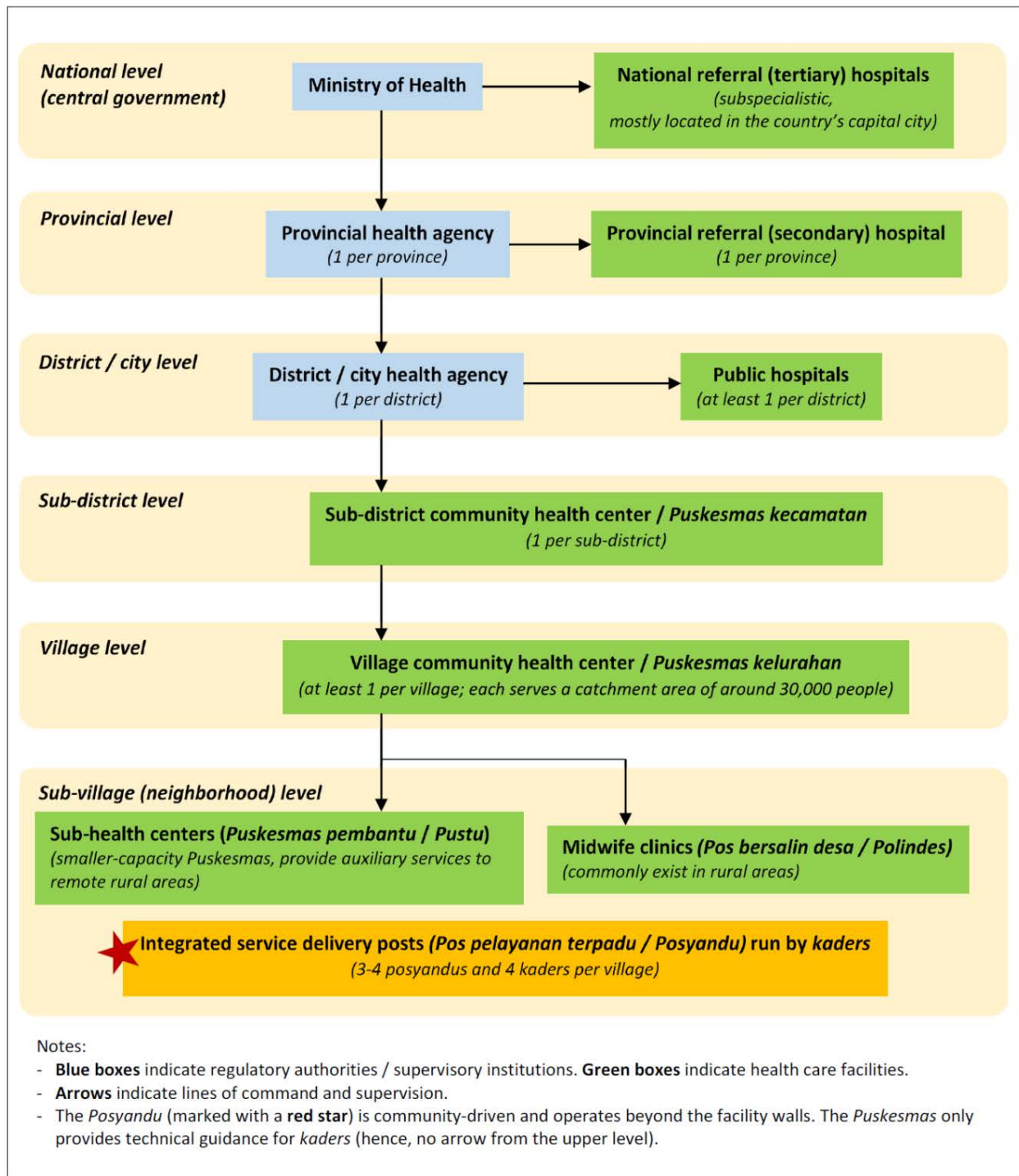
The District Health Agency and the *Puskesmas* are responsible for the provision of public health services, such as disease control and prevention, surveillance, sanitation, health promotion, and community empowerment. Each *Puskesmas* serves a catchment area of approximately 30,000 people. To help the *Puskesmas* reach all of its catchment population, there is a network of low-level health facilities below the *Puskesmas*, including *Pustu* (health sub-centers), *Polindes* (village midwife clinics), and *Posyandus* (see Figure 1).^{13,20}

One major challenge for Indonesia's health system is the unequal distribution of health facilities and personnel. Hospitals with complete specialty services and advanced technology are mostly concentrated in the largest cities, mainly on the islands of Java, Sumatra, and Bali. The majority of doctors, nurses, and midwives are disproportionately concentrated in the western part of the country. It is estimated that the number of health professionals per 100,000 population serving the remote regions, such as those at the frontier, are only 10–15% of that in urban communities.²¹ In these remote regions, district hospitals and the *Puskesmas* are often very difficult to access due to geographical or financial barriers.^{12,13,22}

Unlike its predecessors, the current government takes these disparity issues seriously and has made inequality reduction a top priority in its agenda. Priority for infrastructure improvements, such as highways, telecommunication satellites, new regional airports, and power plants, is now given to the frontier, the outermost, and the least-developed regions of Indonesia, also known as the 3T's (*terdepan, terluar, tertinggal*).^{23,24} To fill the needs there for health professionals, the MOH launched the *Nusantara Sehat* (Healthy Country) Program in 2015, which sends groups of essential health care providers (doctors, nurses, midwives, other supporting professionals) to serve in remote areas for at least two years. There has also been a regulation that mandates newly graduated general practitioners and specialists to work in *Puskesmas* or district hospitals for a year before they can be authorized to practice independently.¹²

^d The term “city” refers to the urban setting, while “regency” refers to the rural setting.

Figure 1. Tiers of public health services in Indonesia with the *Posyandu* at the community level¹³



CHW program features

In 2001, the Indonesian Ministry of Home Affairs, through a ministerial letter, called for a revitalization of the *Posyandu* Program. It requested that the government (1) ensure the sustainability of regular *Posyandu* activities; (2) ensure the empowerment of local leaders and *Kaders* through advocacy, orientation, and training; and (3) institutionalize the *Posyandus* by maintaining them both as a physical structure and as a sociopolitical

structure within the village system that is accountable to the community. Due to limited resources, the revitalization effort focused on inactive *Posyandus* and those in low-income communities.³

With the revival, the number of *Posyandus* has kept increasing from year to year and more activities were added to the *Kader* Program. At the end of 2018, there were more than 173,000 active *Posyandus* and more than half a million trained *Kaders* across the country.³⁵

Scope of work

Community health activities are carried out at the *Posyandus*. The *Posyandu* links people at the village level with the formal health center and the health care system.⁷ Each *Posyandu* serves approximately 100 children younger than five years of age and about 700 persons in the community.² The various types of community health *Kaders* include those who work in nutrition (the *Kader Gizi*), family planning (the *Kader Keluarga Berencana*, or KB), first aid (the *Kader Pertolongan Pertama pada Kecelakaan*, or P3K), non-communicable/chronic diseases (the *Kader Posbindu*), and mental health *Kader*.⁷

The original idea was to have one *Kader* for every 10–20 families.⁷ Due to insufficient data, it is difficult to estimate whether this number has been achieved. However, the most recent report, in 2013, found an average of only four *Kaders* per village, with striking variations: some villages had more than 20 *Kaders* and others did not have a single *Kader*.²⁰ By the end of 2017, there was an average of three to four *Posyandus* for each village across Indonesia.^{1,20} However, some villages in the two most eastern provinces in Indonesia (Papua and West Papua) did not have any *Posyandu*.²⁰

For over 30 years since its inception, the five core activities of the *Posyandus* have continued relatively unchanged: maternal and child health care, family planning, immunization, nutrition, and diarrhea control.³ Services are delivered through monthly sessions attended by mothers and their infants. The venue is usually a common place, which is convenient for mothers and eliminates travel barriers, such as the Village Office, the front yard of a prominent or wealthy villager's house, or, in some remote areas, an outdoor space like a garden under the shade of a large tree.⁴

At least five *Kaders* are generally present to ensure the optimum service delivery. Five tables are set up and attended by at least one *Kader* per table. These tables represent the order of services mothers will get at the session, which starts from the registration (first table), weighing of children (second), marking the growth chart graph with the weight outcomes (third), health education based on the growth monitoring results (fourth), and health services (fifth), such as immunizations, vitamin A, family planning, oral rehydration for children with diarrhea, basic curative services, and, in some *Posyandus*, mental health counseling. The fifth table is attended by a doctor or a midwife in addition to the *Kader*.³

The quality, coverage, and impact of *Posyandus* vary by region. The quality of family planning services provided at the *Posyandu* is heavily dependent on the midwife from the *Puskesmas* being present for the *Posyandu* session. If she is not able to attend, then women who need replenishment of supplies or an injection will be without protection.²⁵

After the 2001 revitalization, more activities were added to the *Posyandu* Program to keep up with evolving health problems and the society's needs. These additional activities are optional and only adopted by those *Posyandus* with the resources required to implement them. Here are some examples of the activities:³

- The pregnancy and infant class: A stand-alone session where *Kaders* provide counseling about safe pregnancy and delivery, breastfeeding, newborn home care, early infant stimulation, and lead a pregnancy exercise session.
- Pregnancy savings: Women from lower-income families are encouraged to save throughout their pregnancy. Funds are collected by *Kaders* during the *Posyandu* meetings or home visits and pooled in one account managed by the village midwife. With the implementation of the national health insurance program since 2014, this activity has gradually diminished since the insurance covers antenatal, delivery,

and post-natal care. For lower-income families who are enrolled in the insurance program, the savings are used for transportation to the birthing center or hospital and, if there is money, for non-health needs, e.g. clothes for the newborn, diapers and so forth. For women without insurance, the pregnancy savings are used to pay for the care. If their saving is insufficient, they may borrow from the pooled account and pay back later with no interest. Since the government aimed to achieve universal coverage in 2019, uninsured women will be encouraged by *Kaders* or health providers at any time in their care to enroll in the national insurance program.²⁶

- *Bina Keluarga Balita*: A stand-alone monthly parenting class for mothers of children younger than six years of age. Mothers are grouped based on their child's age and engage in a variety of group activities, e.g., discussions, role-plays, or presentations led by trained *Kaders*. Topics include, but are not limited to, child development monitoring, proper use of educational toys to stimulate child development, and addressing the child's emotional needs.^{27,28}
- *Pos Pendidikan Anak Usia Dini* (PAUD): A community childcare program for children younger than six years of age. It runs regularly but the frequency varies across PAUDs, ranging from daily to once weekly.
- *Taman Obat Keluarga*: A small family medicinal garden planted with traditional herbs, such as ginger, turmeric, *kencur*, cajeput leaves, or *sambiloto* leaves.²⁹ Although this is not mandatory, each family is encouraged to have one. Trained *Kaders* can help families build the garden. Most of the time, these trained *Kaders* use their own garden as an example and they spread the information, or skills, to fellow *Kaders* and other families.
- *Bina Keluarga Lansia*: A monthly support group for seniors and/or their caregivers. Activities include health education from *Kaders* or health professionals, light physical exercise, games, or discussions.
- Community-based early detection and prevention of infectious diseases such as:
 - *Jumantik* (dengue fever): A dengue prevention program in which *Kaders* monitor the presence of *Aedes aegypti* mosquito larvae and drain water containers with larvae from house to house during the endemic season.
 - TB: *Kaders* detect people with TB-like symptoms, counsel about TB prevention and treatment, and accompany health care providers during home visits to TB patients who dropped out of the program to encourage rejoining treatment.
- The micro-finance program: Through this, villagers obtain loans to establish income-generating activities such as selling handicrafts, household goods, snacks. The program also includes a village savings and loan cooperative.
- The *Dana Sehat* (village health fund) program: This is a low-premium village health insurance managed by the village members and used for basic health services. Since the national health insurance program began in 2014, the village health fund has become less popular.

There are four levels of *Posyandu* development based on a *Posyandu's* activities, coverage, and the number of its *Kaders*. The lowest level is the *Posyandu Pratama* (Beginner), followed by *Madya* (Mid-level), *Purnama* (Advanced), and the highest level, *Mandiri* (Independent).³ Figure 2 contains the criteria of each level.

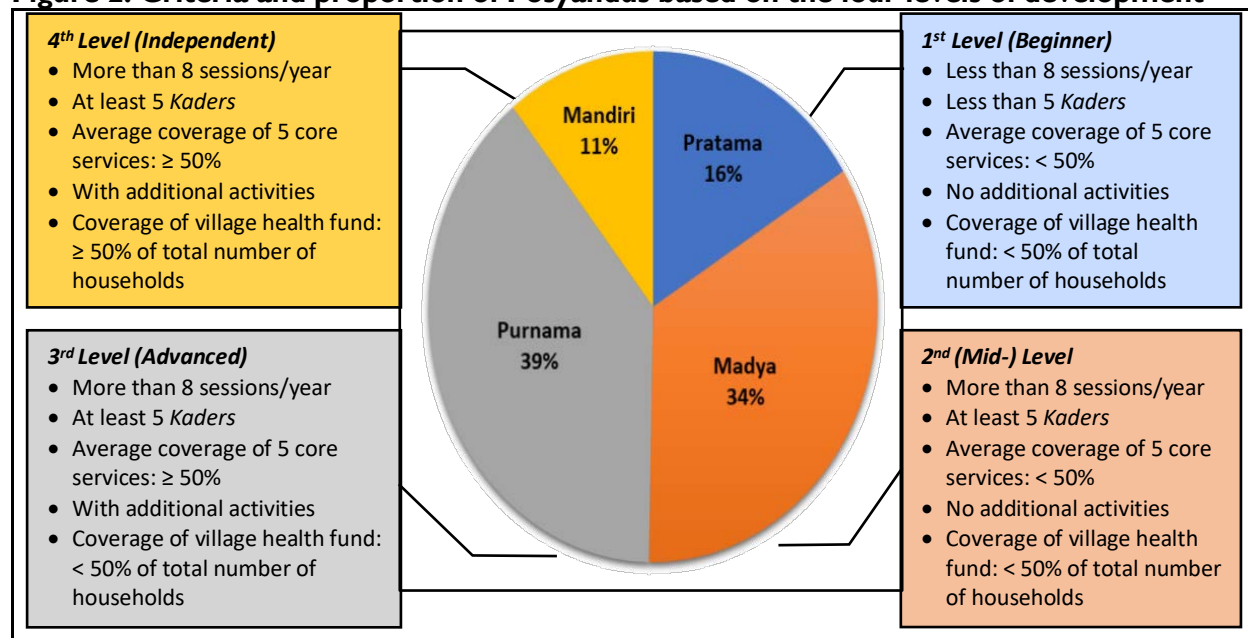
Figure 2 shows that the majority of *Posyandus* in Indonesia already have at least five *Kaders* and managed to hold relatively regular sessions per year. Since the revitalization in 2001, the proportion of *pratama Posyandus*, the least-developed type, has gradually gone down, while the other three types have increased.^{1,3,20}

Outside of the *Posyandu* sessions, *Kaders* are responsible for (1) updating a register with names of pregnant women, postpartum and breastfeeding mothers, infants, and under-five children; (2) updating the statistics describing *Posyandu* session utilization and outcomes; (3) carrying out follow-up visits to houses of absent

participants and participants who need further health education; and (4) attending community committee meetings.³ *Kaders* typically work about 10–20 hours monthly, but work load varies widely in different villages.⁷

In 2014, 93% of infants and 76% of children younger than five years of age, respectively, were receiving basic health care.¹ The monthly *Posyandu* session is considered a key reason for the high coverage level and an important access point for families to bring their children for basic routine care.¹

Figure 2. Criteria and proportion of Posyandus based on the four levels of development^{1,3}



Selection and training

The community plays an integral role in selection of *Kaders*. Selection criteria include the following:

- Able to read and write
- Social in spirit and willing to work voluntarily
- Knowledgeable about the customs and habits of people in the community
- Willing to commit the time required
- Residing in the village
- Friendly and sympathetic
- Accepted by the community³

Being female is not a requirement, but almost all *Kaders* who volunteer or who are recommended are women. There are male *Kaders*, but this is a rare situation and sporadic.

Training of *Kaders* lasts less than one week. Thus, only a few technical skills can be learned during that short training.⁷ *Kaders* are taught to do a few things, but importantly, the training focuses on learning one task at a time. *Kaders* are given the skills and equipment to carry out that task, and two or three months later they may be trained on the next skill. Many of the skills can be passed on from one *Kader* to another, such as preparing

and using oral rehydration salts and zinc, vitamin A distribution, and folic acid and iron distribution for pregnant women.

Based on two evaluations conducted in the 1980s and 2010, the annual dropout rate for *Kaders* ranged from 20% to 30%.^{7,30} The average length of service for each *Kader* was three to five years, but there are *Kaders* who have served for more than 10 years and even until they retire.⁷ As *Kaders* drop out, new ones are selected and begin to work even if they have not been formally trained.⁷ A *Kader* who drops out is sometimes responsible for finding and training her replacement. It is not uncommon that the role of a retired *Kader* is continued by her daughter, who in the past used to be served at the *Posyandu* and is inspired by the dedication of the mother.⁴

Support and supervision

The *Posyandu* is a community-driven health service managed and run from, by, for, and with the community. It also receives technical supervision from the staff at the *Puskesmas*.³ Each *Puskesmas* has at least one primary care doctor alongside nurses and midwives. At least one *Puskesmas* is located in each sub-district, and someone from the *Puskesmas* staff makes a visit to each *Posyandu* session. Supervision of the *Kaders* is minimal. Health facility staff members who attend *Posyandu* sessions are not expected to supervise *Kaders* but they do try to guide and educate them. They attend the *Posyandu* session as respected colleagues and incorporate statistics of services provided at the *Posyandu* session as the first layer of data used in the district health information system.

Incentives and remuneration

Kaders provide voluntary service without financial compensation, except for small reimbursements for their transportation expenses.⁴ However, *Kaders* may receive informal types of compensation, such as free medical treatment from higher levels in the health system.⁸ There is a high cultural value placed on doing something for one's neighbors, so volunteering as a *Kader* is highly esteemed. Every year, *Kaders* who have served for more than 10 years are eligible to receive special awards at the provincial and national level.³¹ *Posyandus* can participate in national annual competitions and the winner receives "The Best *Posyandu* Award" from the Minister of Culture and Human Development.^{32,33}

Community role

The *Posyandu* and its *Kaders* serve as a community empowerment unit on health-related issues that is supervised institutionally by the village committee. Medical and technical supervision is provided as necessary by the clinical staff at the *Puskesmas*, where a physician, five to eight nurses, and several midwives work. The selection of the supervising village committee and *Kaders* is based on a consensus reached at a village-level meeting conducted by staff from the *Puskesmas* and attended by village leaders, other respected people in the village, and selected members of the committee.³

Linkages with the formal health system

The decentralized system implemented by the Indonesian government since the reformation era in 2001 grants cities and villages greater autonomy to manage health budgets and create health programs that suit local needs and resources. The roles of the MOH at the national level and its provincial agencies are largely to set norms and provide guidance for the lower-level administrators.^{13,19} The *Posyandu* links people at the village level with community health centers and the formal health care system (Figure 1).⁷ Situated within the neighborhood, close to where families live, *Posyandus* help ensure that basic health care reaches each individual in need who may not have access to health facilities. Setup to be fully driven by local *Kaders*, the *Posyandu* program allows health promotion activities to be carried out with the community being engaged in the best possible way.

Program scale-up

Although there were several challenges, including the 1997-1998 economic crisis and regime change that reduced governmental support for *Posyandu*, the program managed to survive and continued to grow in number.^{3,10} Learning from the historical *Posyandu*'s successful contribution to the maternal and child mortality reduction, the Indonesian government in 2001 declared a nation-wide *Posyandu* revitalization initiative to bring previously inactive *Posyandus* back into existence and institutionalize *Posyandus* as an integrated sociopolitical structure in the village administration.³ With the revival, the number of *Posyandus* has kept increasing from year to year and more activities were added to the program. At the end of 2018, there were more than 173,000 active *Posyandus* and more than half a million trained *Kaders* across the country.³⁵

Monitoring and data use

The community-level monitoring system is called SKDN and is used in some *Posyandus*, depending on the initiative of the local committee, in order to monitor progress. It consists of four indicators which were designed to be simple and easy enough to be used and visualized by the people collecting the data at the community level. Besides being used for community-level feedback and tracking of progress, the information from this monitoring system also provides useful coverage information for the formal health care system.³

The initials SKDN are used to represent the key data points: S for *semua* (“all”) — the number of all under-five children within the catchment area; K for *kartu* (“growth charts”) — the number of children enrolled in the *Posyandu*, indicated by having the growth chart card; D for *datang* (“attend”) — the number of children weighed during the month; and N for *naike* (“weight gain”) — the number of children who gained weight during the month. Key indicators are (1) the *Posyandu* coverage, measured by the proportion of children reached (e.g., given growth cards) (K/S); (2) community participation, measured by the proportion of children with growth cards who were weighed (D/K); and program success, measured by the proportion of children weighed who gained weight (N/D). A wall chart containing the SKDN graph is then constructed at the *Posyandu*, if it has dedicated space, or on the village information board at the Village Office to track the village's progress.³

Financing

Once a *Posyandu* is underway, there is almost no financing required. Any money is a bonus and used to do what the village committee decides on. Financing for the program serves to fund operational activities, nutritional foods for children, *Kader* transportation costs, start-up capital for *Posyandu* commercial activities (described further below), and transportation costs for patients requiring referral.³ The program is financed through a variety of sources, including:

- Routine contributions from community members, *Kaders*, and attendees, community health savings, and donations from social or religious groups, or individuals;
- Private commercial sources, such as some companies that adopt a *Posyandu* and provide sponsorship;
- Commercial activities undertaken by the *Posyandu* itself (such as selling herbs, handicrafts, cookies, home-cooked meals); and
- Government sources, mainly for the early stage of *Posyandu* development and particularly for establishing facilities, training, educational materials and infrastructure.³

Impact

Measuring impact through these SKDN indicators requires an accurate estimate of the total number of children in the target age group, which is often difficult to ascertain. The latest 2014 figures from the Indonesia MOH indicate that 81% of under-five children had been weighed and 87% had received their complete set of basic immunizations.¹ Indonesia has recorded a significant improvement in maternal and child health indicators over

the last 40 years. The maternal mortality ratio (MMR) decreased by over two-thirds, from 446 deaths per 100,000 live births in 1990 to 126 deaths per 100,000 live births in 2015. Infant mortality steadily declined from 142 deaths per 1,000 live births in 1967, to 68 in 1990, to 23 deaths in 2015. Moreover, the under-five mortality rate declined from 84 deaths per 1,000 live births in 1990 to 27 in 2015.^{12–14} The MOH has stated that the decreases in maternal and child mortality as well as the increase in life expectancy in Indonesia are partly attributable to the work of the *Posyandus* and *Kaders* in the community.³

Challenges

Lack of funding, political support, and new volunteers have been cited as challenges. Some critics say that over half of the *Posyandus* are inactive, but others claim this is overstated. The head of the Demographic Institute at the University of Indonesia in Jakarta says:

Times have changed. People no longer take pride in being *Posyandu* volunteers [*Kaders*]. People also prefer to go to clinics [more] than [to a] *Posyandu*.³⁴

In spite of these challenges, the *Posyandu* system in Indonesia, run by volunteer women for more than 35 years, is probably the largest and oldest continuous community-based volunteer health and nutrition program in the world. Driven by women who honestly want to know, “How is my child doing?” and who are willing to serve their neighbors by devoting one day a month to a common welfare activity, *Kaders* have brought a level of universal health and nutrition care to a diverse population in the world’s fourth most populous nation. The *Posyandu* and its *Kaders* have provided and will continue to provide a foundation for health in Indonesia.

The trend for increased utilization at the *Puskesmas* will continue, particularly since the national health insurance scheme went into effect in early 2014 and was set to reach universal coverage by 2019. However, the need for the *Posyandu* remains and will be even greater in parallel with the evolving epidemiologic pattern and sociocultural needs. *Posyandus* and its *Kaders* are the spearhead of Indonesia’s “Health for All” effort which effectively delivers essential health care services — growth monitoring of children, maternal care, mental health care, chronic disease management, and many other services — to every part of the country.

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The map on the cover page was downloaded from the public domain

(<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page: Left: CHW counsels mother. Aid in Action (accessed March 14, 2014) Right: Brigida, a community volunteer, weighs two-month old Mima at a health center supported by Plan in Indonesia. Plan in Indonesia (accessed March 14, 2014)

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Iran's Community Health Worker Program



Mohammadreza Rahbar¹, Alireza Raeisi², Zaynah Chowdhury,³ and Dena Javadi⁴



¹ Manager of Human Resource Group, Center for Health Network Management, Deputy for Health, Ministry of Health and Medical Education, Iran

² Deputy for Health, Ministry of Health and Medical Education, Iran

³ Independent consultant

⁴ Alliance for Health Policy and Systems Research, Geneva, Switzerland

One-page summary

Background

As early as 1942, Iran began to train local people to address the health concerns of the rural poor. The West Azerbaijan Project, the Village *Behdar* Training Scheme, and other projects in the 1970s continued this process and formed the basis of Iran's current rural national primary health care (PHC) system as well as its community health worker (CHW) program.

Implementation

Following health system reforms in the early 1980s, Iran began to expand its PHC system throughout the country by building an extensive network of health houses (*Khaneh Behdasht*) and health posts. Each health house serves approximately an average of 1,000 rural people and is staffed by one female *Behvarz* and, if needed, one male *Behvarz*. Health posts are located in urban areas and are responsible for delivering PHC to urban populations in a way similar to the health houses in rural areas. The urban health post covers an average population of 12,000 individuals. Each urban health post is staffed by several CHWs called a *Moraghebe-Salamat*, who work along with a midwife. There are now nearly 18,000 health houses and 34,000 *Behvarzs* in rural areas along with 5,700 health posts and 27,000 *Moraghebe-Salamats* in urban communities.

Roles/responsibilities

Both *Behvarzs* and *Moraghebe-salamats* are responsible for delivering essential health care services, including maternal and child health care, PHC for adults, reproductive health care, and identification and follow-up for important communicable and non-communicable diseases including COVID-19. *Behvarzs* are also responsible for limited symptomatic treatments along with environmental and occupational health in their area.

Training

Behvarzs are usually selected among rural youth with at least 12 years of general education. They complete a two-year training course. In recent years, because of the higher level of education among rural people, *Behvarzs* are increasingly selected from among young university graduates. *Moraghebe-Salamats* are university graduates with a public health, midwifery or nursing bachelor's degree, and also complete an additional short course.

Supervision

Higher-level staff, including those from rural and urban centers of comprehensive health services, district health centers, as well as the deputy for health at universities of medical sciences, make regular supervisory visits to health houses and health hosts. University professors and faculty from the University of Medical Sciences evaluate program effectiveness and quality, and then they make decisions about needed program revisions.

Incentives and remuneration

Behvarzs receive a monthly salary of approximately US\$ 350 per month from the government. For all PHC employees, including *Behvarzs* and *Moraghebe-salamats*, incentives are also possible for good performance.

Impact

The CHW programs have been a fundamental element in the establishment of a strong PHC system in Iran. The World Health Organization concluded that health houses are responsible for a sharp drop in mortality and increased life expectancy over the last decades. The *Behvarzs* working in rural areas have contributed as well to narrow the rural–urban gap in health status since the 1980s.

Historical context

Iran's current community health worker (CHW) program has its roots in pilot projects that first began four decades ago. Iran was an early global pioneer in the formal training of CHWs, and these experiences formed the prototype of its current program of professionalized CHWs, called *Behvarz*.

In 1942, Iran initiated the *Behdar* (“healer”) Training Project. The *Behdar* Training Scheme of Shiraz University was an early example in Iran of utilizing local health workers to address health concerns of the rural poor.^{1,2} *Behdars* were a small group of mid-level auxiliaries with 12 years of general education who had been recruited to work in the villages. After completing their compulsory period of rural service, they entered medical school for three years and graduated as medical doctors.

After the Second World War, the government established mobile teams for the administration of immunizations and the control of communicable diseases, including malaria, TB, leprosy, smallpox, and venereal diseases. They were usually staffed by men with 6-12 years of formal education who had completed a short training course.

In 1964, the government created the Health Corps as a model to provide primary health care (PHC) to rural areas. Doctors and paramedics as well as selected high school graduates who were deemed to be in excess of the army's current needs would serve in villages for the same amount of time that they would have spent in the military.

In 1971, the government initiated the West Azerbaijan Project and the Village *Behdar* Training Scheme to train local people to address the health concerns of the rural poor.¹⁻³ These early experiences formed the basis of Iran's current rural national PHC system, including its CHW program. The West Azerbaijan Project was one of the most prominent early measures that shaped the vision and the thinking for the implementation of public health services.⁴ The project started on a pilot basis in a number of sites in 1971 based on an agreement between the Ministry of Health and Education (MOHE), Tehran University, and the World Health Organization (WHO).⁵

Health needs

From the beginning, CHW programs in Iran focused on the health needs of the rural population. Their primary goal was the reduction of infant and maternal mortality by addressing childhood illnesses such as diarrhea, acute respiratory infections, and other communicable diseases, in addition to providing immunizations.⁵

Since the 1960s, Iran's urban population has tripled, and life expectancy has risen. At present, non-communicable diseases (NCDs) are responsible for 82% of the burden of disease, and injuries are responsible for 10%,⁶ so tackling them is the first priority in delivering basic health services. In recent years the Iranian Package of Essential NCD Interventions (IraPEN) for PHC has been successfully piloted and its nationwide scale-up has begun. Cancer, diabetes, heart disease, stroke, and chronic respiratory disease are the target diseases for this program, and reducing risk factors is one of the priorities of the health system.⁷

The new service package focuses on the following issues:

- Smoking cessation
- Improving nutrition
- Reducing the incidence and impact of traffic accidents
- Increasing the level of physical activity
- Reducing the incidence and impact of cancers, cardiovascular diseases, and diabetes

- Improving oral health
- Reducing the incidence of mental illness and improving the health status of people with mental illness

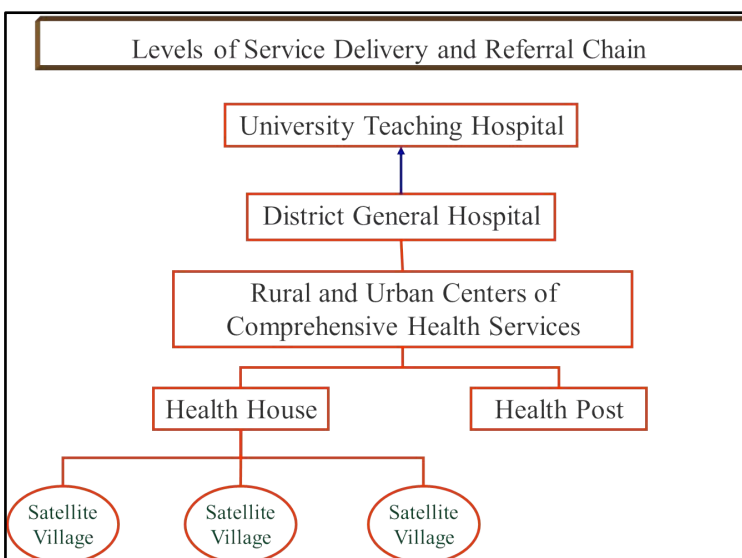
The MOHE considers the scaling up of CHWs to be a critical element of the strategic plan to develop a health care system that is capable of delivering the above-mentioned services.

Health system structure

A large efficient network with its different levels of function and dynamism supports the essential health care delivery system and health service providers. The infrastructure includes a referral system, an administrative and logistics system operating at different levels, an information management system, a monitoring and evaluation process, oversight by scientific bodies in universities and at the MOHE headquarters, and instructional systems for education and training. The integration of these components and the stratification of different services help to ensure the effectiveness of the health services.

The different health units are shown in Figure 1. Health houses (in rural areas) are run by CHWs (*Behvarzs*).⁸ Health posts (in urban areas) are run by a different cadre of CHWs (*Moraghebe-salamat*), who are accompanied by environmental and occupational health experts, a nurse, and a midwife for delivering services. For every five health houses and five health posts in the referral system, there is one center of comprehensive health services that provides support and supervises the services. These centers are staffed by a health team that includes a general (family) physician, a dentist, a nutritionist, a mental health expert, an environmental and occupational health specialist, laboratory staff, as well as administrative staff.⁹

Figure 1. The Iranian health care system



The MOHE and universities of medical sciences are responsible for both health science education and provision of health services. In each province, at least one state university of medical sciences and health services is responsible for these activities. The MOHE, accompanied by medical universities, provides funds for community-based research, for developing CHW training programs, and for on-the-job trainings. Different technical groups at the district health center monitor and support health care providers. The *Behvarz* training centers are responsible for training *Behvarzs* and for on-the-job training for other health staff, including the *Moraghebe-salamats*. The Center for Health Network Management is a scientific council at the MOHE headquarters that develops and integrates health programs in the PHC network, including programs for the training of CHWs.

CHW program features

The health house and health post are the first contacts between the population and health care providers in the PHC network. As of 2019, over 98% of the rural population were covered by PHC services via 18,000 health houses.¹⁰⁻¹² 5,700 health posts provide accessibility for 100% of urban communities. At the second level, 5,400 rural and urban centers of comprehensive health services accept referrals and provide a higher level of ambulatory care. The PHC services in health houses and health posts are provided by 34,000 *Behvarzs* and 27,000 *Moraghebe-Salamats* respectively.

Scope of work

Both *Behvarzs* and *Moraghebe-salamats* are responsible for delivering a wide range of essential health care services: maternal and child health care, PHC for adults, reproductive health care, the identification, treatment, and follow-up of communicable diseases such as TB and malaria as well as NCDs such as diabetes, hypertension and mental disorders. They are also responsible for providing school health and oral health services. In addition to service delivery, the *Behvarzs* and *Moraghebe-salamats* are responsible for community-based empowerment and for promoting community participation. *Behvarzs* are also responsible for limited symptomatic treatments as well as overseeing environmental and occupational health in their area.

In order to ensure that they are delivering services to the entire population, these health care providers carry out a census at the beginning of each year. After this, individuals are placed into target groups and are classified according to the services they need.

Selection and training

Behvarzs

Selection and recruitment of rural CHWs (*Behvarzs*) strongly reflect the WHO definition of CHWs as “members of the communities where they work [who] are selected by their communities.” Members of the village Islamic Council, who are local leaders and elected by the people, are involved in the selection of *Behvarzs*. By 2004, a more formal process involving *Behvarz* Recruitment Committees had been established in each district to assess vacancies and to find the most appropriate candidates. Recruitment involves first a written examination and then an interview.

Qualifications for *Behvarz* candidates include at least a diploma degree (signifying 12 years of general education). Since 2005, more and more candidates who are selected have undergraduate university degrees in a health-related field. Both men and women are eligible. *Behvarz* candidates must be a native of the rural area where they will work and should have resided there for at least two years. If there is no applicant from the main village, applicants from neighboring villages can be recruited.¹³ Moreover, to promote long-term retention of *Behvarzs* in rural areas, priority is given to the local candidates or to female candidates whose husbands have a permanent job in the village. The appointment of *Behvarzs* should be confirmed by a committee consisting of representatives of the *Behvarz* training center, the district PHC division, and the local rural council.

The 205 district *Behvarz* training centers, which are part of the district health system, provide pre-service as well as in-service training.¹⁴ The training program consists of theoretical and practical coursework over a two-year period as well as clinical placements in health houses and rural health centers. *Behvarz* trainers have university degrees in family health, disease management, environmental health, midwifery, and nursing. Training courses are held twice a year for groups of 7–15 trainees. Students receive free training and free accommodations, meals, and transport throughout the two-year training period. In return, they are formally obliged to remain in and serve the village for a minimum of 10 years after the completion of their training.

The MOHE is responsible for educating *Behvarzs*. Their two-year training is practical and task-oriented and is modified from time to time as the current and future needs of the population change. For candidates who already have a health-related academic degree, their course is six months rather than two years. Recently, the

MOHE agreed that it will give a post-graduate degree for those attend the two-year course. Course topics are shown in Table 1.

Table 1. Courses taught during the training of Behvarzs

Introduction to physiology and anatomy of the human body	Childcare, health of youth, and school health
Health statistics and research methods	Health of middle-aged and elderly people
Basics of health and work in rural areas	Environmental and occupational health
Health education and community empowerment	First aid
Maternal care and reproductive health	Disaster management
Social and mental health	Social determinants of health
Prevention and control of communicable diseases	Approach to common complaints and symptomatic treatment
Prevention and control of non-communicable diseases	Working with health network software and the health information system
Oral health	
Nutrition	

Moraghebe-salamats

Urban CHWs (*Moraghebe-salamats*) are usually natives to the area where they work and should have a college degree; acceptable academic degrees include family health, nursing and midwifery. If the number of applicants is more than needed, the district health center selects the final candidates through competitive examinations. The content of training is similar to that for *Behvarzs* except for the introductory courses on anatomy, physiology, and health statistics. Since *Moraghebe-salamats* are familiar with various health care topics from their previous university courses, their length of training is shorter. The training consists of two phases: the first part is the pre-service training, and the second is in-service training carried out once the candidate begins work. The renewal of contracts for these providers is based on their knowledge, skills, and performance outcomes.

Support and supervision

Various tools and techniques are used through a systematic approach to ensure compliance with standards of performance and achievement of goals. These features include clear standards for service delivery processes and logistics, access to valid indicators for monitoring in the service unit, and monitoring tools such as checklists and data recording systems that have been incorporated recently into an online network. The supervision is done periodically by physicians and members of the health team of the health center, different technical groups of the district health center, and the *Behvarz* training center. The operational steps for monitoring processes include the following:

- Checking logistics and resources for service delivery
- Checking documents (household folder and data registration system) for records of activities
- Verifying documentation
- Observing health personnel as they carry out their tasks
- Examining the knowledge and skills of health care staff by asking them questions and involving them in role-playing
- Assessing clients' knowledge and satisfaction through in-person or telephone interviews
- Checking for coverage of the service delivery and its outcomes

In addition, provincial and national teams evaluate program effectiveness and make revisions based on health patterns and new appropriate technologies. Work-related problems and suggestions may be identified by the CHWs themselves.

Staff from health centers and at the district and university levels make regular supervisory visits to health houses and health posts. The MOHE establishes committees of university professors and experts to evaluate program effectiveness and quality. They also make decisions about revising health programs based on the health problem patterns and regional situation and revising treatment guidelines.

Incentives and remuneration

The budget for PHC services is provided through a public government fund and the insurance system. *Behvarzs* receive government salaries of approximately US\$ 350 a month. Most *Moraghebe-salamats* are not formal government employees; they work on a periodic contractual basis and receive a similar monthly salary. For both *Behvarzs* and *Moraghebe-salamats*, a performance-based formulation of payment is provided as an additional incentive.

The *Behvarzs* are officially salaried MOHE staff.¹³ Payments to *Moraghebe-Salamats* and other health team staff members are based on the size of the population of their catchment area, although different variables such as the deprivation score of the catchment area and the performance of the CHWs are also taken into consideration.

Community role

Seeking community engagement in health promotion activities became part of the policy agenda in 2004,¹³ as a result of the positive outcomes of the Women's Health Volunteer Project. This project engaged well-known and trusted village women to link communities to health posts, with each volunteer covering 30–50 households. The volunteers receive no compensation or other incentives and consider their services as an opportunity to improve their skills as well as an honor to help their communities. Their responsibilities include reporting births, deaths, and migrations, providing health education, and following up recent patients. In 2017, the number of volunteers reached 160,000, including 45,000 in rural areas and 115,000 in urban areas.

A significant increase in the level of interest and health literacy of Iranians has created opportunities for self-empowerment through the promotion of techniques for self-care. A Health Ambassadors Project was started in 2014 with the government's fifth Health Transformation Program. This project encourages people to become the creators of their own health, and one family member is trained in every household to teach self-care techniques to other family members. With the development of community-based empowerment, the health care system is poised to adopt a new approach in which every home becomes a place where health care is provided. The program involves educating one person from each home who can then transfer their knowledge to other family members.

Community-based health program planning has been a main strategy for the PHC system. In recent years, community-based approaches have been considered in people-centered health care. Thus, in addition to the above-mentioned initiatives, the MOHE has tried to include public participation in the context of health program planning and evaluation.

Linkages with the formal health system

Rural and urban centers of comprehensive health services exist to provide support and supervise the services for two to five rural health houses or urban health posts.

Program scale-up

Iran's major expansion of its PHC system began in 1984. Between 1984 and 1991, over 8,800 health houses, 600 rural health centers, 430 urban health centers and 147 *Behvarz* training centers were built. By 2019, over 98% of the rural and 100% of urban population had ready access to PHC services via 18,000 health Houses.¹⁰⁻¹² 5,700 health posts and 5,400 rural and urban centers of comprehensive health services. The PHC services in health houses and health posts are provided by 34,000 *Behvarzs* and 27,000 *Moraghebe-Salamats* respectively. Other aspects of program scale-up include the development of health services for NCDs, improving the quality of services, and increasing the level of education of health care providers entering the workforce.

Monitoring and data use

By using an electronic record system, all data is registered for individuals. This electronic system has various guides and follow-up tools. All service coverage information can be accessed online. Monitoring and evaluation are considered a key task for the supervision of the health houses and health posts.

Financing

The Government of Iran provides all of the financing for health houses and health posts. In both urban and rural areas, the PHC services are free of charge for the clients.

Impact

After almost four decades, the *Behvarz* program has contributed to significant improvement in many health indicators.¹⁰ In particular, the gap between rural and urban areas in morbidity and mortality indicators has narrowed considerably. The infant mortality rate per 1,000 live births in 1976 was 123.7 in rural areas and 60.4 in urban areas. Since the development of PHC and the *Behvarz* program, the infant mortality rate decreased to 30.2 per 1,000 live births in 2000 in rural Iran and to 27.7 in urban Iran, showing a distinct improvement.¹⁵ In 2017, the infant mortality rate in urban Iran was 11.3 and 15.8 in rural areas, again showing distinct improvement, but with still a modest urban-rural differential.¹⁶

In addition, by implementing a health reform plan and strengthening the referral system, the provision of services by CHWs has increased the coverage for target groups. Studies have examined the job satisfaction of *Behvarzs* and the contribution of *Behvarzs* to rural health outcomes.¹⁷⁻²¹ It has been suggested that the significant improvement in rural health outcomes is strongly related to the performance of community-friendly health workers, although these improvements are unlikely to have been achieved by them alone. The period also saw economic growth, a rise in literacy rate, and improvements in environmental services such as access to safe water and sanitation.¹⁸

Iran has built a strong PHC system, and its CHW programs have been a fundamental element. According to the WHO, "The Islamic Republic of Iran's health houses are responsible for a sharp drop in mortality over the last decades, with notifiable life expectancy increasing."²² The PHC system is highly organized and efficient, resulting in notable decreases in infant, maternal, and neonatal mortality rates. The burden of disease attributable to communicable diseases has decreased to 10%. As a result, non-communicable diseases are responsible for 80% of the burden of disease, and injuries for 10%. Narrowing the rural-urban gap in health status since the 1970s is another reflection of the performance of *Behvarzs* in rural areas.

In early 2020, with the arrival of the COVID-19 pandemic, *Behvarzs* and *Moraghebe-salamats* screened 76 million people (92% of the total population) over a two-month period. They identified and referred suspected cases and trained others in contact tracing. This reduced the workload at hospitals. *Behvarzs* and *Moraghebe-Salamats* also helped to promote social distancing during the pandemic.

Challenges

Commonly cited challenges mentioned by *Behvarz*s include insufficient administrative and salary support.⁵ Employment of *Moraghebe-salamats* in urban areas has led the health system to create new opportunities for the development of PHC. Large numbers of *Moraghebe-salamats* have been recruited and are providing care in health posts. Since most are not formal governmental employees, they have lower job stability. Since 2017, the MOHE has been trying to strengthen the services of these providers by establishing a performance-based payment system.

Acknowledgements

The map on the cover page was downloaded from the public domain:

<https://www.google.com/maps/@33.0149577,52.2581817,5z>.

Photo credits: Left: Javanparast S, Heidari G, Baum F. Contribution of Community Health Workers to the implementation of Comprehensive Primary Health Care in rural settings. Poster presented at: 138th American Public Health Association Annual Meeting; November 2010; Denver, Colorado, USA.

Available at: <http://www.globalhealthequity.ca/electronic%20library/Iran%20Poster%20English.pdf>

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Right: Regular medical checkups by CHWs, Islamic Republic of Iran.

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Kenya's Community Health Volunteer Program



Rose Njiraini¹ and Salim Hussein²



¹ Community Health Specialist, UNICEF Kenya Country Office

² Head, Department of Primary Healthcare Services, Ministry of Health, Kenya

One-page summary

Background

The Kenyan Community Health Strategy was launched in 2006 as a means of delivering basic health prevention and promotion services. A new Community Health Policy is expected to be released in 2020.

Implementation

Kenya's community-based health workers are called Community Health Volunteers (CHVs). CHVs deliver services in a defined geographical area location called a Community Health Unit. These Community Health Units are composed of approximately 5,000 people (or 1,000 households) and are served by approximately 10 CHVs. CHVs are supervised by Community Health Extension Workers (CHEWs), who are government employees mandated to provide health services at the household and community levels and make referrals and linkages to health facilities. As of end of 2019, Kenya had approximately 6,000 Community Health Units out of an expected 10,000. These Community Health Units are supported by 86,000 CHVs. CHVs are supported by 1,569 Community Health Extension Workers (CHEWs).

Roles/responsibilities

The main duties of CHVs are to (1) make visit homes, initiate dialogue with household members, determine the health situation, deliver key health messages, and undertake necessary actions; (2) guide the community on health improvement and disease prevention; (3) register households at frequencies stipulated in current guidelines; (4) treat common ailments and minor injuries; and (5) with support and guidance from CHEWs, implement protocols for Community-Based Maternal and Newborn Health and Integrated Community Case Management of Childhood Illness.

Training

Trainings for CHVs are based on a curriculum with 13 modules. The full curriculum takes approximately three months and consists of 324 facilitator-led contact hours in a classroom setting and 160 hours of practical experience.¹

Supervision

Each CHV should receive supportive supervision monthly from a CHEW, at either the health facility or in the community. The supervision consists of training, review of reports, and household visits with a CHEW. CHEWs follow a checklist to ensure quality supervision.

Incentives and remuneration

At the end of 2018, 14 out of 47 of Kenya's counties were paying monthly incentives to CHVs out of their own budget. The amounts varied from county to county but are in the range of US\$ 20 – 60 a month.

Impact

Kenya's community health program has led to improvements in key health indicators. Geographic areas that implement community health services have had better health indicators than those that do not. Uptake of community health services contributed significantly to improvements in antenatal care visits, deliveries by skilled birth attendants, testing for HIV during pregnancy, receipt of intermittent preventive treatment for malaria during pregnancy, exclusive breastfeeding during the first six months of life, and childhood immunization coverage.

Historical context

The second National Health Sector Strategic Plan, officially launched in 2005,² presented a community health model based on the concept of comprehensive primary health care (PHC) and focused on the principles of partnership, community participation, empowerment, and access to health care. Experience has revealed that the achievement of the Millennium Development Goals required countries to engage in partnerships to facilitate implementation and to support active community participation. The community health approach is now widely recognized as essential for achieving the health-related Sustainable Development Goals and Universal Health Coverage. The change in emphasis became urgent in light of the lack of progress that Kenya had made in reaching the Millennium Development Goals and bringing services to the household level.

The Kenyan Community Health Strategy³ was launched in 2006 as a means of delivering the Kenya Essential Package for Health (KEPH), as defined in the Second National Health Sector Strategic Plan mentioned above. KEPH introduced six levels of health service provision, with Level 1 being the Community Health Unit, and Level 6 being teaching and referral hospitals.

The 2006 strategy was revised in 2013 to reflect devolution of health services. Under the revised strategy (2014–2019), counties are responsible for delivering health services and implementing health programs including community health.

Kenya's Division of Community Health Services has also developed a Community Health Policy that is expected to be launched in March 2020.

Health Needs

Kenya has made significant progress in improving certain health indicators, but it still lags in other areas. For instance, between 2003 and 2014, under-five mortality declined from 115 to 52 per 1,000 live births, with the infant mortality rate dropping from 77 to 39 per 1,000 live births.⁴

Much slower progress has been reported across maternal indicators. The maternal mortality ratio, for instance, declined only slightly, to 362 per 100,000 live births in 2014 from 414 in 2003.⁴ Over the same period, the percentage of fully immunized children remained essentially unchanged (77% to 79%).⁵ Kenya's unmet need for family planning³ is also still relatively high at 25%.⁴ Although significant strides have been made in the fight against HIV/AIDS and malaria, Kenya has the 13th highest burden of TB in the world and has the fifth highest burden in Africa.⁶

Overall, infectious diseases remain a major problem in Kenya, although the prevalence of non-infectious diseases is growing rapidly. According to the Newborn, Child and Adolescent Health (NCAH) Policy 2018⁶, the leading causes of death in Kenya are pneumonia, malaria, cancer, and TB. Diarrheal diseases remain the third leading cause of under-five mortality.⁷

The current HIV prevalence among people aged 15–49 is estimated to be 4.8%, a reduction from 5.9% in 2015. The number of new HIV infections among the adult population has also declined, from 71,034 in 2015 to 45,000 in 2017. However, over the same period, new HIV infections among children under 14 years of age slightly increased from 6,613 to 8,000.⁸

Health system structure

The lowest level of Kenya's health care system, Level 1, is the Community Health Unit, where provision of health services takes place within households and communities. Level 2 consists of Link Facilities. These include Dispensaries and PHC centers, which are primary health facilities where basic and essential health services are provided to a catchment population of 10,000–30,000 people. Level 3 contains the sub-county referral hospitals, where in-patient medical and surgical services are provided to a catchment population of

³ The percentage of women who do not want a child in the next two years and who are not using a modern method of contraception.

100,000–150,000 people. Level 4 includes country and national referral and teaching hospitals, which provide specialized medical and surgical services to a catchment population of 100,000–500,000 people, as well as teaching, mentorship, and research services.

Kenya has recognized community health approaches as a means of delivering “Health for All,” and this was articulated within the second Kenya National Health Sector Strategic Plan (NHSSP)², which was launched in 2005. The Kenyan Community Health Strategy was launched in 2006 as a means to deliver the Kenya Essential Package for Health (KEPH) defined in the Second Strategic Plan. In 2005, the KEPH introduced six-levels of health service provision, with Level 1 being the Community Unit and Level 6 being referral hospitals. It was then restructured under the 2013 - 2017 Kenya Health Sector Strategic and Investment Plan (KHSSP) in a five-level model. In addition, the 2006 strategy was revised in 2013 to reflect devolution of health services. Under the revised strategy (2014-2019), counties are responsible for delivering health services and implementing health programs, including community health.

CHW program features

Kenya’s community-based health workers are called Community Health Volunteers (CHVs). CHVs deliver services in a defined geographical area location called a Community Health Unit. These Community Health Units are composed of approximately 5,000 people (or 1,000 households) and are served by approximately 10 CHVs. Each CHV is expected to serve 500 people (approximately 100 households). Each household should be visited quarterly by a CHV, and higher-risk households should be visited more frequently.

CHVs are supervised by CHEWs, who are assigned to them as per the Community Health Unit in which they serve. CHEWs are government employees mandated to provide health services at the household and community levels and make referrals and linkages to health facilities.

As of the end of 2019, Kenya had 6,087 Community Health Units out of an expected 10,379. These Community Health Units are supported by 86,025 CHVs. These volunteers are supported by 1,569 Community Health Extension Workers (CHEWs).

Scope of work

The role of a CHV is well defined in the Community Health Policy.⁹ Their main duties are as follows:

- Visit homes to determine the health situation and initiate dialogue with household members to undertake necessary action
- Deliver key health messages to households as outlined in the Kenya Essential Package for Health and guide the community on health improvement and disease prevention
- Register households at frequencies stipulated in current guidelines
- Treat common ailments and minor injuries with support and guidance from CHEWs, including the implementation of Community-Based Maternal and Newborn Health as well as Integrated Community Case Management (iCCM) of Childhood Illnesses
- Diagnose, treat, manage, or refer accordingly serious childhood illnesses, such as diarrhea, malaria, malnutrition, and pneumonia using the iCCM protocol
- Recognize danger signs among household members and refer those with danger signs to an appropriate facility
- Assist with home care for the sick, supported by CHEWs and Link Facilities
- Participate in community dialogue and action days organized by CHEWs and community health committees

- Participate in monthly feedback meetings organized by the Community Health Assistants and Community Health Officers
- Be available to the community to respond to questions and provide advice
- Motivate members of the community to adopt health promoting practices
- Organize, mobilize, and lead village health activities
- Maintain household registers and keep records of community health-related events
- Report to the CHA activities they have been involved in and health problems they have encountered that need to be brought to the attention of higher levels

Selection and training

CHVs are selected by the communities they will serve in a *baraza* (public meeting) called by the Community Chief. To be selected, a CHV must be a resident of the community that they will serve, including overnight stay, and must be regarded as having good character. The CHV must also be able to read and write in English, except for areas where it is not possible due to high levels of illiteracy. There is no gender restriction for CHVs and there is a combination of men and women, though generally due to the volunteer nature and the kind of services offered, most CHVs tend to be women.

Trainings for CHVs are based on a curriculum with 13 modules split into two sections (six basic modules, seven technical modules). The first section of CHV training is done immediately after selection and is composed of six basic modules. These include: (1) health and development in the community, (2) community governance and leadership, (3) communication, advocacy and social mobilization, (4) best practices for health promotion and disease prevention, (5) basic healthcare and life saving skills, and (6) management and use of community health information and community disease surveillance. This first section is completed in 94 hours followed by a one-month field practicum. CHVs must complete all basic modules before proceeding to the technical modules.¹⁰

The second section is composed of seven technical modules, including: (1) integrated community case management; (2) water, sanitation, and hygiene; (3) maternal and newborn care; (4) family planning; (5) HIV, TB, and malaria; (6) community nutrition; and (7) non-communicable diseases. The full curriculum takes approximately three months and consists of 324 facilitator-led contact hours in a classroom setting and 160 hours of practical experience.¹

Support and supervision

Each CHV should receive supportive supervision monthly at either the health facility or in the community. The supervision consists of training, review of reports, and household visits. The CHVs are supervised by CHEWs, who are assigned to them as per the Community Health Unit they serve in. While supervising and coaching, CHEWs make home visits alongside the CHV during on-the-job training and later for mentoring. CHEWs follow a supervision checklist to ensure quality supervision. CHEWs are supervised by Sub-County Community Health Focal Persons. These focal persons perform supportive supervision on a quarterly basis. In some counties the supervision is minimal and sporadic.

Incentives and remuneration

Payment to CHVs is the responsibility of each county. As per an assessment conducted in December 2018, 30% of counties (14 of 47) in Kenya paid monthly incentives to CHVs out of their domestic county budget. Of 1,090 CHVs interviewed in the Kenya Community Health Assessment,¹¹ 34% reported receiving monthly stipends (59% of whom reported that they were paid monthly, and their pay was based on the monthly reports they submitted), while an additional 24% reported that they had signed a performance contract based

on certain targets. The remaining stated that they received pay that was based on the achievement of performance targets, such as the number of fully immunized children or accompaniment for skilled birth delivery. The CHVs reported to receive stipends ranging from US\$ 20 – 60 per month.

Community role

The community selects its CHVs, as mentioned previously. In addition, the communities select a majority of the members of the community health committee. The community health committee is the coordinating and governing body for Community Health Units. The committee is composed of members selected by the community and must reside in the community they are selected to serve. They serve a three-year term that is renewable once. The Chairperson of the community health committee is also a member of the Link Health Facility Committee and provides a linkage to the nearest referral facility, which is referred to as the Link Facility.

According to the Kenya Community Health Assessment,¹² community members recognize that community health services have brought favorable changes in health to their communities. Most recognize the work done by CHVs and are aware that it is done for free. Most community members perceive CHVs to be *Madaktari wa Vijiji* (village doctors). Also, community members trust them on health issues -- and also even on non-health-related issues.

Linkages with the formal health system

CHVs are recognized as the main health service provider at Level 1 within the Kenya health system structure. Within their scope of work, CHVs connect the community and the Link Facility. They provide referrals for appropriate care at the Link Facility. They facilitate community dialogues with the Link Facility and with other critical stakeholders such as the political leadership and the offices for child and social protection. The chair of the community health committee is an ex-officio member of the Health Facility Management Committee.

Program scale-up

A detailed evaluation of Kenya's community health services in 2018¹⁰ showed that there were 5,907 Community Health Units out of an expected 10,567, leaving a gap of 4,660. There are over 60,000 CHVs at present, but there is a need for 40,000 more in order to provide full coverage nationally. There is a critical shortage of Community Health Extension Workers (CHEWs). There is a need for 21,000 of these but only 2,000 are employed at present.

The country's 2018 community health assessment documented that the overall national coverage of community health services was 60%, with 17 counties having below 50%, 25 counties having between 50% and 89%, and only five counties having above 90%. To achieve Universal Health Coverage, Kenya needs to establish an additional 4,000 additional Community Health Units with the appropriate number of CHVs and CHEWs. This increase is expected to be achieved by the end of 2020.

Monitoring and data use

CHVs have data collection forms for all aspects of their work, including household registration and visits, community dialogues, and referrals. Once selected, CHVs receive training on these data collection tools and reporting requirements. Every month, the CHVs submit their reports to their supervising CHEW, who then submits the compiled data to the Health Information Officer for uploading into the District Health Information System. At around the same time, CHVs hold feedback meetings with their fellow CHVs and CHEWs to discuss trends in the data and share any issues observed. These meetings also provide an opportunity for mentoring and coaching in data collection and reporting, as well as in services delivery.

Financing

According to the Kenya Community Health Assessment,¹² only three counties (out of 47) reported that they received adequate financing from the government to provide the community health services called for by the national health policy. The funding of community health services is a devolved function, meaning that the county ministries of health have to support these with their own funds. Unfortunately, few counties allocate funding for community health services. Funding for supplies and commodities is even more limited. Even worse, in some of the counties that do have funds designated for community health services, the funds become allocated to other higher-priority activities.

To mitigate this issue, some counties have developed and implemented county community health bills that are passed as law by county assemblies. These bills commit the county government to allocating and disbursing funding dedicated to the community health services.

Fortunately, community health services have been recognized by the government as a critical component of PHC services that are essential for the achievement of Universal Health Coverage. The MOH, therefore, has allocated 2% of Universal Health Coverage funding towards strengthening community health services.¹³ Although the amount is still quite small, it is an important step forward and will likely increase in the future. In 2019 the MOH provided funds to four pilot counties and in 2020 is providing funds for further scale-up.

Impact

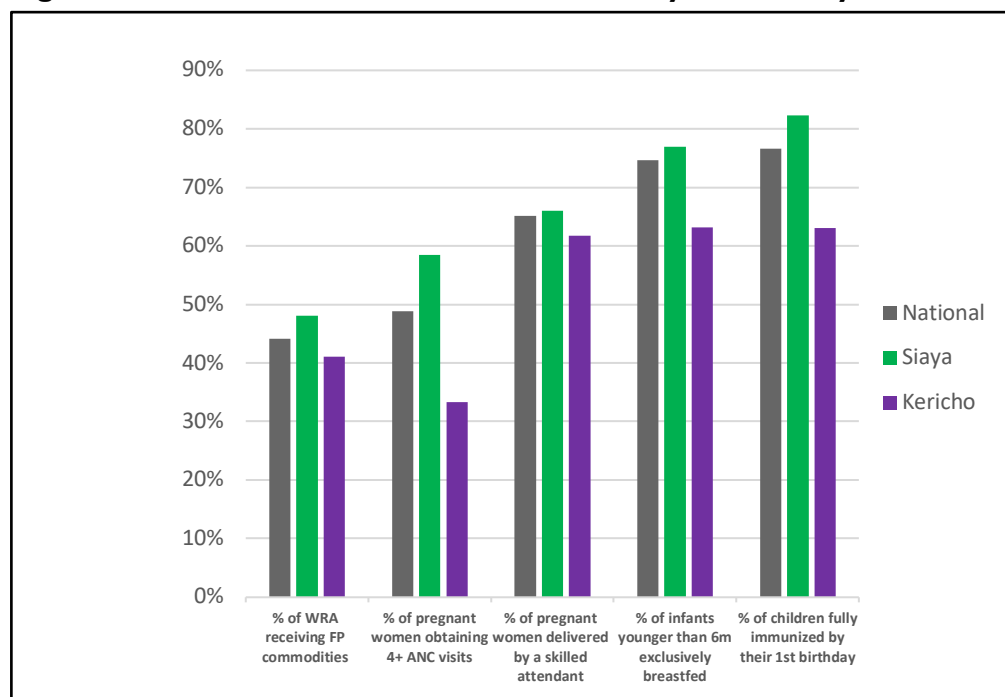
Kenya's community health program has led to improvements in key health indicators. The 2010 community health services evaluation¹² showed that geographic areas that implemented community health services had better health indicators, such as the percentage of pregnant women who had obtained 4 or more antenatal care visits, contraceptive prevalence, and percentage of women delivering with a skilled birth attendant. In addition, a study done in Busia between 2008 and 2010¹⁴ showed that uptake of community health services contributed significantly in improving health indicators in these areas: 4 or more antenatal care visits (39% to 62%), deliveries by skilled birth attendants (31% to 57%), testing for HIV during pregnancy (73% to 90%), exclusive breastfeeding during the first six months of life (20% to 52%), and receipt of intermittent preventive treatment for malaria during pregnancy (23% to 57%).¹⁴

More recent evidence was documented in the 2018 Kenya Community Health Assessment.¹² Two counties were selected for an in-depth analysis of the influence of community health services on facility-provided indicators. Based on progress reports collected annually by the MOH, Kericho county was selected as a county with low coverage (34%) of community health services, while Siaya county was selected as a county with high coverage (100%) of community health services. Siaya county reported that they provided community health commodities such as anti-malarial medications and malaria rapid diagnostic tests, oral dehydration salts and zinc, and water treatment tablets to CHVs. Kericho county did not provide any of these commodities.

Siaya county also reported that it had financial resources dedicated for community health services and disbursed these to CHVs for regular monthly incentives. Kericho county did not have a budgetary allocation towards community health services.

As shown in Figure 1, for five indicators of coverage of key maternal and child health indicators (receipt of family planning commodities, attendance for four or more antenatal care visits, delivery by a skilled health attendant, exclusive breastfeeding during the first six months of life, and childhood immunization coverage), coverage levels were notably higher in Siaya county than in Kericho county. In addition, Siaya county's health indicators all performed better than the national average while those of Kericho county were worse than the national average.

Figure 1. Continuum of care indicators nationally and for Siaya and Kericho counties

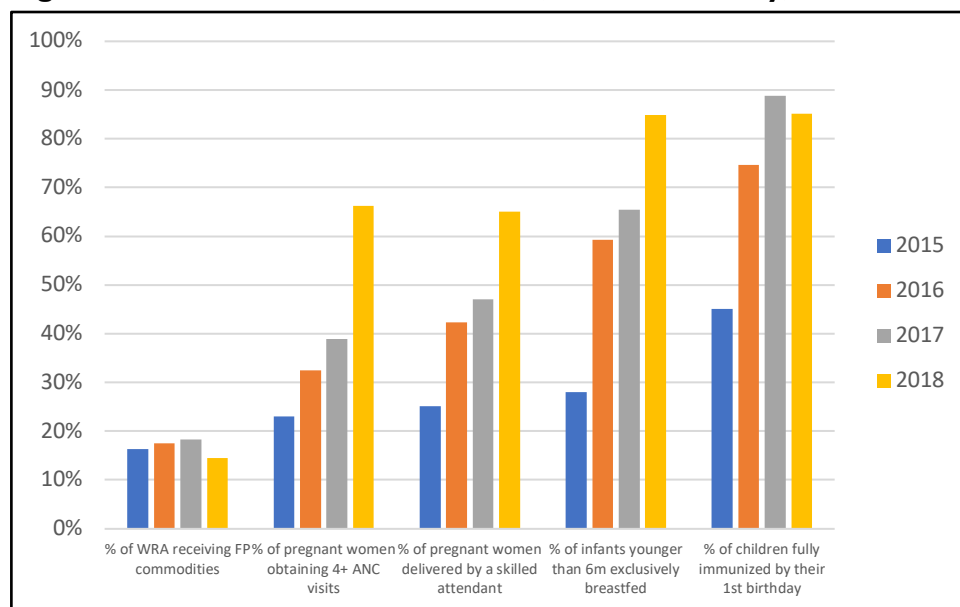


Source: District Health Information System, 2019

Note: WRA: women of reproductive age; FP: family planning; ANC: antenatal care

Another case for the effectiveness of the CHV program can be made based on evidence from Turkana county. There the county invested funds and restructured its community health system. In 2015, the county placed a CHV in every village and among mobile populations. It also assigned the Health Facility Management Committee to provide governance over community health activities. This guaranteed that every household in Turkana had access to a CHV and was linked to a health facility. Since that investment, Turkana’s health indicators have maintained an upward trend beginning in 2015, as shown in Figure 3.

Figure 2. Continuum of care indicators, Turkana County, 2015–2018



Source: Turkana District Health Information System, 2019

Note: WRA: women of reproductive age; FP: family planning; ANC: antenatal care

Challenges

Kenya continues to face many challenges in its community health-related efforts. These include the following:

- The current human resources for health are inadequate to fully implement the community health services program
- Many areas of the country lack Community Health Units
- Many of the existing Community Health Units are non-operational
- CHVs lack the necessary supplies and drugs to perform their tasks
- The linkages between the Community Health Units and the health facilities is weak
- The implementation of the Community-Based Health Information System remains weak and its digitalization has been piecemeal
- The remuneration of CHVs is inadequate and consequently there is also a high drop-out rate of CHVs
- There is poor coordination in the provision of community health services
- There is poor governance and supervision of the Community Health Units
- Because of the decentralization of government health services, there has been difficulty in setting and maintaining national standards and a high quality of care

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photograph on the cover page: a Community Health Volunteer visits a household member. Photo credit: Stella Chepleting Kogo, Health Officer, UNICEF Kenya Country Office,

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Liberia's National Community Health Worker Programs



Julia Rogers¹, Harriet Napier², Mallika Raghavan³



¹ Partners in Health Liberia, Maryland County, Liberia
² Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA
³ Last Mile Health, New York, New York, USA

One-page summary

Background

Liberia's seven-year civil war from 1989 to 1996 left its health infrastructure devastated. Less than a decade later, the 2014-2015 Ebola virus outbreak hit the country, further overwhelming already weakened public health systems. Because of its chronic shortage of higher-level trained workers, poor roads, and weak health infrastructure, its population of 4.7 million people has depended on Community Health Volunteers for many basic health services. As part of the 2016 revised National Community Health Services Strategic Plan, a new cadre of salaried community health workers called Community Health Assistants (CHAs) was created to upgrade the community-level workforce.

Implementation

By late 2019, 3,761 CHAs and their supervisors, Community Health Service Supervisors (CHSSs) had been deployed to serve communities living further than five kilometers from a health facility. The policy objective calls for one CHA for every 40-60 households or 350 people. At full implementation, the country anticipates 4,000 CHAs and 400 CHSSs.

Training

CHA training consists of four modules, each of which is 8-11 days in length, for a total of approximately two months of formal training. Each module is separated by several weeks during which time the CHA trainee can practice the new skills acquired with support and assessment by their supervisor, the Community Health Services Supervisor.

Roles/responsibilities

CHAs provide a broad range of preventive and curative services, including surveillance for disease outbreaks, identification of pregnant women and referral for antenatal care and delivery at a facility, distribution of family planning commodities, and management of uncomplicated cases of childhood pneumonia, diarrhea and malaria using the Integrated Community Case Management (iCCM) protocol.

Incentives and remuneration

CHAs receive US\$ 70 per month as an incentive.

Supervision

Each CHSS supervises approximately 10 CHAs. The CHSS is a new cadre. Each CHSS has already been trained as a health worker (nurse, midwife or physician's assistant) and receives an additional four weeks of training. Supervision occurs both in the field and during monthly meetings at the nearest health facility.

Impact

Because of the recent implementation of the program, no impact assessments have yet been carried out. However, between 1 July 2016 and 31 October 2019 CHAs provided more than one million important services in homes – management of childhood illness and provision of antenatal and postnatal care.

Historical context

Liberia's long period of civil war from 1989 to 1996 had a devastating effect on health service delivery, resulting in a high number of preventable deaths among mothers, newborns, and their children. The devastating 2014–2015 Ebola virus disease outbreak only further weakened the country's already fragile health system. Directly and indirectly, the Ebola epidemic impeded the scale-up of high-impact reproductive, maternal, newborn, and child health (RMNCH) interventions, further contributing to high maternal, newborn, and under-five morbidity and mortality.

One of the main contributing factors to the country's poor health outcomes is a lack of trained health workers available to provide quality care at facility and community levels around the time of birth and during the postnatal and childhood periods. The problem of access to care is even worse for communities located far from the nearest health facility, illuminating the need to strengthen implementation of community health interventions, particularly for women, newborns, and children, in these most remote communities.

History of community-based health programs in Liberia

As of 2013, more than 3,700 General Community Health Volunteers (gCHVs) were tasked with serving as the primary points of entry to the health system for approximately 1.2 million Liberians living without access to health facilities.¹ According to a 2013 landscape assessment conducted by Liberia's Community Health Services Division, the unit of the Ministry of Health and Social Welfare (MOHSW) responsible for community health, gCHVs had received varying levels of support and training. Only 65% of existing gCHVs had received malaria case management training, 58% had received diarrhea case management training, and only 30% had received acute respiratory infection training, severely limiting their capacity to effectively provide health care.²

In addition to fragmented programming, distance and Liberia's terrain serve as obstacles to the implementation of strong community health programs. In Liberia, 29% of the population lives beyond five kilometers from the nearest health facility. The spatial distance between communities and health facilities is further compounded by Liberia's lack of road infrastructure (fewer than 7% of roads are paved)³, heavy rainfall (2.4 meters per year)⁴, and dense forest cover (41% of land area is forested).⁵ In these conditions, 65% of all Liberians and 75% of rural Liberians report that their principal mode of travel to a health facility is walking.³

Prior to the launch of the revised National Community Health Services Policy and Strategic Plan, community health activities in Liberia relied on volunteerism, and were structured as variable packages of community-level health services based on health needs and/or the mandates of the implementing partners driving vertical, externally funded programs. The previous policy and strategic plan aimed to raise health awareness of individuals, families, and communities while encouraging health-seeking behaviors and a healthy lifestyle. Two types of CHVs were recognized: gCHVs and trained traditional midwives. gCHVs were permanent members of the community trained to provide a range of health services door-to-door or at social gatherings, and traditional midwives were trained to provide maternal and newborn care. Despite being the primary providers of community-based health services, CHVs living beyond five kilometers from a health facility received inadequate supervision.

A mapping exercise conducted by the MOHSW in 2013 identified 8,052 active CHVs, including 3,727 gCHVs, 2,856 trained traditional midwives, 586 traditional midwives, 238 household health promoters, and 645 community-directed distributors.² However, inconsistent and variable trainings, frequent stockouts of equipment and commodities, and frequent programming led by externally funded partners with minimal county and district health team collaboration resulted in fragmented and uncoordinated CHV activity, the impact of which was difficult to assess.

The 2014–2015 Ebola outbreak and its aftermath

The Ebola crisis exacerbated already high levels of mistrust in health workers and in the broader health system⁶, with some communities refusing and even threatening health workers who attempted to enter their homes during the outbreak.⁶ In addition to widespread infection and death, the Ebola outbreak shattered the fragile primary health care system that existed at that time, leading to significant declines in coverage of lifesaving interventions. Between August and December 2014 compared to the same period in 2013, the number of outpatient visits in the public sector, for example, declined by a staggering 61%. Routine services for women and children were similarly affected, with declines of 43% in the number of antenatal care visits, 38% for institutional deliveries, 45% for measles vaccinations, and 53% for DTP3 vaccinations.⁷

The lack of a standardized and structured community health program resulted in unclear and fragmented service delivery parameters, weak and poorly harmonized training guidelines, and unreliable quality of service delivery. Poor coordination of partners caused highly variable implementation of community health programs across the country during this critical time.

The Ebola outbreak highlighted the myriad of challenges faced by the country: stark shortages of human resources for health, poor health infrastructure, and weak systems of community-based surveillance, among others. The recognition of these interconnected systems issues was channeled into a cohesive and collaborative process led by the MOHSW to build a resilient health system post-Ebola. The MOHSW envisioned a health system poised to provide more inclusive and equitable health services, readily prepared for the possibility of future outbreaks, and resilient to the often-unpredictable ebb and flow of public health shocks. This ambition was articulated through the country's *Investment Plan for Building a Resilient Health System in Liberia: 2015–2021*⁸ (“Investment Plan”) as well as through a health workforce program aimed at building and strengthening a “fit for purpose” network of health care providers.⁸

The Revised National Community Health Services Policy and Strategic Plan (2016)

To achieve this ambitious goal and realize the vision of a resilient health system, the Liberia MOHSW has permanently transitioned Liberia's community health landscape from a series of fragmented CHV programs to a nationally unified, high-quality community health worker program. In 2015, the National Policy on Community Health Services was revised to reflect the community health components of the National Health Plan 2011–2021. The Investment Plan aims to restore the gains lost due to the Ebola epidemic; enhance health security by reducing risks due to epidemics and other health threats; accelerate progress toward Universal Health Coverage by improving access to safe and quality health services; and narrow the equity gap for the most vulnerable populations.

With support from partners, the Liberian MOHSW worked for nearly one year to revise the former National Community Health Services Policy (2011) and ultimately validated and formally launched the updated policy in July 2016. The 2016 policy established a new cadre of community health workers, called Community Health Assistants (CHAs), in communities further than five kilometers from a health facility. CHAs would directly deliver services for key childhood illnesses at the community level. In contrast to the former fragmented system of health volunteers, Liberia's National CHA program now aims to recognize, professionalize, and incentivize a new cadre of health workers that provides ready access to care in the country's most remote communities. The 2016–2021 revised policy prioritizes strategies and approaches that aim to achieve the following:

- Reduction of maternal, newborn, and child morbidity and mortality;
- Health promotion;
- Motivated, fit-for-purpose cadre of community health workers;

- Prevention of communicable diseases, epidemics, and diseases related to malnutrition and poor living conditions; and
- Ensuring safe family and environmental health conditions.

Health needs

The major public health challenges faced by the country remain largely preventable communicable diseases, high maternal and under-five mortality, and undernutrition. Although progress has been made to improve the health status of the population over the last decade, high rates of mortality and morbidity persist. According to the 2015 World Health Statistics Report, Liberia's life expectancy at birth for those born in 2013 remains at a low 62 years (61 for males and 63 for females).⁹

Key population health indicators emphasize the urgency faced by the country as it rebuilds after Ebola. Liberia's maternal mortality ratio was recorded at 1,072 deaths per 100,000 live births, with a total fertility rate of 4.7 births per woman and a contraceptive prevalence rate of 20% in 2013.¹⁰ The percentage of married women with an unmet need for family planning services remains quite high, at 31%. The infant mortality rate decreased from 71 deaths per 1,000 live births in 2007 to 54 deaths per 1,000 live births in 2013, while the under-five mortality rate decreased from 110 deaths per 1,000 live births in 2007 to 94 deaths per 1,000 live births in 2013. The percentage of pregnant women receiving four antenatal care visits increased from 66% in 2007 to 78% in 2013, and the percentage of mothers attended at their delivery by a skilled health worker has increased from 46% in 2007 to 61% in 2013.¹⁰

Despite progress made in maternal, infant, and child mortality, challenges in extending equitable access to adequate care persist. An estimated 29% of women who deliver do not receive any postnatal care and the adolescent pregnancy rate increased from 29% in 2000 to 32% in 2007.¹¹ Although the percentage of one-year-old children immunized against measles before their first birthday increased from 53% in 2007 to 74% in 2013, malaria, acute respiratory infection, diarrheal diseases, and malnutrition remain the leading causes of under-five mortality.¹⁰ Recognition of these gaps led to the development of the Roadmap for the Reduction of Maternal and Child Mortality with targeted community-based interventions in 2013.¹²

Several factors are responsible for maternal, newborn, and under-five morbidity and mortality in Liberia. Delays in accessing health care, beginning with delays in the decision to seek health care, are the critical limiting factors. These delays are exacerbated by a multiplicity of health and non-health factors, including the long distances many Liberians must travel to access the nearest health facility. Other key factors include inadequate numbers and maldistribution of skilled human resources for health, especially skilled birth attendants; limited emergency obstetrics and newborn care services; poor referral mechanisms; and insufficient essential drugs, equipment, and supplies. Major non-health factors include the lack of decision-making power by women in some communities, particularly in rural settings; the lack of clearly defined community referral and health financing mechanisms; poverty; conflicting sociocultural practices and beliefs; inadequate transport; and poor general infrastructure and road networks.

Health system structure

Liberia's health system is structured into three levels of service delivery: primary, secondary, and tertiary. The tertiary level provides the most advanced level of care and consists of a limited number of regional and referral hospitals across the country. A regional hospital typically serves three to five counties.¹³ The secondary level includes county hospitals (serving a catchment population of up to 200,000) and health centers (serving a catchment population of up to 40,000).¹⁴ At the lowest and most basic level (the primary care level) are clinics, which serve a maximum of 12,000. These clinics provide the Essential Package of Health Services and community-based services, such as mobile clinics and community-based providers. The Essential Package of Health Services aims to (1) expand the standardized primary package of health services, (2) provide equitable access to essential hospital services, (3) strengthen the network of service delivery, and (4) provide the basis for operational plan development.

2014 data presented in Liberia's Investment Plan identified 35 hospitals, 51 health centers, 639 clinics, and 137 pharmacies across the country. Between 2010 and 2014, the total number of health facilities (at all levels) across the country increased by more than 100 (from 618 to 725).⁸ The average facility density per 10,000 population was 1.63 in 2015, with the lowest density of facilities to population in Bong county (1.01) and the highest in Sinoe (2.8). However, accessibility and functionality of health facilities remain key bottlenecks to effective service delivery. A 2014/2015 health facility assessment found that nearly half of all health facilities struggled without a primary power source, 43% did not have working incinerators, and 13% did not have access to a safe water source. Additionally, an average of 41% of health care workers deployed and actively working at public health facilities were not on the government payroll in 2015. This has resulted in a large proportion of health workers in the country not receiving consistent pay for their employment.

Between 2010 and 2015, the country witnessed a 37% increase in the number of health care workers (a 30% increase in physicians and a 50–60% increase in physician assistants, nurses, and midwives as a combined group). In 2015, the number of health professionals (inclusive of the aforementioned four categories) had reached 8.6 per 10,000 population.⁸

Key health policies include the Basic Package of Health Services and corresponding National Health Policy and Plan 2007–2011, which were updated in 2011 through 2021 along with a new investment plan outlining government priorities and the following three post-Ebola priority investments:

- “Build a fit-for-purpose productive and motivated health workforce that equitably and optimally delivers quality services”;
- “Re-engineer the health infrastructure to conform to the population’s needs for health services”;
- “Strengthen epidemic preparedness, surveillance and response, including the expansion of the established surveillance and early warning and response system to ensure it is comprehensive enough to detect and respond to future health threats.”⁸

Additionally, the National Health and Social Welfare Policy 2011–2021 outlines priority areas for the country such as decentralizing services and expanding access to basic health services, increasing the health workforce, and strengthening and expanding the package of health services (especially maternal and child health, emergency health services, and communicable disease prevention and control).¹³ Finally, the National Health and Social Welfare Financing Policy and Plan 2011–2021 reviews strategies for sustainable health financing, outlining various plans including those to reduce high out-of-pocket expenditure (51% of all health expenses in Liberia including public and private were out-of-pocket in 2012) and increase government expenditure on health which, at 12.4% in 2015, was drawing closer to the Abuja Target of 15%.⁸

CHW program features

Approximately 29% of all Liberians (and 60% of rural Liberians) live more than five kilometers (more than a one-hour walk) from the nearest health facility. Community-based services are vital to the health of populations living in these communities. When revising the Community Health Services Policy and Strategic Plan, the MOHSW, recognizing the critical needs of remote communities, prioritized the deployment of a CHA in every community further than five kilometers from a health facility in order to effectively extend access to care. Those communities within five kilometers of a health facility would continue to access services at the nearest health facility. The ratio of CHAs to population in these “last-mile” communities is 1:40–60 households, or roughly 1:350 persons. Based on these ratios, larger communities may have more than one trained and active CHA. At full national scale, the National Community Health Assistant Program will have approximately 4,000 CHAs and 400 Community Health Service Supervisors (CHSSs), covering all 15 counties.

To ensure the quality of services provided by CHAs and create stronger linkages between communities and facilities, CHSSs were also recruited and trained under the revised community health policy. CHSSs are based

at the health facility level and spend at least 80% of their time supervising and providing support to CHAs serving the hard-to-reach communities that fall under that health facility catchment area.

The Liberian MOHSW maintains primary stewardship of the implementation and oversight of the National CHA program. The Community Health Services Division at the central level in Monrovia is responsible for coordinating the management, implementation, and monitoring of the program and related standard operating policies and procedures.

The Community Health Services Division conducts monthly coordination meetings with partners and programs implementing at the community level via a national-level steering committee. This committee serves as a multidisciplinary group of government and partner stakeholders who provide strategic guidance, technical expertise, and support on activities relating to the implementation of community health services in the country. Additionally, the Community Health Technical Working Group, comprised of MOHSW stakeholders from various divisions and implementing partners, convenes monthly to discuss program outputs, trends, challenges, and opportunities for shared learning and accountability.

Broader health system engagement and participatory review is convened through national and subnational quarterly review meetings and annual review meetings, planned and executed by the MOHSW in coordination with County Health Team Working Group members. During these meetings, stakeholders come together to review and plan against various aspects of ongoing programmatic rollout, with the goal of shared regional learning to inform future programming iteration and build institutional knowledge systems. Findings from these meetings are synthesized into action plans to advance at the national and subnational levels.

At the county level, the Community Health Department within each County Health Team is responsible for integrating all CHA-related activities into the county operational plan, with the Community Health Department Director responsible for coordinating and overseeing the implementation of the policy and resultant activities. The Community Health Focal Person within the County Health Team works under the supervision of the Community Health Department Director to coordinate all CHA-related objectives alongside all other community health activities.

Scope of work

Community Health Assistants

Each CHA serves 40-60 households (about 350 people). CHAs provide an integrated and standardized service delivery package that includes preventive, curative, promotive, rehabilitative, and palliative services. CHAs conduct routine household visits on a regular basis, ensuring each household in their catchment area is visited at least once a month. Their work in the community focuses on community event-based surveillance (CEBS), household registration, and provision of RMNCH services. However, they also receive training in recognizing and responding to individuals with signs of HIV/AIDS, TB, neglected tropical diseases, mental illness, and those requiring first aid.

- **CEBS:** CHAs are integral to the Integrated Disease Surveillance and Response strategy, as they are the primary responsible person to carry out CEBS activities in their communities. CEBS consists of the identification and rapid collection of information from community events that pose potential risks to public health. To improve early case identification, reduce transmission of infectious disease in the community, and enhance response efforts in Liberia, CEBS remains a core component of the CHAs' scope of work. Through routine household visits, community mapping and population registration, and engagement with the Community Health Committees, CHAs are poised to promptly identify, report, and refer priority disease event triggers.
- **Reproductive health services:** CHAs provide essential reproductive and family planning services at the community level for pregnant women and newborns. CHAs identify pregnant women, monitor them for danger signs, and provide supportive, health promotion and referral services for antenatal care and birth planning. CHAs also provide family planning services, including distribution of commodities, referral for

particular methods, and health education and follow up. CHAs are also equipped to provide women of childbearing age with family planning commodities. The provision and tracking of CHA commodities are integrated as a key component of the national supply chain system, extending distribution from the facility to the community level.

CHAs are responsible for tracking newborns, promoting exclusive breastfeeding practices and proper umbilical cord care, monitoring them for danger signs, and making referrals when appropriate.

- **Child health:** A core component of the National CHA program is the curative services that CHAs are trained to provide for children younger than five years of age through Integrated Community Case Management (iCCM). CHAs are equipped and regularly restocked with adequate amounts of medications and other supplies to manage uncomplicated pneumonia, diarrhea, and malaria following a clinical assessment.
- **Special services:** All CHAs receive a fourth and final module on “Special Services.” This module, which was developed in close collaboration with partners who had designed and managed disease-specific programs emphasizing an integrated approach to patient care, focuses primarily on conditions of epidemiological and public health importance that require chronic case management. In this fourth module, CHAs are trained to recognize signs and symptoms of HIV, TB, neglected tropical diseases, and mental health problems during household visits for case identification. After linking suspected patients with health facility-level care, CHAs are trained to interpret and act upon counter-referrals sent from the health facility. Such counter-referrals may include instructions for CHAs to provide ongoing case management in the form of treatment support or psychosocial support. CHAs are also trained to recognize common side effects of HIV, TB, neglected tropical diseases, and mental health medications that warrant urgent or non-urgent referral, as well as to trace patients who have defaulted from treatment. Family members of communicable disease patients are encouraged by the CHAs to go to the health facility for testing in the interest of protecting themselves and reducing transmission within the community. Finally, this fourth module of training includes basic first aid skills for responding to common injuries when patients cannot be transferred easily to a health facility.

On a health promotion level, CHAs are responsible for engaging communities with key health information and collaborating with community leaders to organize health services and outreach campaigns.

Community Health Service Supervisors

There is approximately one CHSS assigned to 10 CHAs. CHSSs are recruited as professionally trained health workers (registered nurses, physician assistants, certified/registered midwives, and environmental health technicians), assigned to the health facility, and supervised by the officer-in-charge. All CHSSs are meant to spend 80% of their time in the community, with the intention of conducting twice-monthly supportive supervision visits for each of their assigned CHAs. They provide leadership, training, and high-quality clinical mentorship to the CHAs in addition to serving as a critical linkage of health services between remote communities and health facilities. Service and data quality review is a core component of the CHSS work, as they observe and document the accuracy with which each CHA delivers services and assess the accuracy with which they use data collection tools. During their field supervision, CHSSs conduct a 360-degree assessment through the following processes:

- Conduct personal check-ins with CHAs on any challenges faced;
- Review all data collection forms and identify any errors needing correction;
- Restock the CHAs’ supply of family planning and iCCM commodities;
- Provide support on referrals;

- Meet with members of the community to identify health challenges;
- Conduct home visits and patient reviews to assess quality of care;
- Coach and mentor CHAs by providing feedback on successes and add recommended improvements to the CHA's monthly work plan; and
- Record these activities in their formal monthly supervision report.

At the health facility, CHSSs are responsible for helping plan and coordinate outreach services to catchment communities together with clinic staff and for receiving referrals from higher levels of care needs that cannot be managed by the CHAs.

It has been difficult during the initial stages of program implementation to ensure that the CHSSs spend the requisite 80% of their time supervising assigned CHAs and providing technical support to the implementation of community programs at large. The dearth of health workers across the country and the acute clinical needs presented at the facility level result in CHSSs often falling into the role of supporting the Officer in Charge with clinical needs and patient care.

The terms of references for both CHAs and CHSSs are available in Annex 3 of the Revised National Community Health Services Strategic Plan (2016).

Selection and training

In order to be able to serve as a CHA, the candidate must be a permanent resident in the community that they serve, be between the ages of 18 and 50 years old; fluent in the local dialect; able to read and write in English; a good mobilizer and communicator; interested in health and development matters; trustworthy and respected by their community; and physically, medically, mentally, and socially fit to provide the required CHA services in their designated catchment area.

In the transition from the former policy to the new policy in 2016, efforts were made to upgrade eligible, qualified gCHVs living in target communities. These efforts, however, directly conflicted with the mandate of the MOHSW and implementing partners to prioritize the hiring of eligible female applicants, especially as the vast majority of existing gCHVs were male. Despite these efforts, few eligible female CHA candidates were identified during mobilization and engagement efforts by the communities, in part due to low literacy rates among females in the most rural communities. Following the finalization of the recruitment process across the country in 2016 and 2017, most were male.

In the initial recruitment process, communities were asked to put forth at least two viable candidates for each CHA position available. These candidates were then interviewed and given a literacy test assessing basic arithmetic and reading comprehension skills. Teams consisting of the Community Health Focal Person, a member of the catchment area's respective district health team, and a representative of the implementing partner organization, if appropriate, conducted the interviews. Candidates who had served as CHW volunteers during the Ebola crisis were given special consideration.

Per the updated policy, all supervisors (CHSSs) recruited were to be health care professionals with clinical training as a nurse, certified midwife, or physician's assistant. Meeting this criterion proved to be more challenging than anticipated due to a shortage of trained health workers, particularly in the most remote settings. In such circumstances, public health school graduates were recruited to fill the remaining positions.

Under a revised Community Health Services Policy and Strategic Plan, the MOHSW led the design of a standardized training package through a consultative process across technical subgroups that supported the generation and development of content. A cascade training framework was developed to orient and train new CHSSs and CHAs on their roles. It began by recruiting master trainers who have strong facilitation skills and knowledge of community health service delivery. Most master trainers were members of the MOHSW,

County Health Team, or senior managers of implementing partner organizations. After receiving training at the central level in Monrovia, the master trainers delivered a prescribed and standardized curriculum to train the CHSSs at the county level. After the CHSS training was completed, the CHSSs were then responsible for training the CHAs at the district level.

The CHSS training curriculum was developed to be delivered by a master trainer over a four-week (24-day) period. Objectives of the four-week training included:

- Strong knowledge of the CHA program overall;
- An understanding of their role and responsibilities as a supervisor;
- The facilitation skills needed to deliver the CHA curriculum; and,
- Improved clinical skills needed to supervise services provided by the CHA.

For each module on which CHSSs were trained, pre- and post-tests as well as a skills check were administered. To ensure that they were equipped with the necessary facilitation skills, each CHSS was evaluated a total of four times by peers and also by the master trainers over the course of their training. The use of adult learning techniques, including education through listening, is emphasized throughout the curriculum.

Once the initial CHSS training was completed, CHSSs in turn facilitated the district-level CHA training for the same CHAs they would ultimately supervise in the field. The CHA curriculum is organized as a series of four modular training sessions that last 8-11 days.

The four modules on which CHAs receive training are:

- Module 1: Disease Prevention and Control
- Module 2: Reproductive, Maternal, and Neonatal Health
- Module 3: Child Health
- Module 4: Special Services (HIV/AIDS, TB, Neglected Tropical Diseases, First Aid, and Mental Health)

Each module is implemented individually with a number of weeks between each to allow CHAs to return to their community to provide services and improve their skills before moving forward with the next module training.

Evaluation materials were provided for each CHSS and CHA training to help track performance, with either master trainer or CHSS tracking the performance of participants using a standardized training evaluation tracker. This tool allowed the National Community Health Services Department at the MOHSW to monitor the success of all trainings across counties and implementing partners.

Because the new community health services policy was only launched in 2016, data on attrition of CHAs is not yet available.

Supervision

CHSSs provide field-based supervision to CHAs working in the catchment communities of their assigned health facility. One CHSS is intended to supervise up to 10 CHAs. However, in many catchment areas the CHSS to CHA ratio can exceed this due to lack of available funding to recruit additional CHSSs.

CHSS supervision focuses on the assigned tasks and responsibilities of the CHA as well as on the health of the communities they serve. Supervision is intended to facilitate improved quality of service delivery, enable continuous monitoring and data collection, and provide the opportunity for resupply of iCCM commodities

and reporting forms. CHSSs are equipped with a number of standardized supervision tools, including a work plan to be developed in collaboration with the Officer in Charge, a laminated job aid to use while observing home visits being conducted by CHAs, and a CHSS field report to guide the supervisory visit.

In turn, the CHSS is supervised by the Officer in Charge of their assigned health facility.

An important facet of this program, especially in the early stages of its implementation, is the joint supportive supervision encouraged by the central level to take place in the counties with participation of the District Health Team, Community Health Focal Person, and partners (as is relevant). The Community Health Services Division developed a standardized set of supervision tools for use by these small integrated teams when conducting supportive supervision, both at the community level with CHAs and at the facility level with CHSSs. Supervision at the health facility is conducted to ensure the provision of quality care at all levels and the referral of patients to a functioning health facility. Emphasis is placed on strengthening reporting and rapport, providing technical guidance, and offering ongoing orientation to all clinical staff on the updated national CHA program policy and strategic plan.

Central-level Community Health Service Division staff conduct quarterly supportive supervision to the County Health Team to provide coaching to County Health Team staff. A standardized data collection platform analyzes supervision visit data from central and county levels to inform quality program implementation. Through these visits, the central level is able to identify priority areas for capacity-building with the CHAs through short-, medium-, and long-term plans tailored to the unique needs and opportunities present in each county.

Community role

The relationship between layperson cadres and the community was considered of critical importance in the development of Liberia's national CHA program. For this reason, a key selection criterion is that the individuals must come from and reside in the communities they serve. Acknowledging the importance of community empowerment in the successful development of community health programming, the National CHA program recognizes the value of collaborating with and working through existing community health structures. In fact, the recognition and involvement of communities and their leaders play a critical role in empowering and retaining CHAs. Communities are expected to continuously engage with and participate in CHA activities, specifically through regular Community Health Committee (CHC) monthly meetings.

Therefore, community engagement was a necessary first step in the recruitment and deployment of CHAs and was considered vital to ensuring that achievements made under the program were sustainable. Communities were engaged, mobilized, and educated during the planning and implementation of the CHA program to:

- Identify sociocultural barriers and prioritize evidence-based RMNCH and adolescent health interventions for effective change in attitudes and behaviors in the communities;
- Identify, refer, and report suspected diseases of epidemic potential using MOHSW surveillance and reporting protocols;
- Participate in and take ownership of community health interventions, including infection prevention and control and community-led total sanitation;
- Support treatment adherence and stigma reduction for priority diseases;
- Mobilize local resources to support health interventions; and
- Participate in planning, implementing, monitoring, and feedback.

The primary structure for engagement of communities and community-based groups is the CHC (community health committee), established in each CHA catchment village. CHCs typically consist of five individuals

representing critical community constituents such as local community-based organizations, women's groups, youth groups, village elders, and formal leaders. The CHCs then form the foundation of coordination with and feedback to higher levels of the health system.

The CHCs, which exist in each community, are responsible for coordinating all health-related activities for each catchment community and report to their facility. The CHCs and community members also are intended to engage with and encourage health activities alongside the CHA. In the initial stage of implementation, CHCs were reactivated and supported only in communities that had an active CHA, that is only those communities further than five kilometers from a health facility. This was done to ensure that monitoring and validation of CHC activity and functionality was possible within the constraints of human resources and funding, as it has proven difficult to convince the members to meet regularly without monetary support.

Each CHC sends a representative to the Health Facility Development Committee (HFDC), which meets monthly and coordinates health activities within the catchment area of a given health facility and is coordinated by the Officer in Charge. Each HFDC elects representatives to participate in the Community Development Council, a countywide body that meets no less than quarterly to review countywide community activities and provide feedback and coordination with the County Health Team. The HFDCs consists of one representative of each CHC plus the CHSS and the Officer in Charge. They meet monthly at the health facility to discuss community health activities and facilitate strong links between the health facility and the catchment area communities. Having the CHSSs and CHAs participate in the CHCs/HFDCs and linking them to health facilities encourages the facilities to focus on accountability and, ideally, to improve their quality of care as the health staff hears the voices of the community regarding how clinical services might be improved. Across Liberia, there are varying levels of formation and activation of community structures. Those that are functional generally rely on externally funded partner support.

The terms of reference for both the CHC and HFDC is available in Annex 4 of the Revised National Community Health Services Strategic Plan (2016).¹⁵

Incentives and remuneration

To ensure CHAs maintain their presence in their communities and dedicate 20 hours per week to their role, they receive a monthly incentive of US\$ 70 upon submission of their monthly service reports. Although CHAs are entitled to this regular incentive, they are not considered civil servants. In some counties, a piloted initiative providing trained traditional midwives with performance-based incentives for antenatal care, postnatal care, and skilled delivery referrals was included to encourage quality provision of RMNC services. CHSSs receive an incentive of US\$ 313 per month in addition to a predetermined allotment of gasoline (amount determined by the distance and number of their assigned CHAs) for their motorbikes to support field monitoring and community engagement activities.

The methods used to pay CHAs and CHSSs vary based on the discretion of the respective County Health Team and/or implementing partners. Some counties choose to pay CHAs and CHSSs through mobile money platforms, whereas others chose to deposit money into personal bank accounts opened by the CHAs and CHSSs. Due to the long distances between CHAs and banking services, many counties use a mobile money platform to ensure regular provision of their monthly incentive. Because all services are provided free of charge by the CHAs, no income is generated by CHAs or CHSSs through delivery of interventions to the population.

Aside from monetary compensation, a number of non-monetary incentives reinforce retention of CHAs within the program. After successful completion of the four training modules, all CHAs receive a certificate that outlines their newly acquired skills. This is signed by the County Health Officer and the Community Health Department Director. Additional formal recognition is provided in the form of photo identification cards with a unique identification number, signifying their formal role within the public health system. To support their work in the field, CHAs are equipped with backpacks, rain gear, job aids, a full range of commodities, and a medical supply box, most of which feature the MOHSW insignia. Such non-monetary

incentives are shown to elevate the status and credibility of CHAs, linking them to the health system in a manner convincing to both the CHAs and their communities, and providing them with visual signifiers of their standing as trained workers.

Linkages with the formal health system

A bidirectional referral pathway (in which the CHA refers a patient to the health facility and the health facility refers this same patient back to the CHA with feedback and discharge instructions) and integration with the nearest health facility serve as key support systems for both CHAs and patients. This two-way referral pathway facilitates care for patients whose health needs require a level of care beyond that which the CHA can provide and highlights the value of care that can be provided at the community level. This system also facilitates strong coordination between key staff members at the health facility, including the CHSS, who can provide continuity of care and supervision at the community level with the CHA.

Program scale-up

As of October 2019, approximately 3,400 CHAs and 340 CHSSs across 14 of 15 counties had been hired, trained and equipped with essential commodities.

Monitoring and data use

CHSSs are expected to carry out on-site assessments of CHAs' quality of data collection and reporting in order to identify errors needing correction. Monthly supervision reports written by the CHSS are reviewed at the county level. The Community Health Services Division is expected to conduct monthly coordination meetings with community-level partners and implementers in which programmatic outputs and trends are discussed in order to implement targeted improvements. Participatory review is conducted on a national level during quarterly and annual review meetings, as described further in the Governance section.

At the national level, the following metrics are used to assess the quality of program implementation: timeliness of CHA payments; supply restock; quality of CHSS supervision; and competency of CHAs in performing their tasks. Quarterly review of these metrics has triggered additional initiatives to strengthen supply chain barriers and the use of mobile technology for CHA and CHSS work.¹⁶

Financing

In 2016, the MOHSW, with support from external partners, conducted an exercise to estimate the costs of the CHA program over the seven years from policy design to launch and scale-up. The total cost over these seven years was estimated to be up to US\$ 100.9 million – US\$ 69.9 million in implementation costs and from US\$ 11 million to US\$ 31 million for drug commodities. Table 1 presents a breakdown of these costs.

Table 1. Projected start-up and implementation costs of Liberia's Community Health Assistant program, 2017-2023

Item	Costs, in US\$ (millions)	% of total non-commodity costs
Salaries and incentives	39.5	56.0
Training	10.7	15.0
Equipment	10.0	14.0
Fuel and maintenance	3.1	4.0
Vehicles	4.0	6.0

Item	Costs, in US\$ (millions)	% of total non-commodity costs
Other planning and technical assistance	2.7	4.0
Total (without commodities)	70.0	100.0
Commodities	1.3 to 31.0	-
Total with Commodities	81.2 to 100.9	-

The current estimate of the annual cost of the program per CHA (not including commodities) is US\$ 2,100, or about US\$ 6 per person served. The cost including commodities is approximately US\$ 10 (using the highest estimate for commodity costs). Note that ongoing revisions to cost estimates are being undertaken to reflect estimates based on ongoing analyses of implementation expenses. Moreover, these estimates reflect only the direct implementation costs of the program and for the most part do not include many components of central or county-level technical assistance, or any additional technical assistance investments to be identified as the program evolves.

Financing for the program development and launch has come from a mix of funding including UNICEF; the United States Agency for International Development (USAID); the Global Fund to Fight AIDS, Tuberculosis and Malaria; the World Bank, and philanthropic capital.

Other key and ongoing activities as part of financing for the program included:

- National CHA program costing exercise based on its operational plan;
- Resource mapping and mobilization;
- Coordination of partners around financing; and,
- Short-, medium-, and long-term planning, including preparation of a sustainability road map and an investment case.

Impact

As the MOHSW rolls out the training to all counties and activates their CHA cohorts, CHA reporting rates are expected to increase from the current low level of only 30%. Data quality assurance measures are being introduced to ensure accuracy of treatment, reporting, and data entry.

The harmonization of the electronic Community-Based Information System dashboard with the national Health Management Information System (HMIS) is still in process. Due to the newness of this platform (launched in June 2017 when the Community-Based Information System was officially integrated into the District Health Information Software 2 (DHIS2),¹⁷ it has not yet been possible to assess the impact of the national CHA program. However, according to the HMIS, between 1 July 2016 and 31 October 2019, CHAs carried out over 2.3 million home visits; treated more than 826,000 childhood cases of pneumonia, malaria, or diarrhea; and provided more than 210,000 antenatal and postnatal care checkups in homes. Additionally, CHAs reported more than 4,300 potential infectious disease trigger events. At a national health conference at the end of 2017, multiple counties in Liberia reported that the number of childhood cases of malaria, pneumonia, and diarrhea treated by CHAs had increased by more than 50% compared to the previous year.

Challenges

Constraints to supply chain management and commodity availability are among the greatest inhibitors to the successful implementation of the national CHA program. Debilitating national stockouts have resulted in an

insufficient amount of iCCM commodities being distributed to health facilities and, by extension, to CHAs. Lack of drugs and general supply chain management issues at the health facility have made clinicians and stockroom keepers reluctant to apportion iCCM and family planning commodities to the CHAs for fear that they will not have sufficient amounts to treat patients at the facility. CHAs therefore face difficulties in maintaining a full stock of the commodities that they are trained to dispense in the community. This bottleneck has resulted in low treatment rates by CHAs for childhood illnesses and waning confidence among community members in the effectiveness of CHAs.

A persistent workforce shortage—including insufficient numbers and maldistribution of certified midwives, nurses, and vaccinators—has severely constrained program outcomes and threatened the delicate trust between the CHAs and the communities they serve. Additionally, it has been a challenge to fully engage many Officers in Charge in the program to provide supervision to CHSSs and compile and validate data on a monthly basis. The reasoning behind this lack of engagement may be the perceived additional workload that the national CHA program has created for Officers in Charge without a supplementary incentive. Overall, there is a need for stronger integration of other programs within the MOHSW to include the comprehensive CHA service delivery package and align it with the integrated workforce strategy and plan.

Although the national CHA program was officially launched in July 2016, specific program activities, including the finalized recruitment and training of CHAs and CHSSs, did not take place until the end of 2016, due to delays at the central level in validating training curricula and in making available the reporting tools for the Community-Based Information System, CHA supplies and iCCM commodities. This resulted in staggered implementation of the program among the counties, and in some counties having fewer than six months of complete implementation before funding and management of the program was fully turned over from partners to the County Health Teams. When considering all of the factors that go into the program's success, having a phased and long-term capacity-building and handover plan from partner management to the County Health Team is critical to ensuring strong program sustainability, quality service delivery, and continuity over the coming years.

The lack of ongoing, stable funding is an underlying challenge to the success of the CHA program. There is currently no fully built medium-term strategy for secured funding for the National CHA program beyond 2019, either from domestic resources or from donor funding. While progress has been made in that nearly all major public sector donors (USAID, World Bank, GAVI, and the Global Fund) have invested previously in the program, the MOHSW and its partners will need to continue prioritizing and advocating for donor support. Moreover, a medium-term strategy that considers both donor and domestic resources may be critical for keeping the external assistance in play.

Efforts are also being made to identify champions and create coalitions across the Government of Liberia to advocate both domestically and internationally for ongoing stable financial support. In addition to short-term financing needs, there exists a need to work toward both a medium-term and a long-term financing plan, including integration into the country's broader health financing strategy.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are: Left: a CHW shows a map of houses that the community helped him prepare. Source: <https://lastmilehealth.org/chws/>. Right: A CHW screens a child for malnutrition. Source: https://lastmilehealth.org/wp-content/uploads/2018/08/41328645630_f70a310a84_o-2-1024x730.jpg.

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Madagascar's Community Health Worker Programs



Alain Koffi,¹ Htet Oo², and Bonaventure Rakotomalala³



¹ Health Systems Program, Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

² Associate, Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

³ Community Health Consultant, Madagascar

One-page summary

Background

In Madagascar, 63% of the population lives in rural areas. The country has the fourth highest prevalence rate of chronic malnutrition in the world. The insufficient number of health professionals, their maldistribution, and the shortage of facilities result in limited and unequal access to health and nutrition services. CHWs come in two cadres in Madagascar: *Agents Communautaires de Nutrition* (ACNs), with a focus on nutrition-related activities, and *Agents Communautaires* (ACs), with a focus on general health activities.

Implementation

For years, the delivery of health and nutrition services was operated by the *Ministère de la Santé Publique* (Ministry of Public Health, herein MSANP) and the *Office National de Nutrition* (ONN) in parallel. In 2019, the Government of Madagascar began a joint implementation initiative by MSANP and ONN in order to improve its national health and nutrition outcomes in eight regions of the country.

Training

ACs receive 5-12 days of initial training on topics such as Integrated Community Case Management, family planning, immunizations, TB, malaria and other common primary health care (PHC) issues. The initial training of ACNs is usually 10 to 15 days.

Roles/responsibilities

Both cadres take part in the promotion of health of the community and in the prevention and treatment of diseases and conditions. ACs are trained to treat certain conditions such as diarrhea, with oral rehydration solution, and offer medications for malaria. ACNs provide treatment of moderate acute malnutrition and monitor nutritional status, in addition to health promotion activities such as nutrition education and cooking demonstrations for mothers. Both ACs and ACNs provide home visits and conduct outreach activities.

Incentives and remuneration

The incentives for the CHWs vary across cadres, regions and projects. ACs receive no formal regular payment except per diems for trainings and campaigns. ACNs receive a monthly payment of 50,000 AR (about US\$ 17), but only when there is an active project (which is usually financed by an external donor). Both ACs and ACNs may occasionally receive non-financial incentives such as donated food items, community recognition, and support such as labor to help build their houses.

Supervision

ACs are supervised by the head of the peripheral basic health centers (*Chef Centre de Santé de Base*) while ACNs report to an Animator, who is a supervisor employed by a local NGO that has been contracted by ONN to provide nutrition services. There was no formal linkage between ACNs and MSANP-operated basic health centers until 2019.

Impact

Madagascar has made modest gains in maternal, neonatal, and child health and nutrition, and progress has been slow and stagnant at times. Still, many see that CHWs have contributed to these improvements since they are a cornerstone of PHC in Madagascar, especially in remote and underserved areas.

Historical context

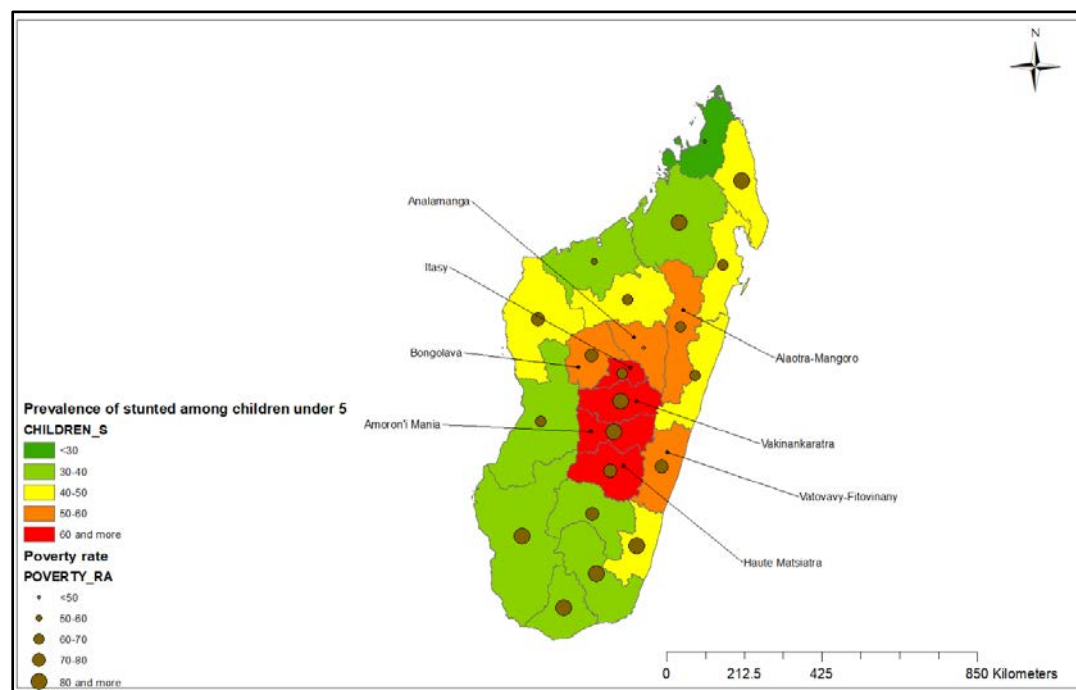
Madagascar is the largest island in the Indian Ocean, separated from Africa, 400 kilometers away, by the Mozambique Channel. With a surface area of 587,047 square kilometers, it extends 1,500 kilometers from north to south and reaches a width of 500 kilometers from east to west. The country stands out for its diversity of fauna and flora, its landscapes and its cultural values as well as for its significant development potential in the sectors of agriculture, natural resources (mining, oil, and forestry) and tourism.¹

Madagascar has a population of 26 million people. The Malagasy population is characterized by its youthfulness, since two-thirds (64%) are less than 25 years old of age, and nearly half (47%) are younger than 15 years of age. Two-thirds (63%) of the population lives in rural areas, some of which are inaccessible, especially during the rainy season.¹

In 2019, Madagascar ranked 162nd out of 188 countries on the Human Development Index (HDI).² More than two-thirds (71%) of Madagascar's population lives in extreme poverty as measured by the national threshold (US\$ 1.90), with no improvement since 2001.² The gross domestic product grew by 5.2% in 2019.³

Administratively, the country is subdivided into six provinces, 22 regions, 119 districts, 1,695 communes, and 19,169 *fokontany* (villages). 60% of the country is made up of inaccessible areas where access to health facilities is also very limited.^{3,4} The insufficient number of health professionals, their maldistribution, and the shortage of facilities result in limited and unequal access to health care. Madagascar has the fourth highest prevalence of chronic malnutrition in the world, with 47% of under-five children stunted. Figure 1 depicts the overlap between poverty rates and stunting in the center of the country where the prevalence of stunting is greater than 50%.⁵

Figure 1. Overlap between poverty and stunted children in many regions



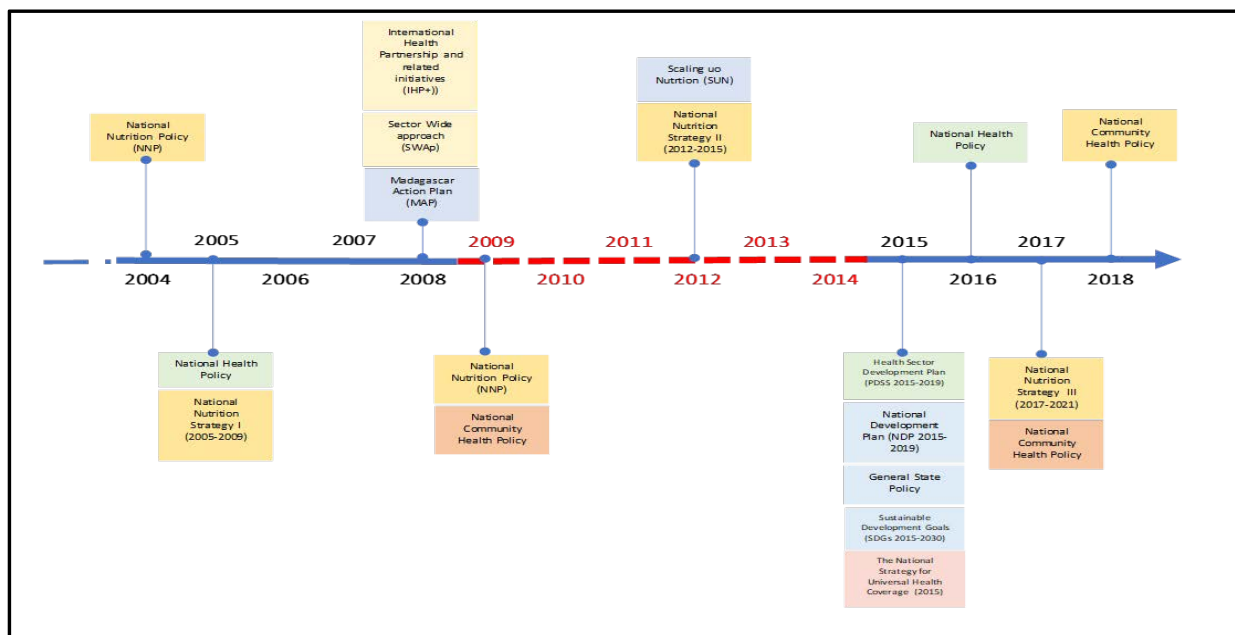
Source: Madagascar Millennium Development Goals Survey (2012–2013)⁵

Building a national commitment to community health and nutrition

Political will and commitment to improving population health provide an opportunity for resource leveraging. Figure 2 illustrates the timeline of national policies and action plans adopted in Madagascar since 2004. The government's commitment to improving health is underpinned by the development of the National Nutrition Policy in 2004 and the National Nutrition Strategy 2005–2009. In line with the Millennium Development

Goals (MDGs) and the Madagascar Action Plan (MAP) in 2008, the goal of this strategy was to reduce by half the prevalence of chronic malnutrition in all children under-five. The National Health Policy (NHP) was written in 2005 and revised in 2016, with an emphasis on reducing maternal and infant mortality, and on health system strengthening. Along with the 2008 Madagascar Action Plan, the NHP serves as the reference for subsequent development of a human resources development plan. Recognizing the many barriers of access to care, the National Strategy for Universal Health Coverage was developed in 2015.

Figure 2. Timeline for building a national commitment to community health and nutrition in Madagascar



The National Community Health Policy was first developed in 2009 and recently revised in 2017, with the aim to better contribute to the achievement of the objectives of the NHP 2016. Based on the positive results of previous implementation activities at the community level, the revised policy supports the scaling up of a package of community-based interventions that include surveillance, prevention, promotion, care, and rehabilitation. The policy stipulates the integration of evidence-based community health services into the existing health system. A National Strategic Plan for Strengthening Community Health was developed in 2019 to serve as a reference and programmatic basis in the field of community health. It provides strategic guidelines for the harmonization and coordination of the community approach along with a budget, implementation plan, and monitoring plan.³

Community health platform

Health and nutrition have been managed as two separate sectors in Madagascar. The *Ministère de la Santé Publique* (Ministry of Public Health, or MSANP) oversees the delivery of health services, which can be accessed at primary health care (PHC) facilities, at district and regional referral hospitals, and at university hospitals. Primarily depending upon the support of development partners, each *fokontany* (village) has a varying number of community health workers (CHWs) with different levels of training and responsibilities, reporting to a PHC facility. The *Office National de Nutrition* (ONN) is tasked with multisectoral coordination of nutrition activities, implementation, monitoring and evaluation, and research related to the National Nutrition Policy and Strategy. Regional Nutrition Offices (ORNs) ensure the multisectoral coordination of nutrition interventions at lower levels. The ONN is attached to the Prime Minister's Office and headed by a National Nutrition Coordinator. Given the vertical nature of its mandate, the ONN has faced challenges coordinating with other sectors. For example, the National Nutrition Coordinator can neither formally mobilize the Ministers nor participate in meetings of the Council of Ministers.

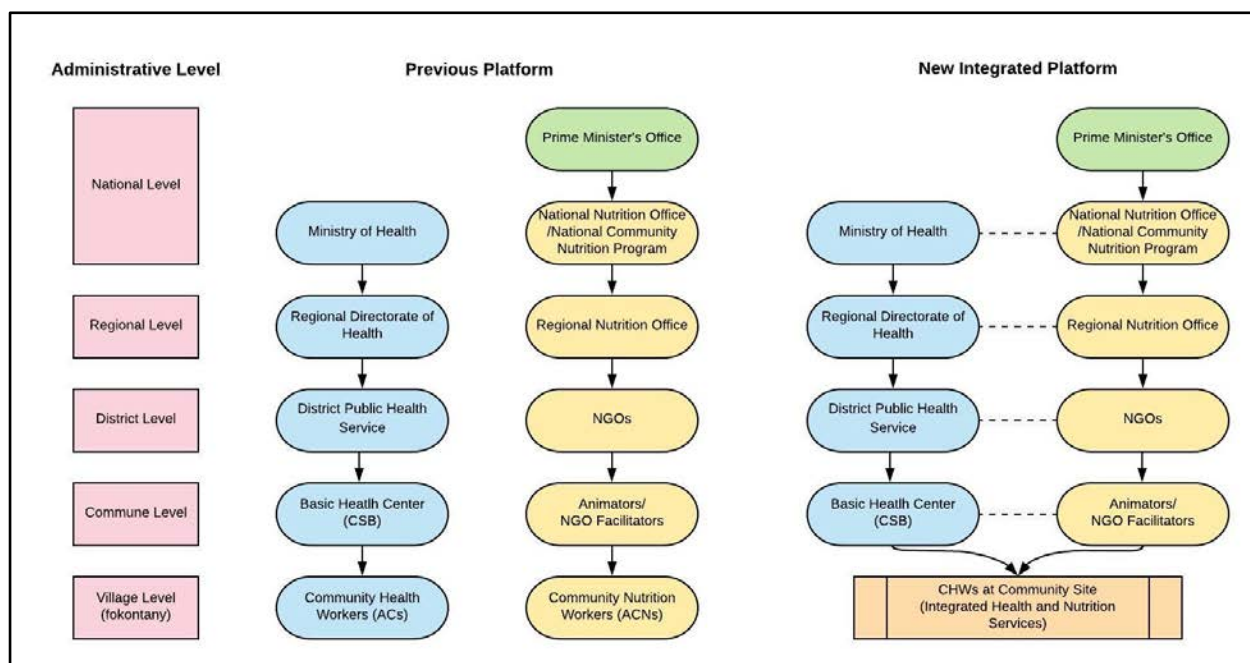
The delivery of health and nutrition services has been fragmented, starting with MSANP and ONN at the central health level and extending to the community level. Although there are mandates for intersectoral coordination, there has been no joint vision for improving maternal and child health and nutrition to guide a unified approach to service delivery. Despite the complementarity between the activities of community-based health and nutrition workers, clear collaboration mechanisms for service provision, supervision, data collection, reporting and management have been missing. Coordination between community health/nutrition services and PHC services has not been standardized and referral systems are weak.

In 2017, the GOM announced a new joint program with the MSANP and the ONN to improve national health and nutrition outcomes. The 10-year program, *Projet d'Amélioration des Résultats Nutritionnels* (PARN/FAFY), focuses on strengthening community-based PHC and nutrition (CBPHCN) services.⁶ The new integrated community health policy⁷ also highlights the collaboration and coordination between the health and nutrition sectors (Figure 3). Both health and nutrition services will be provided at the same site in each village (*fokontany*). Two CHWs will be trained together to deliver both the health and nutrition aspects of the reproductive, maternal, and child health and nutrition (RMCHN) minimum package at each site, in collaboration with the PHC facilities. This is the first official document linking the community nutrition workers to the PHC facilities. The policy also authorizes both financial and non-financial incentives for the CHWs, although it has yet to specify the types and the amount of incentives and the criteria to measure the competency and performance of the CHWs.

As a contribution to the government's objective of improving human capital, the program aims "to reduce stunting prevalence in children younger than two years of age in targeted regions."⁶ The key elements in achieving this objective are to: (1) deliver a defined package of RMCHN services that is known to reduce stunting; and (2) increase utilization of the package by removing key barriers to access. Achievements in the two areas, supported by necessary systems and capacity improvements, should result in improved nutrition and reduced illness and disease among pregnant women and children, including stunting, and improve the physical and cognitive development of children. To maximize impact, the program will scale up geographically and also expand its scope, by including services targeting adolescents. It also aims to strengthen convergence with other sectors to address some of the underlying causes of malnutrition while continuing to strengthen the health system.

After 10 years, if additional complementary nutrition-sensitive investments are made, the program is projected to reduce stunting prevalence in the target regions by 30%. This is a very significant reduction, given the baseline of extremely low availability of services and significant barriers for beneficiaries to access services.

Figure 3. Previous community health platform and the new integrated platform



Health needs

Between 2002 to 2008, Madagascar made considerable progress on the social MDGs, and it seemed likely that the fourth MDG, on under-five mortality, would be achieved—child health improved, and under-five mortality rates declined from 163 per 1,000 live births in 1997 to 72 per 1,000 live birth in 2009. Madagascar had also started to tackle some persistent challenges, such as improving maternal health and reducing stunting among children caused by chronic malnutrition.

Since the start of the political and economic crisis in 2009, progress made on key health indicators stagnated or even reversed, leading Madagascar to fall off track in achieving the MDGs. The rate of acute malnutrition in some of the most food insecure regions of country has risen by more than 50%. The prevalence of chronic malnutrition among children under five is one of the highest in the world—47% are stunted (short for their age) and 6% are wasted (too thin for their height). The maternal mortality ratio has remained relatively high, although it did decline from 559 per 100,000 live births in 2000 to 335 in 2017.^{8,9}

The life expectancy for Madagascar is 66.8 years.¹⁰ The total fertility rate (TFR) is currently 4.0 and has steadily declined over the past ten years.^{10,11} The country is in the final stage of the demographic transition and the TFR is expected to rapidly decrease. Despite a decline in fertility, the number of women of childbearing age will continue to be disproportionately high.⁵ Consequently, Madagascar is facing rapid population growth since the population is very young: the population is expected to reach 42 million by 2050.

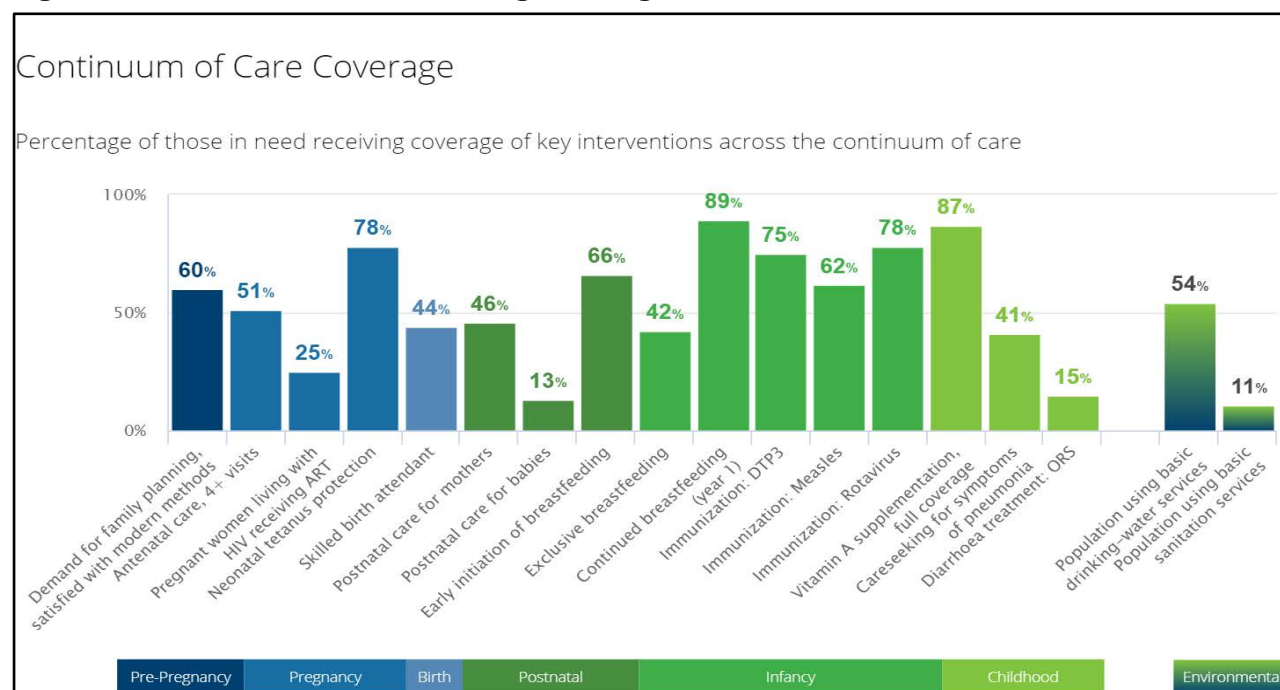
Chronic malnutrition remains a significant challenge in Madagascar, although the country saw some success in addressing acute malnutrition in the last 20 years. According the National Nutrition Action Plan 2017, the government aims to reduce stunting from 47% to 38% by 2021.³

Coverage of essential health services, especially key maternal and child health services, is very low and has further deteriorated since the crisis. Access to quality prenatal and antenatal care is a persistent and increasingly serious challenge, with only 38% of births taking place in a health center and of those, only 44% attended by skilled personnel (Figure 4). This is lower than the average in the developing world, where about 58% of all deliveries are attended by skilled health providers and more than 50% of births take place in health centers.¹² Figure 4 also shows other coverage of key interventions across the continuum of care. The low coverage of interventions such as four or more antenatal care visits, use of a skilled birth attendant, post-natal

care for mothers and their babies, and care seeking for symptoms of pneumonia or severe diarrhea offer an opportunity for CHWs' stronger involvement in improving access to quality health services in the context of a weak public sector and a severe shortage of trained healthcare workers.

The doctor-to-population ratio is low, with the national average being one doctor per 7,201 persons. In rural areas, the ratio changes to one doctor per 10,000 persons.¹¹ The Primary Health Care Performance Initiative reports that for every 10,000 persons, there is an average of only three frontline health workers (including CHWs, nurses and formally trained midwives) and 1.3 health centers or health posts.¹³ The situation is further aggravated by access barriers such as the lack of household financial resources to pay for health services and long distances to health centers. Stockouts of medicines are reported to be common, and usually only one-half of essential medicines are available at facilities.¹⁴ Although health and nutrition were prioritized as important areas, Madagascar did not achieve any of its health-related MDGs by 2015.

Figure 4. Continuum of Care Coverage, Madagascar



Source: 2012–13 Millennium Development Goals, Madagascar⁵

Health system structure

Madagascar's health system is closely aligned with the administrative structure of the country. The public health sector is organized in a pyramid structure, and the delivery system is comprised of 2,710 basic health centers (CSBs), 99 referral hospitals, 18 regional hospitals and 22 university teaching hospitals. In the private sector, there are 630 private health centers and hospitals.¹⁵ The system is organized around 119 health districts, which correspond to administrative units referred to as *Fivondronana*, each representing approximately 100,000 inhabitants. Health services can be accessed at four different levels: Basic Health Centers (*Centre de Santé de Base*: CSB) I and II; District Referral Hospitals (*Centre Hospitalier de Référence de District*: CHR) without surgery and with surgery; Regional Referral Hospitals (*Centre Hospitalier de Référence Régionale*: CHRR); and University Hospitals (*Centres Hospitaliers Universitaires*: CHUs), including specialized centers. Each health district typically contains 10 to 25 PHC centers and a hospital. The districts are divided into service areas for community health centers (CSB). CSB1s are managed only by paramedical staff whereas CSB2s are managed by a doctor and paramedical staff. CSBs provide preventive and clinical services to the community. CSBs receive supervision from the District Public Health Service (*Service de District de la Santé Publique* - SDSP) and the Regional Directorate of Public Health.^{15,16}

The SDSP is the oversight body at the district level for implementation activities at the lower levels, including basic health centers. The SDSP is responsible for the coordination of activities of the CSBs attached to it, including the development of the communal development plan and the annual work plan.

The district-level MSANP operational unit, including the District Management Team (*Equipe Manageriale de District - EMAD*) is comprised of the medical inspector, a technical assistant, and direct program managers (*Responsables Direct de Programme*). The SDSP and EMAD organize the integration of activities into the Health District Annual Work Plan, coordinating with stakeholders such as the *Chef CSBs*, health care providers, NGOs and associations of NGOs, and CHWs.

A challenge built into Madagascar's community health program is that community activities for nutrition services are under the management of a separate structure outside of the MSANP. Nutrition services are overseen by the ONN at the national level, and the ONN reports directly to the Prime Minister's office. At the regional level, the Regional Office of Nutrition is responsible for all nutritional-related activities, including collaboration with the Regional Directorate of Public Health and management of resources and training and supervision of personnel. As mentioned previously, there are current efforts to integrate the services provided by the MSANP and the ONN at all levels.

CHW program features

The CHWs in Madagascar have different scopes of work. ACNs have a focus on nutrition activities whereas ACs emphasize other health services. ACs conduct a wide variety of activities based on the type of training they received. Almost all of them have been trained in integrated Community Case Management (iCCM) of childhood diseases. Many provide other services such as provision of family planning and treatment of TB patients. They participate in vaccination campaigns and water, sanitation and hygiene activities. They also conduct other general health promotion activities and make home visits.¹⁴

ACNs carry out a standard package of nutritional education, growth monitoring and follow up, giving cooking demonstrations, treatment of acute malnutrition, and referral of malnourished children. ACNs also conduct home visits. Home visits are for following up sick children, newborns and those lost to follow-up after two consecutive monthly weighing sessions. ACs and ACNs work together for some activities. For example, when ACNs host mothers at their home, ACs would often join to provide help. The most recent iteration of the National Nutrition Strategy (*Plan National d'Action Pour La Nutrition III 2017-2021*)¹⁶ adopted evidence-based interventions to form an RMCHN minimum package for Madagascar (Table 1).

The operational pillar of the new integrated structure is the local community health committees (*Comités de Santé*, or COSANs) at both the commune and *fokontany* levels. The COSAN Commune is composed of all chiefs of COSAN *fokontany*. The establishment of COSANs is supported by the 2017 National Community Health Policy. The COSAN operates under the technical supervision of the CSBs, with administrative support from the commune. The new national community health policy mandates that every new project or program at the community level be supervised by the COSAN. Projects or programs should no longer recruit CHWs other than those known by the COSAN. The COSAN works closely with basic health centers, the Health Development Communal Commission (*Commission Communale de Développement de la Santé*) and local NGOs to ensure effective supervision and to support community-based services, both for health and nutrition. This integration at the COSAN helps address a key system constraint – the limited capacity of basic health centers to manage and supervise community health and nutrition workers. The integration is built upon an approach that has been working well in the nutrition sector for years. The COSAN and local NGOs, in collaboration with basic health centers, will ensure capacity building for ACs and ACNs.

Table 1. Reproductive, maternal, and child health and nutrition minimum package for Madagascar

Health interventions/delivery platforms	High-impact nutrition interventions
<ul style="list-style-type: none"> • Antenatal care • Assisted delivery • Postnatal care • Vaccination • Child health monitoring • Integrated management of childhood illness • Reproductive health and family planning • Malaria prevention and control/neglected tropical disease control • Hygiene education • Community outreach services 	<ul style="list-style-type: none"> • Breastfeeding promotion and complementary feeding education • Micronutrient supplementation in pregnancy • Targeted balanced energy-protein supplementation for pregnant women (with lipid-based nutrient supplements) • Vitamin A supplementation • Therapeutic zinc with oral rehydration solution for the treatment of severe diarrhea • Severe acute malnutrition treatment • Targeted provision of complementary foods for children (with lipid-based nutrient supplements) • Targeted management of moderate acute malnutrition • Salt iodization (education and information) • Fortification of staple foods (education and information)

Both cadres of CHWs report that the workload varies by season and is heavy during special events such as vaccination campaigns and when there are special projects. They report that they sometimes have to spend a considerable amount of time to reach the households in their *fokontany*, requiring several hours of walking as far as 10 kilometers in some areas.¹⁴ The number of households for which each CHW is responsible varies greatly within and among regions. For example, in Vakinankaratra, the number of households for which each AC is responsible ranges from 190 to 415.¹⁴

Scope of work

In the new integrated community platform, the new AC cadre (composed of those who had been an AC and the ACNs who have received additional training) provide three categories of services. The “basic package” includes communication, awareness-raising, patient follow-up, health promotion and surveillance activities, and basic services that do not require additional training. The “essential package” of activities refers to interventions with a high impact on the reduction of maternal and infant mortality but without the need for additional specialized skills. Finally, the “specific package” includes all activities requiring additional knowledge and specific skills.

Selection and training

Almost all CHWs are elected in the village general assembly. The head of the village (*Chef Fokontany*) oversees these meetings. The PARN/FAFY project implementation manual¹⁷ mandates the selection criteria for the CHWs, who should:

- Be from the local community (fokontany) or residing in the fokontany for at least two years
- Have already carried out community activities in the field of health and/or nutrition
- Be at least 18 years of age
- Know how to read and write
- Have a sense of humanitarian conviction
- Be available, motivated and willing to volunteer

- Be dynamic, sociable and a good communicator
- Be deemed to be honest
- Both men and women are eligible.

In the past years, communities have selected ACNs in general assemblies, with support from the MSANP and ONN and/or Animators from NGOs (who supervise ACNs). For externally funded health projects (such as those funded by USAID), local NGOs and/or *Chefs CSB* from the MSANP played a similar role in the selection of ACs during a general assembly. In a few exceptional cases, the CHWs are directly appointed by the village head or other local authorities to fill a vacancy. Since many of the ACs have served more than 10 years, such direct recruitments are rarely necessary. The trainings CHWs have received are variable in terms of content, duration, and frequency, depending on the specific project and the regional and local initiatives. The quality of training is also reported to be variable between and across projects and regions.¹⁴

Until recently (prior to the implementation of the PARN/FAFY Project), ACs received an initial training of 5-12 days, which covered topics including iCCM, family planning, TB, malaria, immunizations, and diarrhea as well as more specialized topics such as plague and leprosy. They were trained to treat certain conditions, for instance diarrhea with oral rehydration and zinc, malaria with anti-malarial medication, and childhood pneumonia with antibiotics. For family planning services, they were trained on birth control pills and condoms and some received training on providing injectable contraception. ACNs were usually given 10-15 days of initial trainings, with a focus on nutrition. They were also trained to treat moderate acute malnutrition with ready-to-use therapeutic foods and to recognize cases that need referral.

The refresher trainings for the both ACs and ACNs varied across regions and over time. Some CHWs received quarterly refresher trainings while others had not been given any training for several years. For ACs, much of the training after the initial training had been disease- or service-specific. For ACNs, refresher trainings depended on the presence of a particular external project, and this varied from region to region.

Currently all ACs, including the newly recruited ones, receive initial basic training that comprises the following modules: use of the Community Activity Package Guide, social and behavioral change, WASH (water, sanitation and hygiene), social mobilization, and integrated health and nutrition interventions focused on the first 1,000 days of life. Some will subsequently receive additional training for the "essential package" and the "specific package," in particular on the management of health inputs and program management.³

The new cadres of ACs (including those who were previously ACNs) receive an official certification of their competence issued by the MSANP before they can carry out activities related to the "package" for which they are trained. After these trainings, they will benefit from follow-up trainings. These trainings and monitoring activities for the ACs are now included in the annual work plan of the CSBs and districts.

Support and supervision

At the national level, the MSANP and the ONN oversee the operations of their respective CHWs. ONN is attached to the Prime Minister's office and headed by a National Coordinator. For nutrition services, ONN has sub-contracts with local NGOs to deliver community-based nutrition services, including supervision and support of ACNs.

At the community level, the immediate supervisors of the CHWs are the *Chef CSBs* and Animators employed by local NGOs. The AC reports to the *Chef CSB* whereas the ACNs are supervised by Animators. Starting in 2018, pilot efforts began to integrate health and nutrition services at all levels of administration, including monitoring, supervision and evaluation of CHWs activities. The *Chef CSB* and Animators will also manage supplies and materials in addition to supporting ACs in reporting processes and community assessments. Animators are now beginning to collect information on community health indicators in addition to community nutrition indicators.

Incentives and remuneration

Most of the CHWs in Madagascar are unpaid volunteers. However, depending on the project they are working on, CHWs do receive a range of financial and/or non-financial incentives, as guided by the National Community Health Policy. In general, ACs do not receive a fixed monthly financial incentive except for per diems when there is a training or campaign. Per diems are found to differ among the projects and funding sources. ACNs receive a monthly payment of 50,000 AR (equivalent to about US\$ 17) when there is an active project. When the project ends, there are no financial incentives available to ACs. Both ACs and ACNs report that they may occasionally have non-financial incentives, which are usually in the form of trainings and supervision, materials and equipment to carry out their activities, certification, a starting batch of products and medicines, initial support for income-generating activities, presentation of CHWs to the community at community meetings, and labor to help build a house or collect paddy (rice). A recent assessment reported that the financial as well as non-financial incentives for CHWs in Madagascar are found to be unreliable, too dependent on the presence of the project, and inequitably distributed.¹⁴ Table 2 lists different types of incentives received by the CHWs between 2006 and 2018.¹⁴

Table 2. Overview of incentives for community health workers between 2006 and 2018

Financial incentives	Non-financial incentives
Monthly payment (for ACNs only)	Training
Per diems for trainings and meetings	Travels
Indemnities (payments for services rendered)	Equipment and materials
User fees	Food
Access to savings and lending groups and insurance groups	Community recognition and support
Support for Income-generating activities	Promotion to a supervisory position

Community role

Relationships between community leaders and health authorities are weak. Since the district health offices represent the MSANP, often times district health authorities fill empty slots in health centers or construct new facilities even though these are not decisions generally made at the district level. These developments further illustrate the ambiguities that exist in the current regulations regarding the employment and deployment of the health workers in the regions.

Community engagement is a priority of the community programs of Madagascar, both in the health and the nutrition sectors. The 2019 National Community Health Policy³ calls for the mobilization of communities to improve the PHC delivered to them, especially in underserved areas. The policy encourages the communities to play a number of important roles such as identification of problems, finding locally relevant solutions, mobilizing resources, and monitoring and evaluations of the activities. Through the establishment of CHW sites for provision of services at the village level, the linkage between the formal PHC system and the community-based system is strengthened. For the first time, ACNs are now officially integrated into PHC facilities. This approach is jointly designed by the MSANP and ONN, drawing on the technical experience and decades of experience of both the health and the nutrition sectors.

Many stakeholders realize that better community engagement strategies should be identified and implemented well to overcome current challenges of community health programs in Madagascar, especially with respect to issues of sustainability, supervision and accountability. The strategies that stakeholders are considering are displayed in Table 3.

Table 3. Community engagement strategies under consideration for incorporation into national policy

National-level community engagement strategies
Pre-intervention consultation
Consulting with community leaders prior to initiating a new program or activity
Meeting of community leaders with communities to sensitize them about an intervention about to be introduced
CHW selection
Engaging communities in developing CHW hiring criteria
Engaging communities in nominating community members for CHW positions
Engaging community leaders in selecting and hiring CHWs
CHW training
Involving selected community members or organizations in developing CHW training
Engaging community members in retaining CHW
Involving community leaders in CHW activities
Engaging community members in intervention implementation
CHW project evaluation and oversight
Involving community members in decision-making, quality improvement and evaluation (e.g., with meetings for participatory evaluation)
Establishing a village health committee for CHW oversight

Linkages with the formal health system

ACs are recognized as part of the formal health system as the policies in place define their roles, tasks and relationship to the health system.¹⁷ A standardized health information system at the community level will provide data on activities, inputs, materials and equipment of ACs and community sites. Reporting will be done by the COSAN from each *fokontany*. Management tools will be integrated, standardized and simplified as much as possible.

Program scale-up

Currently, the development partners supporting community health and nutrition activities with donor funds have coordinated their activities to avoid overlapping in the same interventions and in the same geographic areas. To do this, the different projects share the intervention zones and if they intervene in the same zone, the activities implemented should be complementary and not redundant. Projects funded by USAID (e.g., Access, Mahefa Miaraka), and others support the implementation of the same package of activities at the community level. Theoretically, all the *fokontany* in Madagascar have ACs, but they need financial support from donors to be able to provide the same services to the members of the community from which they come.

Monitoring and data use

The Animator collects information at community sites using tablets. He transmits nutrition data directly to the UPNNC office and health data to the CSB. Both ACs and ACNs are currently collecting data from the community. The data management system for community health will be upgraded during the coming few years.

Financing

The development of partnerships is one of the priorities of the MSANP. The two main sources of financing for community health and nutrition programs are the Government of Madagascar and external donors. The financing from the latter is usually through different programs or projects. The availability of documents or

reports describing the proportion of financing from the two sources for different programs is limited. Currently, the mapping of all interventions implemented by various technical and financial partners in the health sector is being updated by the MSANP. The following are some of the community health and nutrition projects that were implemented between 2006 and 2019.

- USAID/Access—USAID Project (2019–2024)
- USAID/Mikolo—USAID Project (2013–2018)
- USAID/Santénet 2—USAID Project (2008–2013)
- USAID/Santénet—USAID Project (2004–2008)
- USAID/Mahefa—USAID Project (2011–2016)
- USAID/Mahefa Miraka—USAID Project (2016–2021)
- Asotry Project—Adventist Development and Relief Agency (ADRA) (2014–2019)
- Fararano Project—Catholic Relief Services (CRS) (2014–2019)
- Strengthening and Accessing Livelihood Opportunities for Household Impact – CRS, ADRA, CARE, and Land O'Lakes (2009–2014)
- The Mother and Child Health Support Project (PASMI)—a consortium led by Médecins du Monde (2014–2016)
- The UNICEF PASSOBA-Santé Project (Support Program for Basic Social Sectors—HEALTH) (2012–2017)
- Madagascar Emergency Support to Critical Education, Health and Nutrition Services Project (Projet d'Appui d'Urgence aux Services Essentiels d'Education, de Nutrition et de Santé—PAUSENS—UPNNC/the World Bank (2013–2017)
- Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)—Nouveau Modèle de Financement (NMF) (NMF1—2016-2018, NMF2—2018–2021)
- Action Inter-coopération Madagascar (AIM) (2014–2019)
- Projet d'Amélioration des Résultats Nutritionnels—UPNNC/MSANP/the World Bank (2018–2022)

These programs have a variety of financing sources and different financing mechanisms. Since 1995, the government expenditure (from all sources) has plateaued around US\$ 20 per capita.¹⁸ Starting from 2006, health expenditures accounted for 6-8% of the government's budget. However, these expenditures on health are largely financed by external donors. In 2013, only 17% of the government's expenditure on health was financed by domestic sources, mainly for the salary of employees in the public sector. In other words, 83% of the government's health expenditures are contributed by external donors.^{19,20} A report estimated that the basic package of services provided by ACs cost about US\$ 7 million in 2017, which equals a cost of US\$ 0.28 per capita. These are recurrent costs of providing the basic service package, which includes maternal and neonatal child health, iCCM, family planning and reproductive health, and implementation of behavior change communication programs.^{19,20}

Impact

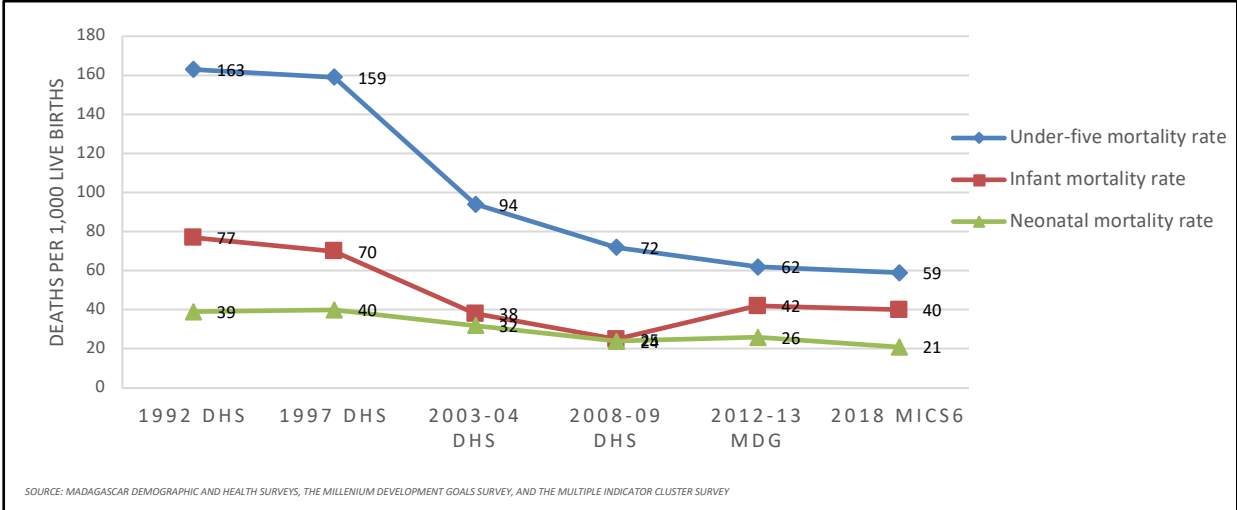
The health and nutrition indicators of Madagascar are gradually improving. As CHWs are an important cornerstone of the PHC system in the country, many believe that CHWs have played a critical role in these improvements. CHWs are making a positive impact on the lives and well-being of the Malagasy people.

- Madagascar has seen a dramatic increase in its use of modern contraceptives, from 5% in 1992 to 33% in 2012.⁵
- A pilot program to provide misoprostol, a drug that can decrease the incidence of postpartum hemorrhage for use during home births, has been scaled up.¹⁸
- Early detection of at-risk births is underway.²¹
- A pilot program has been scaled up to distribute free pregnancy testing services as a way to increase the use of contraceptives among potential clients.²²

Other innovative interventions currently underway improved rapid emergency referral of patients to higher level facilities and making socially marketed products available to CHWs in remote areas. Recently, an mHealth CHWs reporting system was implemented that allows CHWs to report on stock levels and confirm the availability of restocking at the health facility.

Since the political crisis in 2009, the rates of decline in maternal and child mortality rates have slowed. Maternal deaths declined from 559 per 100,000 live births in 2000 to 335 per 100,000 live births in 2017. The infant mortality rate saw a decline from 77 per 1,000 live births in 1992 to 40 per 1,000 live births in 2018. Similarly, under-five mortality rates also decreased from 163 per 1,000 live births in 2008-2009 to 59 per 1,000 live births in 2018 (Figure 5).⁹

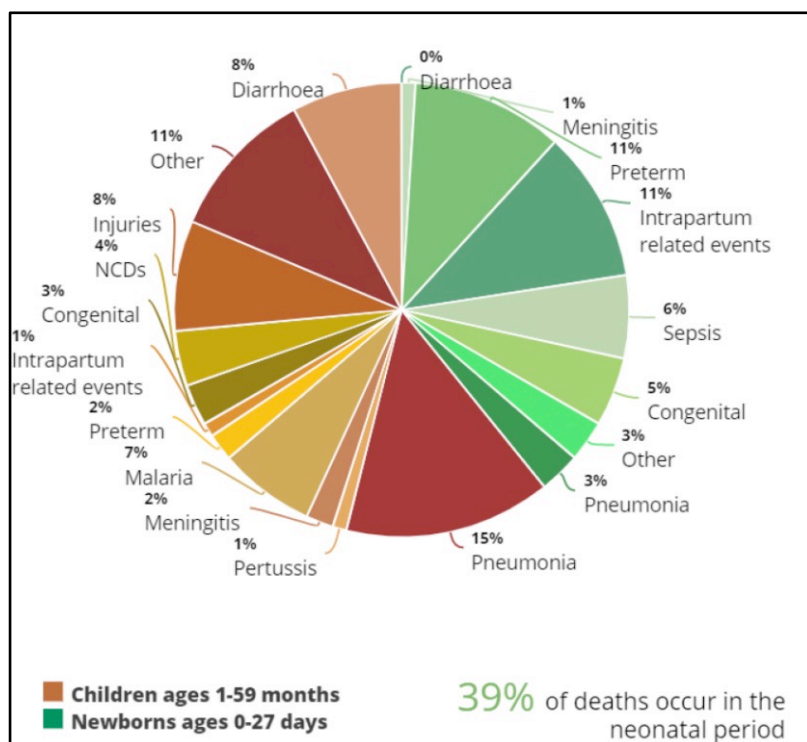
Figure 5. Under-five, child and neonatal mortality in Madagascar 1992-2018



Sources: Madagascar demographic and health surveys,²³ the Millennium Development Goals survey,⁵ and the Multiple Indicator Cluster Survey.²⁴

Despite the collaborative efforts to improve coverage and quality of health services, the mortality rates remain high in comparison with other low-income countries. A significant proportion of deaths are attributable to preventable maternal, neonatal and nutritional causes. The leading causes of death among children younger than five years of age are pneumonia (15% of total deaths), intrapartum-related events (12%), pre-term births (11%), diarrhea (9%) and other infections (7%).²⁵ 39% of all under-five mortality occurs during the neonatal period.²⁵

Figure 6. Causes of childhood deaths in Madagascar, 2017



Source: World Health Organization²⁵

Challenges

Since the start of the political and economic crisis in 2009, progress made on key health indicators stagnated or even reversed, leading Madagascar to fall off track in achieving the MDGs. The prevalence of chronic malnutrition among children is one of the highest in the world. Maternal mortality ratios also have remained relatively high and stagnant over the last ten years.

Madagascar's epidemiological profile remains comparable to many low-income countries with a high communicable disease burden. Almost 30% of all deaths in Madagascar are still attributable to infectious diseases.

The health system is characterized by inequitable service delivery because of two critical dimensions:

- **Affordability:** Many more people fell into poverty after the political crisis of 2009. As a result, the poor are even more vulnerable and have a greater risk of falling and staying in poverty by having to pay for health care. In addition, fewer people are seeking health care because of their inability to pay.
- **Accessibility:** Numerous communities are isolated for months at a time during parts of the year because of rain. This leaves all community members – not only the poorest – with little access to health care. In addition, there are major inequities in health human resources distribution, with the greatest negative impact on the poor in the most geographically isolated areas. An added issue is that nearly 50% of the public health sector staff is over 50 years old and will retire in less than ten years. Current health sector human resource policies do not address this future constraint to service delivery.

The quality of health service delivery is low, especially in rural parts of the country. Critical challenges include: (1) poor provider compliance with diagnostic procedures; (2) weak supervision and monitoring functions; and (3) lack of availability of key supply-side inputs. High out-of-pocket costs and the lack of health insurance programs make it difficult for the poor to access care.

To maximize their impact, the design and implementation of the integrated community platform should be aligned with guiding principles that emphasize performance management. These include strengthening program leadership, health system integration, community engagement, financing, monitoring, health worker training, supervision, management, support, and the use of incentives.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are of by Photos taken by Nomena Raberaoka of Human Centered Design, Madagascar. Left: CHW counseling during a growth monitoring session; Right: CHW providing health education.

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Malawi's Community Health Worker Program



Abigail Simkoko¹ and Frank Gondwe²



¹ Maendeleo Research and Development Consulting, Zomba, Malawi

² Malaria Alert Centre for Communicable Diseases and Action, Blantyre, Malawi

One-page summary

Background

Malawi's community health system has faced chronic resource constraints and deficiencies in quality of services. In light of these challenges, in 2017 Malawi launched the first National Community Health Strategy (2017-2022) in which the government has committed to improve basic community health services throughout the country in collaboration with non-governmental organizations (NGOs).

In Malawi, the term community health workers (CHWs) refers to all community health team members working at rural health centers such as Community Health Nurses, Midwives, Medical Assistants, Environmental Health Assistants, and Health Surveillance Assistants (HSAs). This chapter focuses on HSAs. HSAs are at the top of the Malawi's CHW program structure.

Implementation

HSAs are trained to implement lifesaving interventions through primary health care services such as management of serious childhood illnesses (diarrhea, pneumonia and malaria). CHWs also equip families with the knowledge and skills to prevent disease. They promote good nutrition, sanitation, and hygiene, and link families to essential services.

Roles/responsibilities

The roles of HSAs are very comprehensive and have continued to change over the years as new interventions are introduced into the health sector. Currently, their tasks at the community level include: vaccination, growth monitoring, sanitation, water source protection and water treatment, disease surveillance, health and nutrition talks, provision of contraceptives and supervising traditional birth attendants and village health and water committees. Other duties include providing family planning methods, following up on TB patients and other health-related tasks as advised by the government or NGOs. Therefore, HSAs carry essential health knowledge, skills, and tools into communities and homes, and these are essential for saving lives, preventing disease, and helping children, mothers, fathers, and communities to reach their full potential and flourish.

Training

HSAs receive 12 weeks of training (eight weeks classroom-based and four weeks practical) followed by a final exam. Most of them have also received supplementary trainings like Integrated Community Case Management (iCCM). They also receive refresher trainings but not regularly.

Supervision

HSAs are supervised on a monthly basis by a Senior HSA and then on a quarterly basis by an Assistant Environment Health Officer (AEHO), an Environment Health Officer (EHO) or a Community Health Nurse. HSAs themselves supervise other community-level cadres such as traditional birth attendants, village health and water committees.

Incentives and remuneration

HSAs receive a salary of approximately US\$ 63 per month and non-financial incentives (such as uniforms, T-shirts, bags, a bicycle, and public recognition).

Impact

HSAs have played a critical role in extending access to health services, especially in underserved, hard-to-reach areas. They are an important part of the frontline primary health care team. HSAs have made notable contributions to improvements in Malawi's health outcomes, particularly in the attainment of the Millennium Development Goal for child health.

Historical context

Community health interventions have been implemented in Malawi haphazardly since the early 1960s. From the early 1990s, the country witnessed a number of community health programs and strategies, and the government started focusing on community approaches. In the mid-1990s, the government introduced Health Surveillance Assistants (HSAs), who had previously been called Cholera Assistants. Currently, Malawi has almost 11,000 HSAs working in the country.¹

Community health workers (CHWs) in Malawi work hand in hand with other community players, such as community leaders, volunteers, and community-based organizations. The program provides HSAs with the essential guidelines for their work; they are also required to report on their work. One notable guideline is the National Community Health Strategy document.

HSAs provide services for vertical programs, and their line of command is also vertical. They usually work in different health programs depending on the health needs and requirements of their community. Over time, the community health program has evolved to become one of the key drivers for improvement of key indicators within the health sector. HSAs undergo a particular set of knowledge and skill training in order to prepare to be effective community health program intervention players. Each HSA is responsible for about 2,000 people.^{1&2}

In Malawi, community health refers to the provision of basic health services in rural and urban communities with the participation of people who live there. It is, therefore, essential to improving health and livelihoods in Malawi.¹ Malawi was hit by an outbreak of smallpox in the period before the early 1960s, a situation to which the Ministry of Health (MOH) responded by recruiting a cadre of temporary staff, whom it called Smallpox Vaccinators, specifically to deal with the outbreak. In 1973, there was a cholera outbreak in the country.³ Village health committees (VHCs) were established in all the villages. VHCs were comprised of untrained volunteers. There was therefore a need to employ Cholera Assistants who would train the various VHCs and help in control and preventive measures against further spread of the outbreak.

Therefore, formal CHW programs have existed in Malawi since 1973, and the MOH later changed the cadre of cholera assistants to HSAs, with their job description focusing more on prevention and promotion services than curative services.^{1,3} Over the years, the mandate of HSAs has widened considerably. The position of HSAs did not exist as a formal cadre and permanent cadre of the MOH until 1995, when they were made permanent. The MOH relied heavily on task shifting to HSAs as one way of addressing human resource gaps and promoting equity in access to health services. Therefore, many HSAs have taken on more tasks and curative services without adequate training or appropriate supervision.

Currently, there are several cadres of CHWs employed by the government, including: HSAs, senior HSAs (SHSAs), Community Health Nurses (CHNs), Community Midwife Assistants, and Assistant Environmental Health Officers (AEHOs). HSAs and SHSAs alone make up over half of the MOH's more than 17,000 health workers, and they continue to play a fundamental role in extending access to health care to all people in Malawi.¹ Malawi also has an active network of Community Health Volunteers (CHVs), who operate under MOH guidelines. These CHVs are individuals who willingly offer their time, skills and knowledge to work with the communities they reside in without expecting any financial remuneration.

Community health activities have contributed to improvements in Malawi's health outcomes, especially for women and children, such as the decline in child mortality and malaria fatality rates. Going forward, community health activities will help Malawi achieve its commitment to the Sustainable Development Goals (SDGs) and in particular to SDG 3 – achieving Universal Health Coverage. Recognizing the importance of community health and the opportunity to address these challenges, the MOH developed the country's first National Community Health Strategy (NCHS) for the period of 2017–2022. The NCHS aims to achieve Malawi's health and development goals by setting a five-year agenda for community health, which includes laying out key actions necessary to create a more scientifically and culturally acceptable, sustainable, integrated, and efficient community health system.¹ Therefore, building a strong community health system is

core to Malawi's health interventions as mentioned in its current Health Sector Strategic Plan (HSSP) II and NCHS 2017–2022 strategy.^{1,4}

Health needs

Malawi, being one of the poorest countries in the world, has health needs that are not very different from those of other countries. The overall goal of the Malawi government is “to ensure that people in Malawi attain the highest possible level of health and quality of life.”^{1,4}

Management of reproductive, maternal, neonatal, child and adolescent health conditions

Even though the country has registered progress with respect to some key reproductive health indicators during the Health Sector Strategic Plan (HSSP) 1 period (2011-2016), adolescent health indicators remain poor. According to the Malawi DHS (2016)², 19% of women age 25–49 had their first sex encounter before age 15. This has led to a high proportion of teenage pregnancies (25%) with subsequent adolescent childbirth at 29%, and adolescents accounting for 20% of maternal deaths. According to the HSSP II (2017–2022) Malawi is currently working on reducing the rate of adolescent pregnancy.⁵

With respect to maternal and neonatal health, Malawi continues to register progress on a number of indicators. These include a progressively steady decline in under-five mortality from 242 in 1990 to 64 in 2015.^{3,4} However, despite this progress, Malawi's maternal mortality ratio 634 deaths per 100,000 population and its neonatal mortality rate of 22 deaths per 1000 live births are among the highest in sub-Saharan Africa.⁵ Improvements will require well-trained human resources and adequately equipped facilities to provide full package of comprehensive and basic emergency obstetric and neonatal care services

Similarly, on child health, Malawi has made progress on child health indicators that can be attributed to specific child health program intervention such as Integrated Management of Childhood Illness (IMCI), Community Management of Acute Malnutrition (CMAM) and the management of acute respiratory infections (ARI). However, more efforts are needed at both the facility level and the community level to ensure continued progress in these indicators.

Prevention and management of HIV/AIDS

The country is making good progress in the fight against HIV infection and AIDS response. For example, HIV prevalence among women and men 15-49 years of age decreased from 11% in 2010 to 9% in 2016. Malawi is a global pioneer for the “Option B+” intervention^a for HIV care and support.⁶ Currently the country has adopted the 90-90-90 strategy which aims to achieve by 2020 the following: 90% of people living with HIV will know their status, 90% of the people who are HIV+ will be receiving anti-viral therapy, and 90% of these patients will have their viral load suppressed.⁷ Essentially, this means the country requires well-trained and motivated human resources, adequate supplies and equipment, as well as robust financial support to achieve these goals.

Prevention, control and treatment of TB

For many years, TB has been one of Malawi's serious public health problems. Despite having registered significant progress in the prevention, control, and management of TB over the last five years, the disease remains a significant burden. Malawi is strengthening its strategies, interventions, and efforts to control and manage TB in collaboration with HIV-control activities.⁶

^a Option B+ is an approach to the prevention of vertical transmission of HIV for HIV+ expectant mothers. They are immediately offered treatment for life regardless of their CD4 count.

Prevention and treatment of malaria

Malaria is endemic throughout Malawi. The disease affects six million people per year and is the leading cause of morbidity and mortality in under-five children and in pregnant women. The magnitude of the problem should not be underestimated, as it accounts for over 30% of outpatient visits and is ranked third on the list of conditions that result in Years Lost to Disability.⁶ It is worth noting that most of the malaria prevention measures that are carried out at the community and household levels are carried out by CHWs working with the government's community health program.

Non-communicable diseases prevention and control

Non-communicable diseases (NCDs) are the second leading cause of deaths among adults, after HIV/AIDS. They are estimated to account for 32% of all deaths.¹⁰ This poses a serious threat to resources since treatment, care and support interventions for these diseases have to be carried out with the same resources that are allocated to other conditions. For example, the country has very high levels of hypertension: 32.9% of adults, which is much higher than most countries in the region. Cervical cancer, which has an age-standardized incidence of 75.9 cases per 100,000 women of reproductive age, accounts for 9,000 disability-adjusted life years (DALYs) lost per year in women in Malawi.¹¹

Health system needs

The above health needs are the ones that the country views as of high priority and they require multidirectional and multifaceted approaches to deal with them. However, there are other needs that are highly significant and cross-cutting. These needs have more to do with the functioning of the health system, as highlighted below.

Inadequate human resources for health

Malawi continues to experience vacant positions in the health sector in all cadres at all levels – the primary, secondary and tertiary levels. The health sector has an estimated 23,188 personnel (out of a total of 42,309 positions that exist in the MOH staff establishment), representing a 45% vacancy rate.⁴ With respect to the primary level, there is a shortage of CHWs, particularly HSAs; there is an uneven distribution of CHWs; and the performance of CHWs is sub-optimal due to inadequate training as well as a lack of incentives and a clear career path for CHWs. An additional 5,000 CHWs are needed in addition to the current number of 11,000 in order to achieve the target of one CHW for each 1,000 people.⁴

Lack of health infrastructure and equipment

The country aims to have a health facility within eight kilometers of each member of the population. However, one quarter of the population lives more than eight kilometers from a facility at present.⁴

There are critical shortages of transport and communication infrastructure on top of other needs such as electricity, clean water and sanitation. According to Malawi Service Provision Assessment Survey,⁸ of 509 government health facilities 37% did not have regular electricity, 9% did not have an improved water source, 78% did not have a client latrine, 31% did not have communications equipment, and 7% did not have a functioning ambulance. Maintaining the existing ambulances so that they are functional is an additional challenge, especially in remote areas with poor road conditions. Most of these vehicles are very inadequate and most are non-functional.

The government of Malawi has its own share of challenges relating to health care equipment. The quantity and quality of available equipment in both Government and Christian Health Association of Malawi (CHAM) health facilities is low, and 20-25% of the equipment is out of service.⁶ This leaves the country to heavily rely on external support, particularly for equipment donations and procurement. However, most of the donated items do not take into consideration the country's needs and standards and nor do they include funds for training or maintenance.⁴

Need for medical products and technologies

The health sector in Malawi experiences regular shortages of essential medical products and modern technologies. Although this could be attributable to a number of issues, the most notable ones are funding shortages, high prices, weak supply chain management, lack of drug storage spaces, unreliable information systems, irrational use of medicines, and “leakage” and pilferage due to corruption. Drug pilferage is rampant in the government’s health facilities and it is estimated that about 30% of the country’s expenditures for drugs is lost to pilferage.⁹ The country struggles to maintain stocks of medicines and supplies needed for the subsequent 1-3 months.

The Malawi health sector has numerous stakeholders, most of who run parallel supply chains for health commodities that are uncoordinated with each other. This leaves the government with limited power to control the procurement, storage and distribution of drugs.¹⁶ The country has a Central Medical Stores Trust, the body responsible for the procurement of drugs in the public sector and also for giving policy direction to other stakeholders. However, this entity is not adequately utilized.

Need for robust and reliable health information system

The health sector in Malawi, like any other government sector, faces major challenges in data management. The country has a central platform, DHIS2, that is designated to be a custodian of all the information about health programs through a harmonized Health Management Information System. The MOH uses the DHIS2 as a central data repository to aggregate routine health management information data emanating from health facilities.⁶ However, the system has its own flaws in that it is only web-based and is difficult to operate, leading to the development of other parallel reporting systems. This in turn creates structural challenges and weakens the mainstream monitoring and evaluation system.

Apart from this, data quality in Malawi’s health sector remains poor due to challenges in recording, extracting, and reporting data. Most health facilities are not able to collect and submit the required data on time. This problem is compounded by overreliance on manual data collection and manual reporting processes, which make it difficult to record, extract, share and use the data. For those systems that are computerized, interoperability among systems is a major challenge.

Health systems structure

Malawi’s healthcare system structure follows the World Health Organization’s (WHO) building blocks framework as a reference. This WHO building blocks framework breaks health systems into six core components (building blocks), namely: service delivery; health workforce; information systems; medical products, vaccines and technologies; health financing; and leadership and governance.

Service delivery: Health care services are delivered through two main avenues: the government and the Christian Health Association of Malawi (CHAM). Thus, the major providers of health services are the Ministry of Health (owning 63% of total health facilities), Christian Hospitals Association – CHAM (26%), Ministry of Local Government (5%) and not-for-profit non-governmental organizations (NGOs) (6%).¹⁰ Access to health care services is either through a health center or district hospital. People in rural communities first access treatment at health centers. In the event that the condition is too critical to handle, the case is referred to a district hospital. Malawian health centers and hospitals are distributed in such a way that top tier hospitals are in urban centers, which tend to be overcrowded due to referrals.

Health workforce: Malawi is one of the 57 countries with a crisis in human resources for health.¹¹ The medical personnel-to-population ratio is as follows: 28 nurses per 100,000 population and two physicians per 100,000 population.¹² Additionally, most health workers are located in urban centers although most Malawians live in rural communities. Recruitment is through a centralized system operated by the Health Services Commission. However, the process varies from district to district depending on local health needs.

Malawi has a medical school where doctors, physiotherapists and pharmacists are trained. Nurses are trained at nursing schools. The enrollment numbers for these schools are small, although they have been growing

over the years. Recent statistics are not available. However, in 2008, the colleges graduated 39 physicians and 656 nurses across the country.¹⁰

Information systems: Malawi has a health management information system (HMIS) with statisticians that are responsible for data collection, compilation and analysis for monitoring performance. Additionally, the unit is responsible for dissemination of health information. Health facilities are responsible for the reporting of notifiable communicable diseases and deaths that occur at the facility. Population-based surveys, for example, Demographic and Health Surveys, are also used to measure outcomes and produce impact data.

Medical products, vaccines and technologies: Malawi is overwhelmed with drug shortages in hospitals. This can be attributed to weak procurement and supply chain systems, poor storage facilities and mismanagement of funds. Additionally, Malawi does not regularly update its essential medicines list. Malawi last updated its essential medicines list in 2009.

Health financing: In 2017/18, external donors contributed 62% of the total government health expenditures, with the government's contribution of its own funds estimated to be 25%.¹³ Total government expenditure on health as a percentage of the gross domestic product is at 11% according to WHO.¹³ However, in 2014, 17% of the government's expenditures were for health. This exceeds the Abuja target for governments in Africa to allocate at least 15% of their budget for health.¹⁴

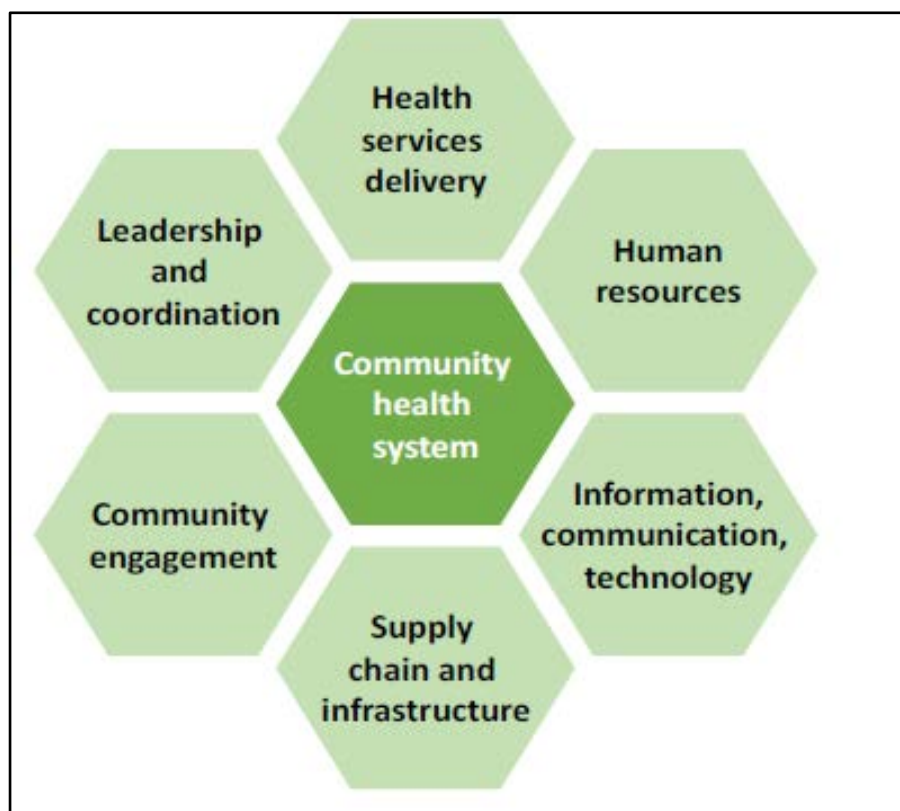
Leadership and governance: The Ministry of Health is responsible for policy guidance by formulating technical policies and sector strategies. The following are some of the policies and strategies that have been introduced and are being implemented: the National Health Policy, the Health Sector Strategic Plan II, the National Health Information System Strategy, and the Human Resource for Deployment Policy. The Ministry of Health also collaborates with other sectors across government, donors, NGOs, civil society, and academia to influence action on improving health, including addressing key determinants of health, accessing health services, and generating support for public policies. However, the government is weak in enforcement of regulations, implementation of policies, and accountability. Transparency is also another challenge within the government.

CHW program features

In 2017 Malawi developed a community health framework which has six thematic areas, as shown in Figure 1, based on the World Health Organization's Health Systems Framework. The goals of these domains are as follows:

1. **Health services delivery:** Deliver the Essential Health Package at the community level through integrated services provided by CHWs working in Community Health Teams.
2. **Human resources:** Build a sufficient, equitably distributed, well-trained community health workforce.
3. **Information, communication, and technology:** Promote a harmonized community health information system with a multidirectional flow of data and knowledge.
4. **Supply chain and infrastructure:** Provide sufficient supplies, transport, and infrastructure for CHWs working in Community Health Teams.
5. **Community engagement:** Strengthen community engagement in and ownership of community health.
6. **Leadership and coordination:** Ensure sufficient policy support and funding for community health and ensure that community health activities are implemented and coordinated at all levels.

Figure 1. Malawi's community health framework thematic areas¹



Health care services in Malawi are delivered at the following three levels of care: (1) Primary, (2) Secondary and (3) Tertiary. The Primary Level consists of community initiatives, health posts, dispensaries, maternity facilities, health centers, and community and rural hospitals. At the community level, health services are provided by community-based cadres such as HSAs, community-based distributing agents (CBDAs), VHCs and other volunteers. Aside from the HSAs, most of the other CHWs are supported by NGOs. HSAs provide promotive and preventive health services including HIV testing and counseling and provision of immunization services. Some HSAs have been trained to provide healthcare to children younger than five years of age. Services at this level are conducted through door-to-door visits and at village clinics and mobile clinics.⁶

Community Health Nurses and other health cadres also provide health services through outreach programs. VHCs promote PHC activities through community participation, and they work with HSAs on preventive and promotive health services such as hygiene and sanitation, as well as community case management of pneumonia and diarrhea among under-five children. Services at this level are conducted through door-to-door visits, at village clinics, and at mobile clinics. CHNs and other health cadres also provide health services through outreach programs. VHCs promote PHC activities through community participation and they work with HSAs on preventive and promotive health services such as hygiene and sanitation.⁶

At the Primary Level, health centers support HSAs. Each health center has a Health Center Advisory Committee that helps communities to demand the quantity and quality of services that they expect by monitoring the performance of health centers in collaboration with VHCs. Health centers are responsible for providing both curative and preventive services in the Essential Health Package.⁶

At the Secondary Level, care is provided by district hospitals. They are referral facilities for both health centers and rural hospitals. Most district hospitals have 200-300 beds. They also deliver both inpatient and outpatient services to the local town population. CHAM hospitals, too, provide secondary-level health care. The district and CHAM hospitals provide general services, PHC services, and technical supervision to lower

units. District hospitals also provide in-service training for health personnel and other support to community-based health programs in the provision of the EHP.¹⁵

The Tertiary Level consists of central hospitals that provide referral health services for their respective regions.¹⁵

Malawi has been implementing a number of interventions and programs that have been recommended by international organizations. There are described briefly here.

Community management of acute malnutrition

This is the WHO-endorsed intervention that has been used to identify and manage cases of malnutrition in the community. Under this initiative, CHWs are trained on how to identify children with malnutrition through activities such as screening and active case finding. They are encouraged to do this at every point of contact with children, be it during service delivery or during screening activities. Once identified, children with acute malnutrition are enrolled into program.

Scaling Up Nutrition (SUN)

This is another WHO-endorsed initiative aimed at reducing stunting in the countries where stunting levels are high. The intervention involves the use of CHVs and CHWs in providing messages to pregnant mothers and parents/guardians. Remarkable improvements have been recorded in geographic areas where SUN has been implemented.

Integrated Community Case Management (iCCM) of childhood illness

This is another WHO-recommended intervention that aims to reduce childhood morbidity and mortality by providing case management of malaria, pneumonia and diarrhea to sick children within their communities as well as identifying and referring sick newborns.¹⁶

Reach Every Child (REC)

This pilot initiative is being used by the Expanded Program on Immunization (EPI) in selected districts to ensure that each and every child receives immunizations as recommended. The approach is an extension of the Reach Every District approach to improving district-level immunization coverage. The REC approach entails CHWs assessing and analyzing local immunization data and proposing a plan for how to improve coverage as well as for how to integrate Vitamin A supplementation and deworming into immunization activities.

Periodic Intensification of Routine Immunization (PIRI)

Also falling under EPI as one of the key strategies recommended by the WHO, the focus of PIRI is to map all unimmunized children in the community and provide immunizations to them. This intervention utilizes CHWs and volunteers who go into the community to find out all the children that have not received the immunizations they should have received based on their age, record them, and follow them up with immunization services.

Use of volunteers in community health interventions

For all community health interventions, Malawi promotes the concept of volunteerism. This involves the use of community members (as individuals or groups) to provide services to their fellow community members for no financial gain. The CHW program relies heavily on the use of trained volunteers to help CHWs. For instance, immunization and nutrition activities use volunteers to identify beneficiaries and clients who need services. In some instances, volunteers track down defaulters of care.

Expert Client Initiative

As the expression goes, “Experience is the best teacher.” Malawi uses HIV-infected individuals to give out counseling messages to the community members for behavior change. The Expert Client Initiative helps to improve adherence to HIV/AIDS treatment and care.¹⁷ Expert clients are persons who are HIV+ who have openly declared their status and who work with the HIV/AIDS program to inspire others to seek testing and treatment. They also trace those who have abandoned their treatment. This Initiative has contributed to improvements in increasing the utilization of HIV testing and treatment as well as retention in care.

Integrated approach to community health interventions

The integration of services means management and delivery of health services so that clients receive a continuum of preventive and curative services according to their needs over time and across different levels of the health system. The government of Malawi advocates and encourages the use of the approach across programs, including the CHW program. This significantly enhances uptake of other key services by the clients, thereby improving coverage of services. For instance, during immunization sessions, health workers also screen children to identify those with acute malnutrition.

Scope of work

The HSAs operate in both urban and rural areas. Different services are offered based on whether the catchment area is in a hard-to-reach region or not. HSAs treat childhood pneumonia, diarrhea and malaria; can perform HIV testing and counseling. Their scope of work also involves providing information, communication and education using specially prepared materials on the following topics:

- Malaria prevention through vector control, including indoor residual spraying (IRS) in high-risk areas, drainage, provision of long-lasting insecticide-treated nets (LLINs), and intermittent preventive treatment for pregnant women (IPT).
- Environmental and personal hygiene in the community through safe water and sanitation, good nutrition, food service inspections, and border-post checks.
- Health promotion activities, including community mobilization; information and education, advocacy on early recognition and danger signs for HIV and AIDS, acute respiratory infections (ARIs), malaria, diarrheal diseases, perinatal conditions, non-communicable diseases (NCDs), TB, malnutrition, vaccines, cancers, mental health, and neglected tropical diseases (NTDs).
- Community-based family planning (CBFP), including the provision of contraceptives, links to HIV testing and counseling, and promotion of safe-sex negotiation.
- Safe childbirth through referrals to health facilities for delivery; provision of information, education and communication (IEC) about danger signs during childbirth; and provision of hygiene kits (e.g., a water storage container with a tap, a bottle of chlorine called Water Guard used to purify water, and a bar of soap) for mothers.
- Immunization for children under five and pregnant women.

Selection and training

HSAs are recruited from their respective communities. All recruited HSAs are at least 19 years of age and they must speak English and the local language. They must have a minimum of four years of education with a Malawi School Certificate of Education (MSCE). They are selected by the community they serve.¹⁸ Then they undergo 12 weeks of training (eight weeks classroom-based and four weeks practical) followed by a final exam..

Support and supervision

The role of HSA supervision has traditionally been with the environmental health unit, specifically Environment Health Officers and Assistant Environment Health Officers (AEHOs). Program-specific supervision may also occur (e.g., HIV program supervisors supporting home testing and counseling). Supervision visits may be conducted by members of the MOH. In 2015, over 1,200 HSAs were promoted to the position of supervisor and are called Senior HSAs.

Timing or schedule of supervision varies with the purpose of the supervision and the level of the supervisor. For example, HSAs should visit the health facility to which they are linked at least quarterly.

Checklists are used for supervision. The country has shifted to a supportive supervision approach, away from a traditional approach of supervision focused on fault finding.

The government endorses an integrated approach in the country's mainstream health service delivery system. This is done in order to improve cost-effectiveness and efficiency. For example, in the 10 districts that are piloting the integration of Vitamin A supplementation and deworming into the routine Expanded Program on Immunizations (EPI), supervision should follow the same integrated approach.

Incentives and remuneration

HSAs receive salaries (approximately US\$ 63 per month), per diems (daily payments for trainings and special events), and non-financial incentives (uniforms, T-shirts, bags, a bicycle, and public recognition).

Community role

Malawi's history of externally driven, top-down programs has limited community participation and community ownership of community health program activities. Despite all this, the country's community health program works extra hard to strengthen community structures and community-level engagement. At the community level, the community health program works to involve the following:

- **Community leaders:** These include all the leaders at the community level such as traditional chiefs and religious leaders. Some of the leaders provide land, and others identify locations for community health activities. Community leaders also assist in mobilizing community members to support a particular intervention or service. Some keep records related to program implementation. Depending on the specific program initiative, community leaders are occasionally assigned a specific role to support the intervention, and this often requires specific training.
- **Community structure:** This constitutes a group of people specifically formulated either at will or with direction from a higher level to champion particular intervention in the area, be it at the district level, a traditional authority level, or the village level. Currently, various community structures exist to support community health program: village health committees, Health Center Management Committees, Hospital Advisory Committees, as well as Health and Environment Committees. However, these structures often do not function as they should.¹ Part of the reason for this is that there are no clear guidelines on the functions and reporting measures for these groups to follow.

The roles of these community structures include mobilizing the communities, supporting service provision to foster compliance, record keeping, and providing checks and balances on utilization of resources. They also link the community with development partners and other stakeholders as well as foster coordination among community health programs.

- **Community-based organization:** These are locally constituted organizations that are based at the community level and have a specific community-based approach and focus. They may be NGO, social and professional groups, civil society groups, or faith-based organizations, among others. Most are registered under the local authorities and are regularly monitored at the district level. These organizations

play an important role in supporting community health work.¹ Community-based organizations also function as a conduit for funds by receiving funds directly from donors.

- **Opinion leaders:** There are other leaders in the community who do not necessarily have designated positions but still command authority and respect from fellow community members. They often work as catalysts for developmental issues. Their influence in community health programs should not be underestimated since they often mobilize fellow community members to take part in program activities and utilize services.
- **Community members:** They have three overarching roles: to use, to provide, and to monitor community health services. Community engagement is the process of working collaboratively with community members to fulfill all three roles. This involves generating awareness of and demand for services; planning for community health services; helping to improve services (e.g., via feedback mechanisms); and supporting the enabling environment for community health. Community members advocate for inclusion of community health priorities in the mainstream health programs, and they also contribute resources to program interventions, e.g., construction of maternity shelters and CHW accommodations. Also, communities hold program implementers accountable and they do report to relevant authorities any inappropriate activities. The community's acceptance of any program or intervention is essential for the activity to move forward.

Linkages with the formal health system

Currently, Malawi does not have a stand-alone community health program. Rather, community health services are considered part of the primary level of care within the national health system. Primary health care services are delivered at the community through various Ministry of Health (MOH) intervention-specific programs, namely:

- Environmental health
- Family planning
- Maternal and child health
- AIDS treatment, care, and support
- Village-level operations and maintenance of water supply
- Growth monitoring and promotion
- Youth-friendly health services
- Integrated management of childhood illnesses
- Sanitation promotion

The delivery of primary health services across all program areas is coordinated at the village level by CHWs.

Program scale-up

The country is working on increasing integration of community health services at the point of care and scaling up an integrated referral system across all programs and levels of care for improved linkages with facilities. Additionally, Malawi is enhancing coordination mechanisms at the district and national level. Malawi is also beginning to scale-up a national electronic system for managing drugs and supplies. The 2022 target is that 95% of HSAs have a high-quality, durable bicycle and that 900 health posts be operational and supporting integrated community health service delivery in hard-to-reach areas.¹

Monitoring and data use

CHWs are responsible for collecting and aggregating all data on primary health care community services. They collect data using specific forms including the Village Health Register, TBA Card, CBDA card, and VHC forms. These forms are used to collect data on disease outbreaks, coverage of health services, and adverse environmental conditions. HSAs send these forms to the nearest health facility where an initial analysis is made. Data is analyzed quarterly by the District Health Officer and disseminated to the different MOH and NGO health programs in the district. A report on community-level indicators is also sent back to the HSAs.⁸

Financing

The country's health sector financing relies on general government revenues, donor funding and household expenditures in terms of direct payments by patients and, more recently, on premiums for private health insurance. According to the National Community Health Strategy 2017-2020¹, implementation of the CHW program also requires financing from the national and district governments, donor partners and the private sector. It is envisaged that only with the support of all stakeholders will Malawi be able to improve the health of all people in Malawi.

Central and district government funding

This is the first source of financing for the CHW program. The government, through its national budget, continues to contribute significant resources towards procurement of commodities and supplies to implement health interventions at the community level.¹ All issues having to do with procurement, infrastructure development, policy mechanisms and control as well as major budget activities are usually handled by the central government.

The districts receive most of their funding from the central government, though they do generate some income themselves through partnerships with NGOs. This funding supports local district priorities, including community health program activities. The districts also play a significant role in ensuring there is proper decentralization mechanism for finances. District governments pay the salaries of CHWs and CHW supervision. In addition, districts support transport and infrastructure costs, including those for health posts and for the housing of CHWs.

Financial support from other partners

It is very evident that the government alone cannot manage to finance the entire CHW program. This makes external support from developmental partners imperative. Stakeholders include donors, implementing partners, and the private sector. They all contribute in filling critical gaps in CHW program financing. Development partners, including multilateral donors, bilateral donors, foundations, development finance institutions, and NGOs provide indispensable financing of the CHW program. The financial support is for CHW training, provision of supplies, transport, infrastructure, information and communications technology (ICT), and more.

The other avenue for financial support which has been minimal so far is the private sector. However, the government is currently working with the private sector to begin to support ICT, infrastructure, transport, and CHW supplies.

Impact

Malawi is implementing a number of CHW interventions. Most of these interventions are program-specific and are provided by CHWs in the community. During the implementation of Health Sector Strategic Plan I¹⁵, a number of these initiatives demonstrated a positive impact, and this has subsequently assisted the country to be on track as far as meeting specific indicator targets. Below is the outline of initiatives that have brought in and continue to bring in positive input.

The introduction of iCCM and IMCI have contributed to improvements in under-five mortality. Malawi was one of the few countries to achieve Millennium Development Goal (MDG) 4 (reduce under-five mortality by two-thirds between 1990 and 2015). The under-five mortality declined from 242 to 64 between 1990 and 2015.¹⁹ In areas where PIRIs have been conducted immunization coverage has improved considerably.

Community-based nutrition interventions are credited with improving nutritional indicators for the country. The percentage of children with wasting declined from 4.0% in 2010 to 2.7% in 2016. Malawi's stunting level declined from 47.1% of children in 2010 to 37.1% in 2016.²

Districts that have been piloting the community-based REC approach have shown greater improvements in coverage of immunization than other districts.

The Expert Client Initiative has been an important contributor to Malawi's success in controlling HIV/AIDS and achieving MDG 6 (Controlling HIV, Malaria and TB).

In addition to the IMCI strategy, Malawi has also adopted and launched the scale-up of Community Case Management (CCM) of malaria, pneumonia and diarrhea by CHWs as a strategy to rapidly increase access to treatment of these life-threatening illnesses and thus accelerate reduction in under-five mortality rapidly.²⁰ CCM is an evidence-based strategy that enables CHWs to assess symptoms, classify, and treat uncomplicated cases of childhood malaria, pneumonia and diarrhea.

Malawi's maternal mortality declined from 957 to 634 deaths per 100,000 live births between 1990 and 2015.²¹ (Malawi is one of the few developing countries that achieved the Millennium Development Goal 4 (MDG4) for under-five mortality, declining from 242 deaths per 1,000 live births to just 64, as previously stated.² In addition, the total fertility rate declined from 5.7 to 4.4 between 2010 and 2015.² It has been argued that these achievements are attributable to the services provided by CHWs, especially in hard-to-reach rural areas.²²

Challenges

The country's CHW program shares the same challenges as those that permeate the entire health system: limited funding, inadequate infrastructure, inadequate medical supplies and equipment, and problems of leadership and governance. However, some of the challenges specific to the CHW program are shown below.

Health services delivery

Quality is the priority challenge for service delivery in the CHW program. In addition, despite recent efforts, there is still limited integration of services at the point of care, and there is still a lack of clarity on the roles and functions of the different actors in the community health system. Similarly, there is also a lack of clarity regarding who is responsible for what among the CHW cadres and support structures (e.g., AEHOs, VHCs, and volunteers). Finally, CHWs are overburdened with too many responsibilities.⁶

Human resources

There is a shortage of CHWs, and particularly a shortage of 5,000 HSAs that will be needed to meet the recommended benchmark of one HSA per 1,000 people. There is an uneven distribution of CHWs across Malawi. The areas with the greatest health needs still have fewer CHWs. Inadequate training of CHWs has led to sub-optimal performance. The lack of incentives and the lack of a clear career path affects CHW motivation. There is a need for more non-financial incentives such as housing, transport, and career advancement, and there is also a need for performance-based incentives.⁶

Utilization of information and communications technology (ICT)

Effective handling and management of information and communication plays a very important role in determining community health outcomes, managing the CHW workforce, tracking the quality of care provided by CHWs, and ensuring effective integration of services. However, the country's CHW program faces two overriding challenges insofar as communication and information is concerned.

- There is a lack of integrated data collection tools and systems. At present there are duplicated data collection efforts, and CHWs are subjected to an unnecessary workload. CHWs have to complete more than 50 forms, 40 of which are expected to be completed at least monthly. The problem is compounded by the fact that even though the Central Monitoring and Evaluation Division has developed an essential indicators list, externally funded implementing partners have their own monitoring requirements that the same CHWs are supposed to report on. Despite that, many partners across the country are experimenting with the use of mHealth solutions in data management, though the government has not yet approved any of these.
- Data is inaccessible at the community level. The only data collected at present are those required by higher levels, and feedback is rarely given to the communities. This has had a negative effect on the whole community health system since there is no ownership of the data and no one sees the value of the data collection process.⁶

Infrastructure

At present 41% of EPI outreach sessions are conducted under a tree.

The lack of housing contributes to HSAs and HSA Supervisors residing outside of their catchment areas. Similarly, limited transport options for CHWs impacts on their ability to access communities and households. Some HSAs have bicycles, but they are not of adequate quality. Funds for maintenance and replacement are not available.¹

Logistical support

Shortages of supplies for CHWs, which are common, are often due to poor management. Also contributing are a lack of funds, a lack of security, and a lack of proper storage options for drugs at the community level. Finally, community supply chains are not well-integrated into national supply chains. For example, there is no standard supply list for CHWs, and this makes supply management at the community level difficult.

Community engagement

For the community health program to be successful, strong community engagement is essential. Two identifiable challenges exist at present.¹

- Communities are not fully involved, leading to a lack of accountability at the community level and a lack of prioritization of key health issues as well as a lack of oversight of CHW activities.
- The lack of strong community-level structures and insufficient clarity on their roles and responsibilities lead to weaker community health programs than would be the case otherwise.

Leadership and coordination

As with all programs, effectiveness and success are highly dependent on the quality of their leadership, institutional support and coordination. The CHW program in Malawi faces two challenges relating to coordination, which also reflect a lack of leadership:

- Inadequate coordination of planning and implementation exist at the community, district, and national levels. Pockets of uncoordinated planning and implementation of activities are common across government departments and partners.
- There are insufficient linkages across national, district, and community-level stakeholders, leading to significant gaps in CHW program activities throughout the country.¹

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page: Left: A Health Surveillance Assistant conducts family planning counselling to a household during a home visit. Photo credit: Mike Luhanga, Zomba District Health Office, Zomba, Malawi; Right: A community volunteer assists with growth monitoring during an outreach clinic. Photo credit: Nelson Mhango, Phalombe District Health Office, Phalombe, Malawi.

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Mozambique's *Agentes Polivalentes Elementares*



Elizabeth Davlantes¹ Humberto Rodrigues² and Rose Zulliger³



¹ Epidemic Intelligence Service, US Centers for Disease Control and Prevention, Atlanta, Georgia, USA

² Director, National *Agentes Polivalentes Elementares* Program, Ministry of Health, Maputo, Mozambique

³ President's Malaria Initiative, US Centers for Disease Control and Prevention, Maputo, Mozambique

One-page summary

Background

Mozambique's cadre of CHWs, called *Agentes Polivalentes Elementares* (APEs), was established in 1978. APEs originally provided first aid, health promotion, preventive medicine services, and health post referrals. In 2010, the national APE program was revitalized and the APE role was expanded to include Integrated Community Case Management (iCCM) of childhood pneumonia, diarrhea, and malaria.

Implementation

APEs are each responsible for 500–2,000 inhabitants. They are members of the communities they serve and are generally located in hard-to-reach areas that are 8-25 kilometers from health facilities. All APE services and treatments are provided free of charge in the community. Today, there are more than 5,300 APEs working in Mozambique, and the country is currently scaling up the program with the goal of having 8,800 trained APEs providing community-based services by the end of 2021.

Roles/responsibilities

APEs perform preventive education and health promotion in their communities. Each APE is given a general medical kit and a malaria-specific commodity kit that contain basic diagnostic and therapeutic equipment for managing common diseases. APEs are trained to recognize signs of severe disease and refer such patients to the nearest health facility.

Training

APEs undergo 18 weeks of training in health promotion, disease prevention, first aid, and management of common diseases. Training is divided into didactic and practical modules.

Supervision

A staff member at the nearest health facility supervises all APEs in the facility's catchment area. Supervisors meet with APEs on a monthly basis to review register books and distribute new commodity kits. They also make periodic supervisory visits to APEs in their communities.

Incentives

APEs receive a small subsidy. In addition, they receive a bicycle, flashlight, vest, medicine bag, identification badge, hat, calculator, thermometer, and stopwatch.

Impact

APEs provide lower-cost services to hard-to-reach areas than were previously available at the time of the APE program relaunch in 2010. Since that time, they have expanded access to critical health services such as providing testing and treatment for one million cases of malaria in 2018.

Historical context

Following independence in 1975, Mozambique established in 1978 a cadre of multipurpose community health workers (CHWs) in response to the World Health Organization's (WHO's) and UNICEF's Declaration of Alma-Ata, which emphasized the importance of primary health care and the need to provide services at the community level. These *Agentes Polivalentes Elementares* (APEs) focused their services on disease prevention, and health promotion in communities with poor access to health care. They also provided referrals to local health facilities. However, the program experienced many challenges from the outset. APEs were initially perceived as peripheral extensions of the national health system rather than as integral members of their local communities. Additionally, there was a disconnect between their intended role and local community priorities since communities expected APEs to provide curative rather than preventive services. APEs also suffered from weak supervision and an outdated curriculum.¹

These issues, coupled with political instability from Mozambique's civil war, led to the collapse of the program in 1989. Following this collapse, a few APEs continued working with support from local non-governmental organizations (NGOs), and the Ministry of Health continued to provide supplies to existing APEs, but the program was fragmented and there were many vertical NGO programs.² Attempts to revive the APE program in the 1990s were overall unsuccessful.¹ Successful revitalization did not occur until 2010, and the program has been expanding since.

Health needs

HIV/AIDS and malaria are among the most important public health problems in Mozambique and a significant cause of morbidity and mortality across all age groups. The primary causes of deaths in children younger than five years of age are malaria, pneumonia, and prematurity in newborns. In 2015, the national HIV prevalence among adults aged 15-49 years old was 13%, and the national malaria prevalence in children under-five was 40%.³ Malaria prevalence was stagnant in 2018 at 39% and the burden of malaria infection has recently increased; there were more than 10 million cases of malaria diagnosed in 2018.⁴ However, the country has made significant strides in reducing all-cause mortality, with the under-five mortality rate decreasing by almost half in 10 years (from 126.8 per 1,000 live births in 2006 to 71.3 in 2016) and maternal mortality decreasing by two-thirds over 20 years (1,300 per 100,000 live births in 1990 to 480 in 2013). Childhood malnutrition rates have also decreased modestly, from 21% in 2003 to 16% in 2011.

Mozambique has a limited health care workforce, with 3.4 nursing and midwifery personnel and 0.3 physicians per 10,000 inhabitants.⁵ Nationally, there are 930 inhabitants served by each health care technical staff member, but this varies considerably from 391 in the capital city to 1,315 in the provinces of Zambezia and Tete.⁶

Health system structure

Government health services dominate health service delivery, although there are some private health care providers in large cities. The public sector has 1,639 health facilities. A total of 80% of children 12–23 months in the 2011 Demographic Health Survey had received public health services, as indicated by having a health card.⁷ The first points of contact in the government health system are usually rural health facilities, which provide primary health care and maternity services but no inpatient services or APEs. District, general, and rural hospitals provide higher-level care and accept referrals from primary health care centers. Provincial hospitals provide curative services, serve as training centers, and accept referrals from lower-level facilities. Finally, Mozambique has several regional referral hospitals.⁸

CHW program features

In 2010, the APE program was successfully revitalized with the aim to extend community access to health care to an additional 20% of the Mozambican population within five years. In 2018 there were more than 5,300 APEs working in Mozambique, and the country is currently scaling up the program with the goal of having 8,800 trained APEs providing community-based services by the end of 2021.⁹ APEs continue to play a

critical part in Mozambique’s health system. APEs provide primary health care services in hard-to-reach areas and bridge the gap between these remote communities and health facilities. Each APE serves between 500 and 2,000 community members in an 8-25-kilometer radius from the local health facility.¹⁰

Scope of work

APEs are expected to spend 80% of their time on health promotion and disease prevention activities and the remaining 20% of their time providing curative services, but this is often not adhered to, as APEs typically spend more time providing curative services in response to community demand. In 2010, the role of the APEs was also expanded to include Integrated Community Case Management (iCCM) of childhood pneumonia, diarrhea and malaria in addition to their previous preventive duties.¹¹ Additionally, they provide counseling for improved adherence to HIV and TB treatment as well as for obtaining antenatal care, institutional births, and postnatal care. They also conduct malnutrition screening and deworming. They are taught to recognize signs of severe disease and provide referrals to nearby health posts for these more complex cases.¹¹ APEs are expected to perform these promotive and curative services in the communities where they live. APE services and any treatments they dispense are free of charge to community members.

APEs receive commodity kits from their local health facilities on a monthly basis using a “push-based” system (meaning additional supplies are provided regardless of recent use), regardless of consumption. Kit components include malaria rapid diagnostic tests, artemether-lumefantrine antimalarial treatments, amoxicillin, packets of oral rehydration salts and zinc, paracetamol, and bandages, among other materials.¹² Important challenges such as stockouts have been noted in the regular provision of APE malaria kits, and Mozambique is currently piloting different strategies to improve commodity kit access, including a “pull-based” system based on recent commodity consumption.^{13,14} APEs also keep records of cases they manage using a standardized register book.

Selection and training

APEs are members of the communities they serve and are selected by community leaders in conjunction with local Ministry of Health representatives. Candidates must be respected members of their communities. Previous experience with community outreach is a plus. They must be able to read, write, and speak in Portuguese and have basic numeracy skills. Priority is given to women and to those who live in communities that are farthest from health facilities.

APE training lasts 18 weeks and consists of didactic and practical components. Training takes place at the district level. Instruction is provided by local health care providers (nurses, preventive medicine technicians, community health specialists, pharmacists, nutritionists and so forth) with oversight from local Ministry of Health officials. It is typically conducted with NGO and WHO partner support. An overview of training components is listed in Table 1. Specific training topics are: malaria, diarrhea and pneumonia case management, screening for acute malnutrition, health promotion and prevention of common diseases through home-to-home visits, provision of modern family planning methods; newborn health, vitamin supplementation and strengthening adherence to HIV and TB treatment. After completion of training, APEs are publicly introduced to their communities and begin work.

Table 1. Training curriculum of Agentes Polivalentes Elementares

Module description	Duration (weeks)	
	Didactic	Practical
Roles and responsibilities of APEs, overview of community health	2	2
Health promotion	2	2
Disease prevention	2	2
First aid, management of common diseases	3	2
Review	1	

Support and supervision

The national APE program has its own department within the Ministry of Health and employs full-time staff at the national level. There are also designated managers of the APE program in each province and district.

Locally, APEs are supervised by one staff member at the nearest health facility. Supervisors have various primary roles at the health facility, from facility director to maternal and child health specialist, and they take on APE supervision in addition to their other duties. They meet with all APEs in the health facility's catchment area on a monthly basis at the health facility. There are generally fewer than 10 APEs in each health facility's catchment area; in a 2017 survey of APEs in three provinces, there were a median of 3.5 APEs per health facility, although that number has increased with the recent national expansion of the APE cadre.¹³

The Ministry of Health trains supervisors to oversee APEs. During monthly meetings, they review the records of cases APEs have managed, distribute new treatment kits, and provide feedback on APE performance. Supervisors also visit APEs in their communities every few months.¹³

Incentives and remuneration

As in many countries with CHWs, motivation of APEs is affected by the quality of supervision, frequency of commodity stockouts, the number of tasks they are asked to perform, compensation, opportunities for advancement, and community appreciation.^{1,13}

APEs are paid a monthly subsidy (*Meticais* 1,200, which in 2019 was equal to US\$ 20) by the Ministry of Health for their services. This is equivalent to 35% of the national minimum wage. However, the subsidy is not intended to be a living wage, and APEs are expected to have another occupation to sustain themselves, although formal employment in the rural communities where APEs work is limited. Additionally, they should receive a bicycle, flashlight, vest, medicine bag, identification badge, hat, calculator, thermometer, and stopwatch. While intrinsic motivation is an important driver of APE work, APEs interviewed in 2013 noted frustration with their subsidy and lack of professional development opportunities.¹⁵

Community role

Community leaders help select APEs and encourage community members to use the services of APEs. Leaders also participate in community health committees that oversee and orient the work of the local health services, including APEs.

Linkages with the formal health system

APEs refer patients to the health facility nearest to them. They receive their commodity kits from these health facilities and have monthly meetings with their supervisors there. They also submit records of cases they manage. Summary statistics for APEs are tabulated locally and then transmitted to district, provincial, and national levels of the Ministry of Health, as described above.

Program scale-up

Upon its relaunch in 2010, the new APE program was intended to extend community access to health care by 20%. As of December 2013, there were 2,270 APEs covering 12% of the population.¹ Today, there are more than 5,300 APEs working in Mozambique, and the country is currently scaling up the program with the goal of having 7,200 trained APEs providing community-based services by the end of 2019⁹ and a total of 8,800 trained by 2021. This scale-up is guided by data showing that current coverage is lower than needed, with each APE serving populations up to 6,614 people rather than the intended maximum population of 2,000.¹⁶

Monitoring and data use

APEs record information in registers provided by the Ministry of Health on the cases they manage and the number of health talks given. They submit this information on a monthly basis to their nearest health facility. The information is used to monitor the work output of APEs and to tabulate statistics on the burden of various diseases and syndromes.

Financing

The Government of Mozambique uses funds provided by the Global Financing Facility of the World Bank to finance the APE program.¹⁶ Funds from the United States' President's Malaria Initiative are used to purchase the malaria-specific items in APE kits. Financing for APEs' stipends is provided by the Government of Mozambique with funding from the Global Financing Facility (GFF) of the World Bank.

Impact

APEs have been shown to provide services to hard-to-reach areas at a lower cost than other services existing at the time of the APE program relaunch in 2010.^{17,18} They diagnosed and treated 10% of all recorded malaria cases in 2018, or 1,018,770 of the 10,339,335 malaria cases diagnosed in the country.⁴ By expanding access to malaria case management at the community level, APEs likely have contributed to the increase in care-seeking among children with fever in the country (from 59% in 2015³ to 69% in 2018) and the reduction in cases of severe malaria reported at health facilities.⁴ Similarly, the infant and under-five mortality have dropped since 2009 which can be partially attributable to the provision of iCCM by APEs. While commodity access has been a persistent challenge, important increases were noted in access to oral rehydration solution with zinc for diarrhea and antibiotics for coughs and difficulty breathing through the program.¹⁹ APEs have also been described as an essential arm of the health system that links communities and health facilities, providing quality prevention and curative services.¹⁰

Challenges

Like CHWs in many countries, APEs experience challenges with frequent commodity stockouts, poor supervision, low compensation, and few opportunities for career advancement. For example, in a 2017 survey of APEs in three provinces, less than 5% reported receiving their commodity kits on a monthly basis.²⁰ Similarly, a recent evaluation of the implementation of iCCM in four provinces of Mozambique from 2013-2016 found that there was no reduction in child mortality at study sites due to widespread stockouts of APE commodities.²¹ APEs also anecdotally reported that the Ministry of Health subsidy was not commensurate with the amount of time and effort they spent providing services.

APEs are being asked to provide an increasing range of health services with no increase in compensation and little opportunity for in-service or refresher training. They also face many uncompensated administrative tasks, such as traveling long distances to receive their commodity kits and completing multiple forms regarding the cases they manage and the stocks they consume. Additionally, although referral systems should exist between APEs and their local health facilities, the completion of referral forms by APEs did not always result in prioritization of referred patients, compromising continuity of care and patient confidence in APEs.²²

The APE program depends on donor support to finance its operations, which makes long-term planning difficult. Furthermore, data collected from APEs on stock availability and provision of services could be used to improve the functioning of the program, but it is not currently adequately used.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are of an APE reviewing her record book and of a group of APEs with a Ministry of Health evaluation team (Elizabeth Davlantes).

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or the US President's Malaria Initiative.

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Myanmar's Community-Based Health Workers



Alyssa L. Davis¹, Ye Min Htwe², and Khin Thu Htet²



¹ Independent consultant, Naypyitaw, Myanmar

² Ministry of Health and Sports, Republic of the Union of Myanmar, Naypyitaw, Myanmar

One-page summary

Background

Auxiliary Midwives (AMWs) and Community Health Workers (CHWs) were first introduced in 1978 with the aim of bringing primary health care to the community level as a part of the government’s “Health for All” commitment. Other types of Community-Based Health Workers (CBHWs) were later introduced with national program and donor-supported project initiatives, most notably the widespread introduction of Malaria Volunteers and TB Volunteers from 2007 to 2011. Additionally, Ethnic Health Organizations (EHOs) have developed various types of CBHW cadres within their service delivery models, such as Maternal Health Workers and Village Health Workers.

Implementation

Myanmar has separate national strategic plans for each of the following five program areas: HIV, malaria, TB, newborn and child health, and reproductive health. All contain strategies for engaging communities and delivering services to the community level. Strategies include leveraging the various types of CBHWs for community mobilization, health education, and service delivery particular to each program. Non-governmental organizations (NGOs) and national programs may directly support CBHWs, but implementation often still involves some form of engagement with local health facility-based staff.

Roles/responsibilities

Roles and responsibilities for CBHWs vary by the type of cadre and typically include health promotion, disease surveillance, and referral services along with selected curative services. Routine activities vary to some extent according to the availability of donor support and priorities of the national program or organization providing support on a project basis to CBHWs in a particular geographic area.

Training

Topics and length of training for CBHWs vary by the type of cadre (e.g., AMWs receive six months of initial training, CHWs one month, and Malaria/TB Volunteers up to one week). Frequency of refresher training varies widely and depends largely on the donor, national program, or organization providing support on a project basis to CBHWs in a particular geographic area.

Supervision

Supervision varies widely in frequency and methodology across geography and programs, depending on arrangements with facility-based health staff, priorities of the national program or organization providing support, as well as the availability of funds for transport to enable supervision field visits or meetings.

Incentives and remuneration

Inconsistent monetary and non-monetary incentives are provided among the same and across different types of CBHWs. The greatest distinction is that AMWs and CHWs do not receive monetary incentives, while Malaria and TB Volunteers receive monetary incentives with funds from donors.

Impact

A number of program reviews and studies have documented the significant contributions of CBHWs to health promotion, disease prevention, and curative services in a range of contexts in Myanmar. CBHWs have been a part of the diverse mix of health workers extending primary health care to the community level for many years, but they are not fully integrated into the government’s budgets, operational plans, supply chains, and coordination mechanisms. Under the National Health Plan 2017–2021, the Ministry of Health and Sports (MOHS) has embarked on a plan to address these challenges.

Historical context

The health system of Myanmar has been shaped by the country's complex economic, political, and social history. This historical context is important for understanding how primary health care is provided in the country, including the status of health financing arrangements and the range of health care providers involved, as well as the position of community-based health workers (CBHWs) within the health system.

During British colonial rule (1886–1948), a colonial health department was established, which focused on hospital care, vaccination against communicable diseases, and sanitation with limited reach to rural populations. Following independence in 1948, the parliamentary government developed a National Health Program in 1954 which emphasized “ensuring full health of the people,” and service delivery in rural areas. However, this democratic period (1948–1962) was also marked by ethnic conflict, particularly in border areas of the country, which continues in evolving forms until the present day.^{1,2}

A military coup in 1962 ushered in a socialist period (1962–1988) for the country. Health sector reforms focused on nationalization and reorganization of the health system (e.g., private hospitals were nationalized, and health care administration was delegated to Division and Township Health Departments) with the aim of expanding coverage of health services to rural areas. A commitment to “Health for All” with principles of primary health care was adopted in 1978, but without a corresponding allocation of resources (e.g., expenditure on health remained at 1% of the gross domestic product with the majority of funds still going to hospital services). Two types of voluntary CBHWs were introduced—Auxiliary Midwives (AMWs) and Community Health Workers (CHWs)—to take primary health care to the community level. The country experienced economic stagnation and the government invested little in the social sectors during this period.²⁻⁴

In 1988, pro-democracy protests took place across the country, but ultimately another military coup led to yet another period of military rule (1988–2011). The level of government investment in the health sector ranked among the lowest in the world and household out-of-pocket expenditures for health care were among the highest during this period.⁵ The government introduced a “Community Cost Sharing” scheme, which formalized the expectation of communities and individuals to directly contribute resources to the health system (e.g., from building health facilities to paying for medicines).² International sanctions prevented the government from receiving external aid, so donor support went primarily to international and local non-governmental organizations (NGOs) to provide health services in the country, particularly at the community level.⁶ Ethnic Health Organizations (EHOs) were formed to provide health services to populations affected by conflict and in geographic areas under Ethnic Armed Organization (EAO) control.⁷ Various types of voluntary CBHWs were introduced, often in association with donor-supported projects that had a particular geographic and program focus (e.g., widespread introduction of Malaria and TB Volunteers from 2007 to 2011).^{8,9}

A new constitution was ratified in 2008, which allowed the first national elections in 20 years. In 2011, the new government initiated a number of reforms to end the country's isolation and integrate its economy into the global system.² The government adopted a commitment to achieve Universal Health Coverage by 2030 and increased spending in the health sector by nine-fold from 2009 to 2014.¹⁰ In 2015, the Nationwide Ceasefire Agreement (including several of the EAOs in the country, but not all) was signed and the National League for Democracy won a supermajority in the combined houses of Parliament, resulting in the country's first non-military president in 54 years. In 2016, a National Health Plan (NHP) 2017–2021 was developed and launched, placing emphasis on inclusion (across ethnic, government, non-governmental, and private sectors) and a commitment to extend access to a basic Essential Health Package of Services to the entire population while at the same time increasing financial protection. The NHP also called for all health workers (whether community-based, outreach-based, or facility-based) involved in the delivery of health promotion, prevention, and treatment services to be fully recognized and institutionalized within the health system to ensure efficient use of resources, necessary oversight, and quality service provision, regardless of whether the health workers are voluntary or salaried.¹¹

Health needs

The 2014 Myanmar Census and the 2015-2016 Demographic and Health Survey (DHS) demonstrated that health indicators vary widely within the country and measure poorly against other countries in the region. According to the 2014 Census, life expectancy at birth in Myanmar is 64.7 years, the lowest among the Association of South East Asian Nations (ASEAN) countries. The maternal mortality ratio was 282 deaths per 100,000 live births, second highest among ASEAN countries.¹² The 2015–2016 DHS measured the under-five mortality rate at 50 deaths per 1,000 live births, with much higher rates in rural than in urban areas (80 versus 42 deaths per 1,000 live births). Additionally, 29% of children younger than five years of age are stunted, with figures ranging from 20% in Yangon Region to 41% in Chin State.¹³

The country continues to experience a relatively high burden of communicable disease and an increasing burden of non-communicable disease. Myanmar is both a high-burden TB and multidrug resistant TB country, as designated by the World Health Organization.¹⁴ Among the six countries of the Greater Mekong Sub-Region, malaria burden is highest in Myanmar, although the incidence is estimated to have decreased by 49% from 2012 to 2015.¹⁵ Premature death due to non-communicable disease is rising and accounted for 59% of total deaths in 2014.¹⁶

Health system structure

In 2016, the Ministry of Health was reformed as the Ministry of Health and Sports (MOHS). Under the Department of Public Health, there are six divisions as follows: Admin and Finance, Disease Control, Disaster, Health Management Information System, Public Health, and Occupational and Environmental Health. Under each division there are a number of national programs. The programs under the Disease Control Division include the following: the National Malaria Control Program, the National TB Program, the National AIDS Program, the National Leprosy Program, the National Trachoma Program, Communicable Diseases, and Non-Communicable Diseases. Programs under the Public Health Division include the following: Basic Health Services, Child Health, Health Literacy and Promotion, Maternal Reproductive Health, the National Nutrition Center, Occupational and Environmental Health, and School and Adolescent Health. Typically, programs under the Public Health Division engage AMWs and CHWs in their strategies, while programs under the Disease Control Division engage Malaria Volunteers or TB Volunteers.^{14,15,17,18}

The government, officially called the Republic of the Union of Myanmar, comprises seven states and seven regions, five self-administered zones, one self-administered division, and the union territory of Nay Pyi Taw.^a States and regions are made up of districts, which in turn are made up of townships composed of urban wards and village tracts.¹⁹ A mix of government, EHO, and private health care providers deliver primary health care at the township level and below. Travel costs and the need to have “money in hand” to access services from public or private health care providers are major barriers to care-seeking beyond the community level, particularly in rural areas.²⁰

Township Health Departments each have one township hospital and a number of station hospitals, health centers and health sub-centers, depending on total population figures of the township.^b The staff for vector-borne disease control at the township level implement disease control activities, including coordination and supervision of Malaria and TB Volunteers. Health centers and health sub-centers are staffed by a range of Basic Health Staff (BHS), who provide ambulatory public health and medical care services, including delivery care. Midwives and Public Health Supervisors posted at health sub-centers provide public health services both within the facility and through outreach to communities within their catchment area (usually around 10–15 villages in rural areas). Coordination and supervision of AMWs and CHWs at the community level are included in their job descriptions.^{2,21}

^a States and regions are constitutionally equivalent, but the terminology distinguishes historically “ethnic” states from the majority Bamar regions; self-administered zones and divisions have special governance arrangements.

^b Health centers and health sub-centers are designated as rural or urban, depending on their location in a ward or village tract.

Ethnic Health Organizations (EHOs) function according to their own organizational and service delivery structures. In some areas, EAOs have formed health departments with defined health system structures, which may include delivery of services in collaboration with multiple EHOs. Services are provided to populations in EAO controlled areas or areas under mixed government and EAO control, often with catchment areas defined by different administrative boundaries from those used by the government.^{7,22}

Private hospitals and general practitioners provide health services, particularly in urban areas. A plethora of private and informal providers exist in rural areas, including drug sellers, military trained medics, traditional healers, traditional birth attendants (TBAs), and others who provide various services without formal training or qualifications and who work outside of the formal health system.²⁰

CHW program features

A range of initiatives and priorities within and outside the government have shaped the program features of CBHWs in Myanmar. As the term “CHW” refers to a particular cadre in Myanmar, the term “Community Based Health Worker” has been adopted to refer to the full range of cadres working at the community level in coordination with the formal health system, including AMWs, CHWs, Malaria Volunteers, TB Volunteers, and others. As described in the Historical context, AMWs and CHWs were first introduced in 1978 with the aim of bringing primary health care to the community level as part of the government’s “Health for All” commitment.² Other types of “Community-Based Health Workers” (CBHWs) were later introduced with national program and donor-supported project initiatives, most notably the widespread introduction of Malaria and TB Volunteers from 2007 to 2011. Additionally, some EHOs have recruited and trained various types of CBHWs to provide services within their particular organizational and health service delivery arrangements.⁹

The current National Strategic Plans for HIV, Malaria and TB as well as Newborn and Child Health and Reproductive Health all contain strategies for engaging communities and delivery services to the community level.^{14,15,18,23,24} Strategies include leveraging the various types of CBHWs for community mobilization, health education, and service delivery particular to each national program. CBHWs may be recruited and supported by non-governmental organizations or the MOHS national programs, but generally there is some form of coordination with the local health-facility-based staff and Township Health Departments.⁹

Scope of work

The scope of work for CBHWs varies according to the type of cadre. An overview of the scopes of work of the current major types of cadres is provided below:

Auxiliary Midwives provide antenatal care and safe and clean home delivery for mothers who are unable to go to health centers. They assist midwives in maternal and child health services, provide health education, detect and report epidemic outbreaks, organize and assist in sanitation and immunization activities, as well as coordinate with health centers for early referral of cases and other health activities.^{25,26} Midwives are posted to facilities, but are also responsible for conducting regular outreach to communities in their catchment area.

Community Health Workers provide health education, detect epidemic outbreaks, assist in sanitation and immunization activities, as well as coordinate with health centers for early referral of cases and other health activities.^{26,27}

Malaria Volunteers provide malaria diagnosis and treatment at the community level using rapid diagnosis tests and artemisinin-based combination therapy; some also distribute long-lasting insecticidal nets and provide health education.^{28,29} The scope of Malaria Volunteers was expanded in 2018 to include screening and referral of dengue, lymphatic filariasis, TB, HIV/AIDS, and leprosy under the nationwide “Integrated Community Malaria Volunteer” (ICMV) Initiative.^{9,30}

TB Volunteers provide screening and referral, assist in sputum collection and transport, accompany individuals with presumptive TB cases for diagnosis and follow-up treatment support, particularly through home-based directly observed therapy, short course (DOTS) and in some cases the facilitation of TB support groups.³¹

Village Health Workers are trained in some ethnic areas across Myanmar by a number of EHOs. The service delivery scope of Village Health Workers has evolved overtime, ranging from environmental sanitation, diarrhea, and malaria as well as maternal, newborn, and child health, but is generally similar to the environmental and disease control services provided by the MOHS-trained CHWs.³²

Maternal Health Workers are trained in some ethnic areas across Myanmar by a number of EHOs. The service delivery scope of Maternal Health Workers focuses on aspects of basic emergency obstetric care in community settings, with the possibility of career ladder advancement to facility-based settings.^{33,34}

Trained TBAs are trained and supported in some ethnic areas across Myanmar by a number of EHOs; in the past, TBAs were also trained by the MOHS. There are both trained and untrained TBAs across the country.⁹ The service delivery scope of Trained TBAs spans aspects of antenatal care, essential newborn care, clean delivery, collaboration with formal health workers, and referrals.^{34,35}

Selection and training

The selection criteria and training for CBHWs vary according to the type of cadre. An overview of the selection and training for the major types of cadres currently in existence is provided below:

Auxiliary Midwives are selected using the following criteria: women from a village where there is no health facility or health staff; interest in health and social work; desire to stay and serve in the village after the training; completion of middle school education and in good health; no more than 30 years of age; recommendation from the local midwife and/or village leader.³⁶ Certification is by completion of a six-month MOHS training course, which includes three months of theory and three months of practical training at the Township Health Department or rural health center level.^{25,37}

Community Health Workers are selected using the following criteria: a person who is interested in delivering health care and messages to the rural community; preferably those who are under the age of 35; middle-school-level education at least; ability to read and write the Burmese language and speak the local dialect; living in the rural area, but not in the village where there is a health sub-center. Certification is by completion of a 28-day MOHS training course provided at the Township Health Department.²⁷ (DOH, 2008;

Malaria Volunteers are selected using the following criteria: must be able to read and write; completion of primary-school; recommendation from the village health committee; living in the community, and the community is a hard-to-reach, malaria-endemic village where there is no BHS; not too young or too old; and interested in volunteer work.¹⁵ Until 2018, Malaria Volunteers were certified by completion of a two-day MOHS training course provided by the National Malaria Control Program and other organizations (e.g., an EHO or NGO), but the ICMV Initiative lengthened the training to six days.³⁰

TB Volunteers are selected in collaboration with the BHS and Township Medical Officers and work collaboratively with the BHS.¹⁴ Some NGOs supporting TB Volunteers have developed more specific selection criteria. A two-day training course for drug sensitive TB and an additional two-day training course for multidrug resistant TB are provided for certification as a TB Volunteer in MOHS areas. International or national NGOs select new TB Volunteers and then provide training according to the roles of the TB Volunteer in the organization's particular community-based models.^{38,39}

Village Health Workers are selected according to criteria set by the supporting EHO and provided training based on a standardized manual.³² There is limited documentation available on the details of selection and training details of this cadre.

Maternal Health Workers are selected according to criteria set by the supporting EHO and provided with two months of training, which is expanded through regular refresher training by more experienced health workers in the field.^{33,34} There is limited documentation available on the details of selection and training of this cadre.

Trained TBAs are identified from among those actively attending births and recognized by their community as someone to call upon for antenatal care, delivery, postnatal or other reproductive health services.³⁵ EHOs provide a seven-day training in which the curriculum is centered on evidence-based antenatal care, essential newborn care, and clean delivery as well as the importance of their role in strengthening communication and working effectively with maternal health workers and health workers within the EHO systems.^{33,34} The MOHS does not currently provide training to TBAs, but provides “Dos and Don’ts” guidance materials when requested by supporting organizations.⁹

The frequency of refresher training depends largely on the availability of donor support, but is intended to be once per year for AMWs, CHWs, and Malaria and TB Volunteers.⁹ Additionally, training modules and programs have been developed to provide CBHWs with expanded skills and service packages, such as Community-Based Newborn Care or Community Case Management of Diarrhea and Pneumonia.^{17,40}

Support and supervision

Supervision varies widely in frequency and methodology across geography and programs, depending on arrangements with facility-based health staff, priorities of the national program, or the organization providing support, as well as the availability of funds for transport to enable supervision field visits or meetings.⁹

An initial AMW kit or CHW kit is provided to all AMWs and CHWs at the completion of their initial training, but no additional supplies are typically provided unless donor support is available within a township (with the exception of clean delivery kits annually distributed by the MOHS to AMWs). Malaria Volunteers are provided kits, along with replenishment of medicines and supplies on a monthly basis through donor support. TB Volunteers are provided with information, education, and communication materials, but have no defined kit. Ethnic Health Organizations provide supplies to Maternal Health Workers, Trained TBAs, and Village Health Workers, but details are not well documented.⁹ The majority of drugs and supplies provided to CBHWs are procured by UN agencies or NGOs and distributed through the supply chain management systems of these organizations.²⁸

According to their job descriptions, Midwives and Public Health Supervisors posted at sub-centers are responsible for supervising AMWs and CHWs. Malaria and TB Volunteers receive supervision from the staff of the organizations providing support to their activities or, in other cases, government health staff (e.g., the malaria focal point within a Township Health Department may supervise two to three Malaria Volunteers per quarter). Program reviews have recommended standardization of supervision checklists focusing on essential skills for mentoring purposes as well as integration of supervision visits into the routine work plans of facility-based health staff.^{41,42}

Incentives and remuneration

Monetary and non-monetary incentives vary considerably among the same and across different types of CBHWs. The greatest distinction is that AMWs and CHWs do not receive any monetary incentives, while Malaria and TB Volunteers receive monetary incentives with funds from donors. Social recognition and moral support are given in a variety of ways depending on the engagement of communities, Township Medical Officers, and donor-supported projects. Efforts have been made to harmonize the monetary incentives of Malaria and TB Volunteers so that all Malaria Volunteers receive the same quarterly incentive and TB Volunteers receive a set amount per TB case referred. Monetary incentives for Maternal Health Workers, Trained TBAs, and Village Health Volunteers either previously or currently provided by various EHOs are not well documented.⁹

Several reviews have suggested problems with performance- or output-based incentives. These contribute to a distortion of health worker priorities, neglect of unpaid tasks, and lack of motivation.²⁸ When the identification or treatment of cases has been monetized and the incidence of disease decreases, motivation declines.²⁸ Several program reviews and the separate national strategic plans for malaria, for newborn and child health, and for TB call for harmonized incentive systems which consider not only monetary incentives, but also other factors that contribute to motivation, such as rationalized roles and responsibilities, service packages, refresher training, continuous supplies, regular supportive supervision, as well as recognition and career advancement opportunities.^{37,42}

Community role

There is significant variation of the community role in CBHW recruitment, training, supervision, and support. Description of coordination and governance mechanisms at the sub-national and local levels is largely absent in the literature. Some references are made to collaboration with Township Health Committees and various types of village health committees, Village Self-Help Groups, or other village level groups, but there is little attention or consistency in the roles these groups play in relation to CBHWs. However, the importance of these structures is highlighted in a number of sources.^{14,26,41-43} State/Region and Township Health Working Groups have been formed under the National Health Plan 2017–2021, but have limited functionality to date. Consistent structures and mechanisms for community engagement and social accountability from the community level are yet to be defined more broadly for the health system.

Linkages with the formal health system

CBHWs have been a part of the diverse mix of health workers extending primary health care to the community level for many years, but they are not fully integrated into government budgets, operational plans, supply chains, and coordination mechanisms from national to local levels.^{9,44,45}

The Myanmar Health Sector Coordinating Committee (M-HSCC), established as a part of the Nay Pyi Taw Accord in 2013, is the coordinating body for all public health sector issues. The M-HSCC is chaired by the Minister of Health and Sports. Other ministries and development partners participate, including UN agencies, NGOs, and community organizations. The M-HSCC has seven Technical and Strategy Groups (TSGs), including those focused on HIV/AIDS, TB, malaria, maternal and child health and reproductive health, monitoring and evaluation, health system strengthening, and emergency and disaster preparedness.² The mandate of these TSGs is to provide technical guidance in the development of national strategies, coordination among partners, and clarity on major technical and policy issues. While several TSGs engage in concerns regarding those CBHWs that are associated with their particular intervention areas, there is no single central body providing direction or oversight across intervention areas.⁹ Insufficient coordination across organizations supporting CBHWs is a noted concern.²⁹

Program scale-up

There is no single information system for tracking CBHWs in the country, nor is there a common process for mapping their distribution at any level, although the national Health Management Information System (HMIS) tracks the number of AMWs and CHWs that are trained and deemed functional by Township Health Departments. Additionally, the National Malaria Control Program is noted for its substantial efforts to determine with all implementing partners the village-level coverage of Malaria Volunteers across the country on a biannual basis.⁹

Available numbers are as follows:

- According to Public Health Statistics 2015–2016⁹, there were 24,160 AMWs in 2016; the National Health Plan 2017–2021¹¹ states that in 2011 two-thirds of trained AMWs (21,034 out of 31,580) were still active.
- According to Public Health Statistics 2015–2016, there were 15,112 CHWs in 2016; the National Health Plan 2017–2021¹¹ states that about half of trained CHWs (20,956 out of 40,910) were functional in 2011.

- A total of 6,277 TB Volunteers were supported by major donors as of June 2017.⁹
- The National Strategic Plan 2016–2020 for Malaria¹⁵ states that 40,000 Malaria Volunteers have been trained and around 38% were still active.

It would be difficult to track the historical fluctuation and expansion of CBHWs across the country given these data limitations. However, AMWs and CHWs were initially introduced at national scale with the target of one AMW per two villages and one CHW per village, but then later large-scale recruitment and training of new AMWs and CHWs as well as the introduction of other types of CBHWs has been associated primarily with waves of donor funding. The principal sources of donor funds have been GAVI (The Vaccine Alliance), the Global Fund to Fight AIDS, Tuberculosis and Malaria, 3DF/3MDG Multi-Donor Consortium Funds, the Japan International Cooperation Agency (JICA), and the United States Agency for International Development (USAID).^{4,8,9} In some cases, an existing CBHW has been recruited and trained to take on the role of another cadre (e.g., an existing CHW being recruited and trained to also take on the role of Malaria Volunteer). The total number of CBHWs serving in such a “dual role” is not known because of the lack of an integrated information system

Monitoring and data use

The national HMIS collects data from all public facilities starting at the health sub-center level and thus depends heavily on Midwives to collect and report data from the villages or wards within their catchment areas. There is no defined system for data collected and reported by CBHWs to systematically contribute to the national HMIS, although guidance for the HMIS states that Midwives should coordinate with AMWs and TBAs for information on pregnancies and births.^{9,42} National efforts are underway to transition this paper-based HMIS system to an electronic system using the District Health Information Software 2 (DHIS2) platform.¹²

The national disease control programs collect data in parallel to the HMIS, either through standardized forms that are used by CBHWs (e.g., the national malaria program requires standardized reporting from Malaria Volunteers) or at an aggregated level by implementing partners (e.g., the national TB program requires standardized reporting from all implementing partners). The National Strategic Plans 2016–2020 for Malaria and TB both note that recording and reporting of data still need to be improved, and they outline plans for strengthening these systems through supervision, on-job training, and material inputs. Data collection and reporting for Community-Based Newborn Care and Community Case Management of Diarrhea & Pneumonia are also done in parallel to the HMIS with specific registers and reporting forms that are collated by the Child Health National Program at the central level.^{9,17,40,46}

A number of organizations have developed templates and systems for CBHW reporting such as the Volunteer Recording System (VRS), which was developed and rolled out across 27 townships with the support of the 3MDG Fund and implementing partners. The VRS allows for information about services provided, stocks and supplies used, and other health information to be systematically collected and reported by AMWs and CHWs in such a way that it could contribute to HMIS reporting in the future.⁴⁷

Program reviews have called for standardized data collection tools that align with the full-service package of the CBHWs, with the potential to align and contribute to the HMIS. These reviews have also called for routine management, review, and analysis at the Township Health Department level of data collected by CBHWs for improved health planning and management.^{41,42} However, very little is written about experiences or recommendations for how such CBHW-based data could be systematically shared back with communities.⁹

Financing

Despite the introduction of AMWs and CHWs into the health system of Myanmar, recurrent costs for refresher training, supplies, and supportive supervision of AMWs and CHWs have not been routinely

included in government budgets, and support for these cadres has largely come from international donors.^{9,44} This extends to intervention-specific programs, such as the rollout of Community Case Management of Diarrhea and Pneumonia, which has been supported in a limited number of townships primarily by UNICEF and the 3MDG Fund.^{40,46} Moreover, resources to support Malaria and TB Volunteers have come from international donors (e.g., the Global Fund, the 3DF/3MDG Access to Health Funds and USAID), with government funding used to pay for health facility infrastructure, payment of government staff salaries, and some supplies.¹⁵

The situation of financing for CBHWs should be understood within the context of historical and current financing arrangements in Myanmar. Historically, few funds have been allocated to operational expenses even for government facilities and staff. In 2014–2015, rural health centers had an average per facility of US\$ 5 per month for travel allowances and US\$ 7 per month for goods and services.⁶ Therefore, the lack of recurrent supplies and support provided to CBHWs parallels the insufficient support provided to peripheral facility-based health staff to carry out their responsibilities.

Impact

A number of program reviews and studies have documented the contributions of CBHWs to health promotion, disease prevention, and curative services in a range of contexts in Myanmar.⁴⁸ Some illustrative examples are provided below.

The program review of the Joint Initiative for Maternal Newborn and Child Health Project implemented in the Ayeyarwady Region found that AMWs and CHWs play a critical role in supporting improved outcomes in terms of Disability-Adjusted Life Years (DALYs) averted. Analysis of project data also indicated that extending the roles of CBHWs could potentially increase this impact. The review calculated that 7,740 DALYs per 100,000 population were averted per year, and this could be increased to 9,708 DALYs per 100,000 population with the addition of family planning, nutrition, and pneumonia treatment.⁴¹

A published impact evaluation of a pilot project implemented by EHOs in Shan, Mon, Karen, and Karenni areas found that an innovative three-tiered network of community-based providers resulted in significant improvements in the delivery of maternal health interventions. Analysis of baseline-to-endline survey data demonstrated statistically significant higher coverage of antenatal care (72% versus 39%) and use of modern methods of contraception (24% to 45%) among other intervention coverage improvements.³⁴

Several studies on the effectiveness of community programs and cadres in malaria control and treatment have been published.^{49,50} The National Strategic Plan 2016–2020 for Malaria notes that of the 182,616 malaria cases diagnosed and treated in 2015, a total of 104,925 (57%) were diagnosed and treated by Malaria Volunteers.¹⁵ Additionally, within a context of decreasing malaria incidence, Malaria Volunteers trained to provide a broader, integrated package of services have demonstrated an immediate and sustained increase in blood examination rates, which are needed to advance malaria elimination efforts across the country.⁵¹

Finally, the National Tuberculosis Program has noted the significant contributions of volunteers to referrals and treatment, with 30,114 presumptive TB cases referred by TB Volunteers, resulting in detection and treatment of 5,130 cases in 2015.³¹

Challenges

Even though CBHWs have been a part of the diverse mix of health workers extending primary health care to the community level for many years, their integration into the government health system is still limited. They are not fully integrated into government budgets, operational plans, supply chains, and coordination mechanisms. There is evidence of CBHWs making substantial contributions to health promotion, disease prevention, and curative services in a range of contexts in Myanmar, but this work has been largely through systems that are fragmented, inefficient, and donor driven. To address these challenges, the National Health Plan 2017–2021 called for all health workers (whether community-based, outreach-based or facility-based)

involved in the delivery of health promotion, prevention, and treatment services to be fully recognized and institutionalized within the health system to ensure efficient use of resources, necessary oversight, and quality service provision regardless of whether the health workers are voluntary or salaried.¹¹

Under the National Health Plan 2017–2021, the MOHS embarked on an evidence-based and robust consultative process to develop a CBHW policy for the country. From its inception, this process was intended to support the MOHS's long-term vision for delivery of services to all communities, including how community-based services can complement outreach and facility-based health services as part of a wider health system that leverages all types of health providers (e.g., the MOHS, EHOs, NGOs, and private-for-profit providers) to deliver an Essential Health Package of Services to the whole population. A situation analysis was taken forward drawing on global evidence, in-country documentation, and a series of stakeholder consultations across the country. A draft policy that outlines a comprehensive, institutionalized approach to more fully leverage the potential of CBHWs within the health system has been developed and is currently under review for endorsement.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>). The case study is substantially informed by the MOHS CBHW Working Group's Comprehensive Literature Review (see reference 9), which the authors were also contributors to.

The photographs are credited to UNICEF (left) (https://www.unicef.org/earlychildhood/myanmar_26010.html) and ACTWatch (right) (<http://www.actwatch.info/projects/actwatch/myanmar>)

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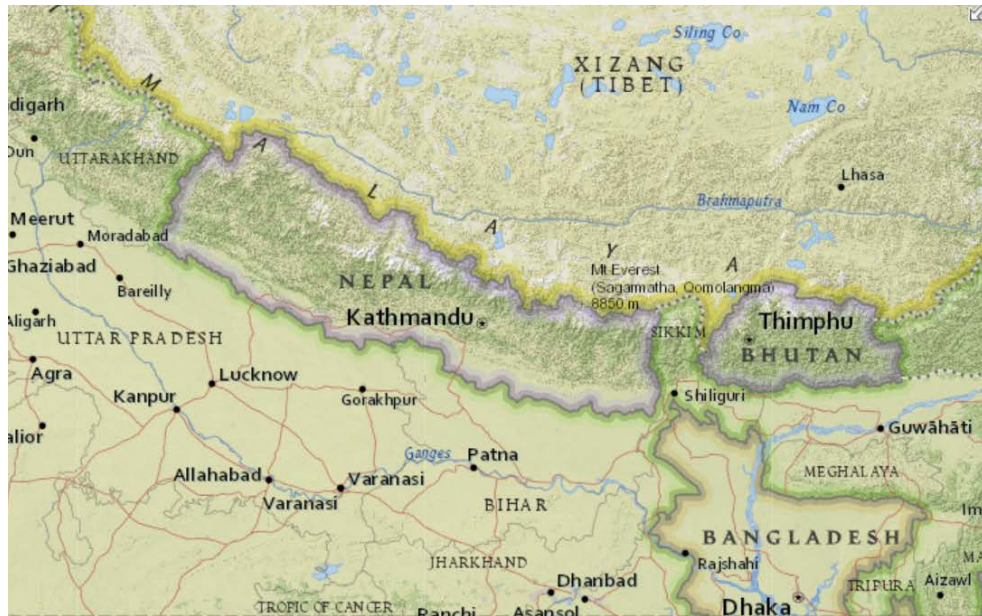
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Nepal's Community Health Worker System



Bharat Ban¹, Ashoke Shrestha¹, Leela Khanal², Henry B. Perry³, and Steve Hodgins⁴



¹ Health and Development Solutions (HEADS), Kathmandu, Nepal

² JSI, Kathmandu, Nepal

³ Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

⁴ School of Public Health, University of Alberta, Edmonton, Canada

One-page summary

Background

Nepali health planners and program managers have recognized the geographic and social challenges to providing health services in its population of 29 million people and introduced several cadres of community health workers and volunteers. These have included the full-time, paid Village Health Workers (VHWs) and Maternal Child Health Worker (MCHWs), and part-time voluntary Female Community Health Volunteers (FCHVs). Nepal also has two cadres of health auxiliaries, each with approximately 18 months of pre-service training: Auxiliary Nurse-Midwives (ANMs) and Auxiliary Health Workers (AHWs). This chapter focuses on FCHVs.

Implementation

Each of the most peripheral health facilities in Nepal serves a catchment population typically numbering 5,000–10,000 people. In the past, each had at least one professional health worker, one VHW, one MCHW, and at least nine FCHVs. Now there are no longer MCHW and VHW positions, as they have been replaced by ANMs and AHWs. Nepal has about 52,000 FCHVs. FCHVs are frontline, part-time voluntary service providers who serve as a link between the community and government health services.

Roles/responsibilities

Historically, FCHVs mainly had four functions: health education and counseling, support for outreach services, distribution of health commodities, and provision of sick-child care. However, their roles and responsibilities have evolved and changed over time, and more recently their role in sick-child care has declined. They are engaged in FCHV-related functions on average seven hours a week.

Training

FCHVs receive 18 days of initial training as well as ongoing in-service training.

Supervision

It used to be the case that most supervision was done by VHWs and MCHWs during their regular outreach activities. However, most FCHVs now visit their respective health facility every month; there, they receive supplies, materials, commodities, and programmatic advice and feedback. This has largely replaced monthly contacts associated with outreach visits. Supervision is now done by AHWs.

Incentives and remuneration

FCHVs are volunteers but are provided training allowances, refresher trainings, an annual clothing allowance, access to microcredit funds, and other incentives. They receive a uniform, a bag and a startup kit of supplies. In addition, FCHVs also receive additional variable incentives from their local municipalities. Working as a FCHV is considered a privilege and although many FCHVs would prefer more generous financial incentives, almost all report being highly motivated to continue in their role even without significant changes in their conditions of service.

Impact

Among low-income countries, Nepal has been a global leader in reducing its under-five mortality rate, maternal mortality ratio, and fertility rate (reflected in Nepal successfully reaching Millennium Development Goals 4 and 5). There is widespread agreement that community health workers (CHWs) in Nepal, particularly the FCHVs, have played an important role in achieving these important goals.

Historical context

As a result of the geographic and social challenges to providing health services in Nepal, the Ministry of Health (MOH) in the 1980s introduced several approaches to provide primary health care (PHC) in rural areas through community health workers (CHWs), including creating two new cadres of CHWs, the full-time, paid Village Health Workers (VHWs) and, beginning from 1990, Female Community Health Volunteers (FCHVs). In the early 1990s, the government introduced an additional paid, full-time cadre, Maternal Child Health Workers (MCHW). The VHWs and MCHWs covered entire villages, which are the smallest administrative unit, whereas each FCHV was responsible for covering one of nine wards in each village. The National Health Policy of 1991 restructured the health system to bring health services closer to the people by expanding the number of health posts and health sub-posts and introducing a new cadre of workers, the MCHWs.¹ An effort was also made to integrate vertical programs (e.g., immunization and family planning) under management from the district level.

Nepal is a very diverse country geographically, divided into the Terai Region (composed of the lowlands of the Indo-Gangetic plain that borders India) with 50% of the national population, a Hill Region with 40% of the population, and a Mountain Region with 10% of the population. In the Mountainous Region, 40% of individuals have to travel 1–4 hours to reach their closest health facility, and 27% of individuals in the Hill Region have to travel over one hour to reach their closest health facility.² In the Terai Region, during the rainy season some pockets of the population also require more than one hour to reach the closest health facility.

Over the past decade, MCHWs have been upgraded to ANMs, either being replaced by new ANMs as they retired or given additional training. Similarly, the VHW role has been phased out. As VHWs have retired they have been replaced by trained AHWs. Some VHWs still remain in the system but are now formally designated as AHWs. As noted, ANMs and AHWs are paid cadres having 15–18 months of pre-service training so, by some definitions they could be considered auxiliary health workers, rather than CHWs.

The FCHV program was officially launched in 1989 with a cadre of volunteer women from within their own community to promote family planning and distribute condoms and pills. Gradually their roles were expanded and included child health services. Their work was divided between health education, promotion and support of government health services, and direct provision of selected services (primarily dispensing family planning commodities).³ The FCHVs served as a key link between the government health facilities and their communities. The FCHV program was managed by the Family Health Division of the Department of Health Services.

The FCHV program faced early difficulties, including a weak supply chain for the provision of consumables and training that did not correspond to the expectations of the community, not to mention the challenges of working in mountainous areas with a highly dispersed rural population generally reachable only by foot.³ In the 1990s, the National Vitamin A Program began to work through FCHVs to carry out twice-annual distribution of vitamin A supplements to all children 6–59 months of age.^{4,5} The Vitamin A program was implemented initially in a few selected districts. Follow-up surveys in these Vitamin A program districts indicated high coverage, and the program was gradually scaled up, reaching all 75 districts by 2004.⁵ The success and high visibility of the Vitamin A program provided evidence of the tremendous potential of the FCHVs, and it enhanced their credibility and recognition among communities and health program managers. In parallel, FCHVs were progressively given responsibility for other child health interventions including deworming, immunization (supporting routine immunization and dispensing vaccines during polio outreach campaigns) and treatment of diarrhea and acute respiratory infection.

The first Nepal Health Sector Program (NHSP I) from 2004 to 2009⁶ was developed with a focus on reducing inequities in access to services and to improve health outcomes. This included empowerment and mobilization of FCHVs for maternal and child health, including family planning activities. The second NHSP (2010–2015)⁷ acknowledged the need to scale up and expand FCHV and other services to respond to the increased demand for health care and to promote birthing at health facilities. The current and third Nepal

Health Sector Strategy (NHSS 2016–2020)⁸ adopts the vision and mission set forth by the 2014 National Health Policy 2014⁹ and emphasizes accelerating progress in achieving Universal Health Coverage based on four strategic principles:

1. equitable access to health services,
2. quality health services,
3. implementation of a multi-sectoral approach, and
4. reform of the health system.

Unfortunately, unlike previous major policy documents, NHSS (2016-2020) does not specifically mention the FCHV program, possibly reflecting decreased visibility and priority of FCHVs among senior-level policy makers.

Under the new Constitution of 2015 the Federal Democratic Republic of Nepal is now administratively divided into seven Provinces, 77 Districts and 753 Municipalities. Of the 753 Municipalities, 460 are rural and the remaining 293 are urban. The entire health system, including devolution of authority, structure and resources, is currently in transition. One of the most consequential changes is that much of the responsibility for day-to-day management of PHC services (including FCHVs) has been devolved to municipalities. It is too early to tell how these services will develop and how the role of FCHVs may change.

Health needs

Over the 25-year period from 1990 to 2014, Nepal made significant progress improving the health status of its population and meeting the health-related Millennium Development Goals for 2015.¹⁰ But despite its impressive gains, Nepal continues to face many health challenges including inequitable health outcomes due in part to financial, socio-cultural, geographic and institutional barriers to accessing health services.⁸ For example, more than one-third (36%) of all children younger than five years of age are stunted from chronic malnutrition and more than half (53%) of children are anemic.¹¹ While communicable diseases account for a large proportion of deaths and disability, the country is also facing an increasing burden of non-communicable diseases and injuries such as mental health problems, road traffic accidents, hypertension, and health problems resulting from tobacco and alcohol use.⁸

Although health outcomes and service usage have become more equitable across castes, ethnic groups, and wealth quintiles, major disparities still remain. For example, women in the highest income quintile are 2.6 times more likely to have a facility birth than those in the poorest quintile.¹¹

More than half (53%) women of reproductive age report that distance to a health facility is a problem for accessing health care and, for one-fifth of the women who gave birth in the previous two years, it took at least one hour to reach to health facility for delivery of their baby.^{3,11,12}

In order to overcome barriers in access to health services, the Government of Nepal has introduced special programs and incentives, such as free health care services and a safe delivery incentive scheme. Furthermore, the Government of Nepal has upgraded its health facilities and strengthened community-based interventions.

Nepal also faces a continuing shortage of health workers despite increases in the number graduating from health professional training schools.¹³ In the public sector, only 71% of the sanctioned posts in MOH facilities are filled, overall; for PHC centers the proportion filled is 78% and for health posts it is 72%.¹² Frequent transfer of staff is also an issue.¹³ In addition to a shortage of human resources, there are problems with maintaining adequate supplies (complicated by uncertainties with regard to procurement responsibilities associated with decentralization of authority) and ensuring quality of care. Other challenges include a shifting burden of disease toward more chronic and non-communicable diseases and rapid urbanization.

CHW program features

As already described, each health post has at least three full-time, paid health workers; many have more. These are a mix of Health Assistants, Auxiliary Nurse-midwives, and Auxiliary Health Workers). In addition, at least nine (and sometimes more) FCHVs are attached to the health post.³ These cadres work closely together, supporting one another's scope of work. For example, FCHVs mobilize the communities for immunization given by AHWs, while FCHVs are responsible for twice annual distribution of vitamin A along with deworming tablets, with the logistical support from the other cadres. A network of FCHVs with a formal association of FCHVs exists in many districts, but participation is limited.¹⁴

There are 52,000 FCHVs, or approximately one for every 558 people (although this varies by setting, with larger catchment populations in the Terai Region and smaller catchment populations in the mountains). The average age of FCHVs is 41 years and the median time spent as FCHVs is 14 years. Almost all FCHVs are married, 83% are literate, and 95% reside in the community where they work.¹⁴ The distribution of FCHVs by caste and ethnic group is similar to that of the population of Nepal.¹⁵

Under the new constitution, Nepal is now divided among rural and urban municipalities, a larger geographic/administrative unit than the earlier "Village Development Committee" areas. Rural municipalities now bring together what were multiple Village Development Committee areas. Now, each rural municipality typically has 50 or more FCHVs.¹⁴

Scope of work

FCHVs are frontline volunteers who spend an average of seven hours each week on FCHV-related functions, although there is considerable variability on this.¹⁴ Historically, this has included four main functions: health education and counseling, support for extension services, distribution of health-related commodities, and care of sick children. Their roles and responsibilities have evolved and changed over time. Today, they counsel women and family members on birth preparedness, institutional delivery, newborn care, family planning services and other basic health services. FCHVs also assist with the conduct of outreach and immunization clinics. They are responsible for twice-annual distribution of vitamin A supplements to all children 6-59 months of age, and they refer community members to a health facility as needed. In addition, they distribute the following to families: iron tablets for pregnant and postpartum mothers; for mothers who give birth at home, they provide misoprostol tablets ahead of time, to be taken immediately after childbirth to reduce the risk of postpartum hemorrhage. They also provide chlorhexidine antiseptic gel to be applied to the umbilical cord after delivery; condoms and oral contraceptive pills for women; and oral rehydration salts (ORS) for children with diarrhea. In regard to treatment, FCHVs dispense ORS and zinc tablets for cases of childhood diarrhea (referring cases with danger signs). In some districts, they also distribute multi-micronutrient powders for use by infants aged 6-18 months. They also assess children with respiratory infections and in some more remote settings are still empowered to treat cases of possible pneumonia with antibiotics.

Selection and training

The selection criteria for FCHVs are that they should be from the community, be 25-45 years of age, literate, married and have children. The newly recruited FCHVs are given 18 days of initial training. They are also provided a uniform, bag, and startup kit that includes medicines, supplies, and promotional materials. They are regularly invited to refresher trainings, orientations, and formal meetings and usually receive allowances for attending.

Officially, under the revised FCHV strategy¹⁶ there is provision for a FCHV to retire at the age of 60 years and at that time she will receive a letter of honor, as well as 10,000 rupees (US\$ 140). In addition, she will continue to receive free health services from government providers. However, many prefer to continue in this role past age 60.

Support and supervision

In the past, VHWs and MCHWs were responsible for supervising the FCHVs in their catchment areas and this was typically done during outreach visits, on a monthly basis. Also, during these visits, they provided FCHVs needed supplies, support, advice, and feedback. Now, FCHVs generally meet monthly at the health facility closest to where they live. During these meetings, they discuss their work progress with their supervisors, submit monthly reports, receive updates about the program, and obtain supplies. Although the FCHVs receive commodities from health facilities, challenges with the supply system remain and stockouts are not uncommon. For example, at the time of a 2014 survey,¹⁴ four in 10 FCHVs did not have pills, condoms, cotrimoxazole (for treating childhood pneumonia), and one-fourth did not have ORS packets. However, FCHVs who reside close to a health post may not need to dispense these themselves since clients could readily obtain them at the health post. So, the problems with the supply system may not actually be as severe as it may seem.

Incentives and remuneration

The FCHVs, as volunteers, do not generally receive a regular monthly allowance or stipend (although some municipalities do offer such compensation). A 2010 study highlighted the need for “context-specific incentives” for FCHVs. Although many FCHVs aspire for advancement, nevertheless virtually all FCHVs report that they are satisfied to be FCHVs; therefore, their commitment to work has been consistent and has not decreased. The most important motivating factors they report are the following: opportunities for learning, opportunities to help others, earned respect and recognition, and interesting and stimulating work. In addition to their FCHV duties, many of these women are also involved in local committees and groups working in sectors beyond health. Despite the volunteer nature of the FCHV role, attrition rates are low, with less than 4% turnover each year.¹⁷ And, although FCHVs are expected to retire when they reach 60 years of age, many chose not to, reflecting the meaning and value that they received from their work.

An FCHV fund was created by the government of Nepal in 2008–2009; it provided an initial donation of 50,000 Nepali rupees (about US\$ 700) for each of the 3,914 VDCs (further supplemented, in many districts, by development partners). These FCHV funds, managed by the FCHVs themselves, can be accessed for microcredit to support income-generation activities and undertake community development activities. Every year, the government has been contributing an additional 10,000 rupees (approximately US\$ 140) to these funds.

Community role

A women’s group known as the Health Mothers’ Group (HMG) is to be involved in the selection of FCHVs (although, as noted, selection of new FCHVs is a very infrequent event). HMG meetings are to be held every month, facilitated by FCHVs. During these meetings, a wide range of health issues (such as maternal, newborn and, child health, family planning, and others) are discussed. The HMG members are also expected to provide information to other women in the community who do not participate in an HMG. It should be noted however that although such groups are an official feature of the program, most FCHVs report not regularly holding such meetings. Some FCHVs are also members of their local Health Facility Management Committee (HFMC); these committees provide oversight for management and delivery of health services by the health post and its associated outreach services as well as increasing community awareness, including providing support to their FCHVs.

Linkages with the formal health system

Even though FCHVs are volunteers, the FCHV program was created by the MOH and FCHVs are considered as part of the service delivery system. Therefore, they are trained and mobilized by the MOH system. Each FCHV is attached to a health post (or PHC center), where—as has been noted earlier—they meet monthly with their supervisor and other FCHVs working in the catchment area of the facility.

The national-level focal point of the FCHV program has changed over time with changes in the organogram of the MOH. At the time of its creation the FCHV program was located administratively in the Public Health Division. It was then shifted to the Family Health Division for about two decades, and for the past two years it has resided within the Nursing Division. Under Nepal's federal system, responsibility for delivery of PHC services (including the functions of FCHVs) now falls under local municipal governments.

Program scale-up

The FCHV program began in 1989 in 27 districts and by 1995 the program was scaled-up in all 75 districts of Nepal. Currently there are about 52,000 FCHVs in Nepal. Initially, FCHVs were assigned to promote family planning and distribute condom and pills in their respective communities. Gradually FCHVs were mobilized for other maternal and child health services.

Monitoring and data use

Service statistics can play an important role influencing programmatic policy development and implementation. However, challenges exist with the current HMIS; registers have become increasingly complicated and have over 50 data elements, which can overburden the FCHVs. This burden, coupled with limited literacy of some FCHVs, has led to some challenges such as filling out these forms by themselves and timely reporting. For example, more than one-fourth (28%) of the FCHVs report needing assistance from others for recording and reporting of their work.¹⁴

Financing

The Nursing Division prepares an annual budget for the FCHV program. Because the FCHVs are volunteers, there are no salary costs. However, there are ongoing recurrent costs, including training allowances for initial and refresher trainings, allowances for various routine activities such as vitamin A supplementation, review meetings, and an annual clothing allowance. There are also expenses that vary yearly, which may be limited to selected districts; these include costs for new posters and pamphlets, as well as training and materials for new roles and activities to be performed by FCHVs.

The MOH provides support for some of the regular activities while a major portion of costs related to the introduction of new FCHV activities are borne by donor agencies.

Impact

Over the past two decades, Nepal has been a global leader in improving the health of its population, particularly related to maternal and child health, despite the challenges of geography and political instability. The maternal mortality ratio has decreased by almost half from 1996 to 2016: estimates from national demographic and health surveys indicate a decline from 543 to 259 deaths per 100,000 live births.¹¹ Similarly, the total fertility rate has decreased from 4.6 to 2.3 births per woman during the same period. The under-five mortality rate declined by two-thirds during the same period, 118 to 39 deaths per 1,000 live births.¹¹

A number of factors have contributed to the observed improvements in health outcomes. The strengthening of the peripheral-level PHC system (including the health posts, health sub-posts, and the outreach services of the FCHVs) has made an important contribution, as has the primary-level education system and in particular rapidly increasing female literacy. Improved road access has also no doubt made a helpful contribution. Nonetheless, there is widespread agreement that FCHVs in particular have made important contributions to these achievements.

Most of the programmatic investments in FCHVs have been focused on maternal, child and neonatal health (including nutrition and family planning), education, promotion, and service delivery. For example, in a recent health survey, nearly one-fifth (18%) of oral contraceptive users and 13% of condom users cited FCHVs as their source of supply.¹¹ The contribution of FCHVs in distributing oral contraceptive pills and condoms, and ORS for diarrhea, is higher than 50% of the total contribution of the Government of Nepal for PHC.

Moreover, FCHVs distribute 95% of vitamin A supplements and 45% of the antibiotics used in the primary level of the government health system for acute respiratory illness.¹⁸ They also continue to play an important community mobilization and support function for immunization outreach services. Their contribution to accelerating the decline in child mortality in Nepal, has been well-documented.¹⁹ In addition to health impacts, the FCHV program has contributed to women's empowerment. Many FCHVs are emerging as local leaders, a significant step towards expanding the involvement of women in the broader issues of Nepalese society.

Challenges

The FCHV workload is not uniform throughout the country, not only because the catchment populations of FCHVs vary, but also because some FCHVs have been given additional responsibilities. Since different organizations mobilize FCHVs for different tasks, there is variation both with regard to their role and their expectations with regard to incentives.

Municipality Health Offices now have direct oversight of PHC services, including those of FCHVs, as part of the government's current process of decentralization. The consequences for the FCHV program are not clear at present. In addition, the Nursing Division, under the Department of Health Services, has recently assumed responsibility for the management of the FCHV program. The consequences of this for the FCHV program are not clear either.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photograph on the cover page: Left: A CHW counts the respiratory rate of a young child in Dhanusha, Nepal. © 2007 Dilip Chandra Poudel, Courtesy of Photoshare. Middle: Women in Nepal receive HIV prevention information. © 2004 Rebecca Callahan, Courtesy of Photoshare. Right: An FCHV in Nepal counts the respiratory rate of a young child using ARI Sound Timer to diagnose pneumonia. © 2010 Dilip Chandra Poudel, Courtesy of Photoshare.

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Niger's Program of *Agents de Santé Communautaire* and *Relais* Volunteers



Rachel J. Strodel¹, Adam Asma², Aboubacar Adakal³, and Henry B. Perry⁴



¹ Student, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA

² Pathfinder, Niamey, Niger

³ Independent consultant, Niamey, Niger

⁴ Department of international Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

One-page summary

Background

Niger is the least developed country in the world as measured by the Human Development Index. It also has the highest fertility rate in the world (7.1) and the density of its population of 21.5 million is one of the world's lowest. However, its reduction of under-five mortality since 1990 has been one of the world's most dramatic following the introduction of its community health worker (CHW) program in 2000.

Implementation

There are approximately 2,500 salaried *Agents de Santé Communautaire* (ASCs)—one for every 9,000 or so people—and approximately 5,000 *Relais* (Relay) Volunteers—one for every 4,500 people or so. ASCs work at health posts, and *Relais* Volunteers work out in the community.

Roles/responsibilities

ASCs provide a broad range of primary health care services, from the provision of immunizations and family planning (oral and injectable contraceptives), provision of antenatal care and uncomplicated deliveries, diagnosis and treatment of serious childhood illness, and health promotion. *Relais* Volunteers support ASCs, support mass campaigns, distribute insecticide-treated bed nets, and visit homes to promote key family practices and identify sick or malnourished children in need of treatment.

Training

ASCs receive six months of training, including six days of training in Integrated Community Case Management of Childhood Illness (iCCM), which enables them to treat uncomplicated cases of diarrhea, pneumonia, and malaria. *Relais* Volunteers receive ad hoc trainings, including several days of training in Community-Integrated Management of Childhood Illness (C-IMCI).

Supervision

Each health post is linked to a health center. A staff member of the health center is supposed to supervise ASCs, but this is infrequent and irregular. ASCs supervise *Relais* Volunteers.

Incentives and remuneration

ASCs receive a salary of US\$ 100 per month. *Relais* Volunteers are supposed to receive a monthly incentive of US\$ 20 per month but this is irregular and infrequent. The *Relais* Volunteers also receive occasional payments for trainings or participation in mass campaigns as well as in-kind support such as gifts of product crops.

Impact

Niger's mortality among children younger than five years of age declined from 328 deaths per 1,000 live births in 1990 to 84 in 2019, a 74% decline. The deployment of ASCs and *Relais* Volunteers since 2000 has made a major contribution to this dramatic success.

Historical context

Niger's community health worker (CHW) program was born out of a participatory rural extension service founded in 1963 to promote community development. In 1965, the *Ministère de la Santé Publique* (MSP) trained CHWs and traditional birth attendants through one-week-long courses in basic health services such as nutrition education and emergency care.¹ In 2000, the Nigerien government began building health posts following a call for increased access to health care in the president's Declaration for Rural Development,² with funding provided by the Heavily Indebted Poor Country Initiative of the World Bank.³ At that as well, two new cadres of CHWs were introduced: *Agents de Santé Communautaire* (ASCs) and *Relais* Volunteers.

Health needs

Niger, with 21.5 million people, has one of the most dispersed populations in the world. Among the 189 countries of the world, Niger ranks 189th in the Human Development Index. This index is based on a composite of life expectancy at birth, level of education, and per capita gross national income.⁴ For all age groups, the leading causes of death are malaria, diarrhea and lower respiratory infection.⁵ Among children younger than five years of age, the three leading causes of death are the same: pneumonia (21% of under-five deaths), diarrhea (11%) and malaria (11%).⁶ In 2018 the estimated under-five mortality rate was 84 deaths per 1,000 live births, and the estimated infant mortality rate was 48 per 1,000 live births. 41% of under-five children were stunted and 12% were wasted.⁷ The maternal mortality ratio in 2017 was 509 with a lifetime risk of a maternal death of 1 in 27. The total fertility rate is 7.1, which is the highest in the world⁷, and only 16% of married women are using a modern contraceptive methods.⁸ Niger has among the most challenging health statistics in the world.

As Niger is one of the poorest nations in the world, severe poverty is a significant barrier to accessing health care. Furthermore, the lack of human resources for health along with the dispersion of the population provide further challenges in responding to Niger's health needs.

Health system structure

There are three levels of health facilities. At the most local level, health posts (*cases de santé*) provide basic primary health care (PHC), including preventive care. These posts are staffed by ASCs and supported by local community members.⁹ There are currently 2,500 health posts in Niger.¹⁰ Health centers (*centres de santé intégrés*) exist at the next tier of care. These are operated by nurses who provide both outpatient and inpatient services to treat non-severe health conditions. Patients with more severe illnesses are referred to district or regional hospitals, which serve at the highest tier of care.⁹ As of 2014, there were 876 health centers and 42 district/regional hospitals.¹⁰ Mass campaigns for vitamin A supplementation, measles immunization, and distribution of insecticide-treated bed nets began in the 2000s. The Nigerien Government introduced free health services for children and pregnant women in 2006, greatly reducing the financial burden of seeking care.² In 2005, the government began building a network of nutritional rehabilitation centers and by 2010 had established 39 inpatient and 671 outpatient centers for this purpose. In response to a nutrition crisis in 2005, a program of targeted cash transfers and food work had been established for families in high-risk areas.²

CHW program features

The CHW program is a two-tiered system comprised of full-time ASCs and *Relais* Volunteers.¹³ ASCs work at the health post, and *Relais* Volunteers work at the village level outside of a facility. There are approximately 2,500 ASCs and 5,000 *Relais* Volunteers, with approximately one ASC for every 10,000 people and one *Relais* Volunteer for every 5,000 people.

Scope of work

ASCs spend most of their time in health posts and provide preventive and curative care for certain illnesses, particularly Integrated Community Case Management of Childhood Illness (iCCM) for children younger than five years of age. The ASC package of services includes the following¹¹:

- Vaccination at the health post and support for immunization campaigns
- Promotion of child health and follow-up of newborns and children in need of vaccinations
- Promotion of child nutrition
- Provision of antenatal care
- Provision of oral and injectable contraception
- Performance of uncomplicated deliveries and referral of women with complications
- Management (including treatment) of malaria, diarrhea, pneumonia, and moderate malnutrition in children
- Screening for acute malnutrition, treatment of moderate acute malnutrition, and referral of children with severe acute malnutrition
- Communication about sexually transmitted diseases, including HIV/AIDS
- Distribution of insecticide-treated bed nets
- Communication about hygiene and sanitation, including promotion of latrines
- Management of the health post (including the administration of the pharmacy and preparation of reports)

Relais Volunteers provide the following services¹¹:

- Work closely with ASCs at health posts and nurses at health centers
- Support outreach campaigns and help organize the community to prepare for these
- Demonstrate key family practices
- Carry out home visits with ASCs or on behalf of ASCs to share information about warning signs and symptoms of sick or malnourished children, promote healthy practices, and encourage parents to seek care
- In some communities, provide leadership for the Community-Led Total Sanitation Program

Selection and training

Both ASCs and *Relais* Volunteers are selected from the communities they will serve. ASCs have at least a primary school education. Respected community elders, both male and female, are often selected to be *Relais* Volunteers.¹¹ ASCs are predominantly male. Among ASCs who had been recruited, 82% had completed a secondary-level education and 16% had completed an even higher level of education. Only 2% had only a primary level of education.

ASCs receive six months of pre-service training.¹¹ From 2008–2013, 2,560 ASCs received six days of additional training in iCCM.^{2,11} From 2008–2013, *Relais* Volunteers (as well as other health workers) received additional training in key family practices (such as breastfeeding, use of insecticide-treated bed nets and oral rehydration salts, and handwashing).¹¹ In some districts, *Relais* Volunteers received training between 2013 and 2015 in Community IMCI, which focuses on recognition of warning signs of serious childhood illness for which parents should seek medical care.

Support and supervision

A staff member at the health center supervises ASCs, but this supervision has been infrequent and irregular.¹² *Relais* Volunteers are supervised by ASCs. A 2010 assessment showed that only 60% of the ASCs had received supervision in the previous three months.

Incentives and remuneration

ASCs receive a stipend of US\$ 100 per month.¹³ *Relais* Volunteers are supposed to receive a monthly incentive of US\$ 20, half of which should be paid by a non-governmental organization and half by the government. However, the government has not yet started paying its share. *Relais* Volunteers also receive occasional payments for training or participation in mass campaigns as well as in-kind support such as gifts from product harvests.¹¹ An increase in this incentive to US\$ 40 per month is now being discussed.

Community role

Communities select and oversee ASCs and *Relais* Volunteers. They also support mass campaigns. The community elects representatives to serve on management committees that oversee the health centers.¹²

Linkages with the formal health system

ASCs are linked with the formal health system by obtaining supplies and their monthly salaries from the health center to which they are attached. They also submit a monthly report at that time.

Program scale-up

Niger's first ASCs were first introduced in 1999.¹¹ Health posts were first constructed in 2000, mostly in communities that were more than five kilometers from a health center or hospital. By 2007 there were 2,000 health posts.² The leadership for this expansion was directly from President Mamadou Tandja and funded through his own "Special Program" with funds obtained following Niger's admission to the Heavily Indebted Poor Countries (HIPC) Initiative.¹⁴ As of 2009, there were 2,300 ASCs staffing these health posts as well as an estimated 4,000 *Relais* Volunteers for Niger's population of 17.8 million people at that time, or one CHW for 2,822 people.²

Between 1998 and 2009, the percentage of the population living within five kilometers from a health facility (including a health post) increased from 48% to 80%.² The number of health centers doubled between 2000 to 2009, from 416 to 802, and 1,400 workers based at these facilities were trained in Integrated Management of Childhood Illness (IMCI). By 2007, 1,700 health posts had been established and 431 ASCs had been trained. In 2008 ASCs began to treat childhood pneumonia with antibiotics.¹¹ By 2011, iCCM services were provided at all health posts. Even so, in 2012 health posts provided only 1.2 treatments per child per year, 24% of the cases that would have been expected to be treated.¹⁵

Beginning in 2005, the government, UNICEF and other partners provided training for ASCs in iCCM and in supplying them with essential drugs and commodities. By 2009, more than 1,900 functional health posts were in place, with ASCs trained and the supplies needed to provide care, including rapid diagnostic tests for malaria, artemisinin-based combination therapy for uncomplicated malaria, and antibiotics to treat pneumonia.

Monitoring and data use

Surveys carried out with external donor support have been helpful in monitoring the implementation of Niger's CHW program and assessing its effectiveness.

Financing

The Nigerien government finances the ASCs and health posts, paying ASCs a monthly stipend of US\$ 100. Thus far, development partners have provided funding for iCCM training.¹³

Impact

The deployment of ASCs and *Relais* Volunteers has greatly improved the rural population's access to basic health care services. The population coverage of key child survival interventions (care seeking for children with symptoms of pneumonia, care seeking for children with fever, use of oral rehydration therapy for diarrhea, measles and DPT3 immunizations, use of insecticide-treated bed nets, distribution of vitamin A supplements, provision of intermittent preventive treatment of malaria during pregnancy, and antenatal care) all showed notable increases of 20-40% points between 1998 and 2012.^{2,16} One analysis estimated that services provided by community-level providers accounted for almost three-fourths (70%) of the under-five deaths averted in Niger in 2012 through increased health care access.¹⁶ The use of modern contraceptives among married women who reported a visit in the previous three months from a *Relais* Volunteers is 1.94 times that for married women who had not reported such a visit after controlling for sociodemographic variables.¹⁷

In spite of its continued high burden of disease, especially among children, Niger has made remarkable progress. The under-five mortality rate declined from 328 per 1,000 live births in 1990 to 84 in 2019, a 74% decline.^{6,7} Niger is one of the few sub-Saharan African countries to achieve the Millennium Development Goal for child health (a decline in the under-five mortality rate of two-thirds between 1990 and 2015).⁶ This decline in under-five mortality—as well as the improvements in the coverage of child survival interventions and a modest decline of 15% in the percentage of children who are stunted^{6,7}—can be attributed in large part to the services provided by ASCs and *Relais* Volunteers during this period.

Challenges

As the least developed country in the world according to the Human Development Index, Niger's challenges in strengthening its CHW program are formidable. Poverty, shortages of equipment and commodities, lack of supervision, poor physical infrastructure, and lack of health workers are persistent barriers affecting the CHW program as well as higher levels of the health system.¹⁰ Strengthening the community-based family planning program will be critical for reducing fertility. Niger will need to expand its supply of ASCs and *Relais* Volunteers in order to respond effectively to these challenges.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

Photos: Left: A *Relais* Volunteer screens a child for malnutrition using a tape to measure mid-upper-arm circumference (MUAC). Photo credit: https://www.flickr.com/photos/eu_echo/with/15409328093/. Right: A *Relais* Volunteer teaches mothers about the importance of exclusive breastfeeding during the first six months of life. Photo credit: UNICEF (<https://twitter.com/Unicefniger/status/1019940923709558784>)

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Nigeria's Paths to Primary Health Care



William R. Brieger¹ and Bright C. Orji²



¹ Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA
² Jhpiego/Nigeria, Abuja, Nigeria

One-page summary

Background

Nigeria introduced community health workers (CHWs) and a strengthened primary health care (PHC) system in the early 1970s. Approaches to CHWs took two paths: Volunteer Village Health Workers (VVHWs), who work mostly with NGOs of specific vertical programs, and the more formally trained and employed Community Health Extension Workers (CHEWs), who work directly with staff at frontline PHC clinics.

Implementation

The VVHW approach has been used in smaller NGO programs and also by the Onchocerciasis Control Program. The number of VVHWs is unknown. The CHEW approach first began through the training of Community Health Aides and Community Health Assistants and was later formalized with the creation of the National Primary Health Care Development Agency, which formally trained CHEWs. There are approximately 43,000 CHEWs – one for approximately every 4,000 Nigerians.

Roles/responsibilities

The roles and responsibilities of VVHWs are based on local needs. In general, they provide health education and promotion as well as management of common diseases. CHEWs provide curative care based on algorithms included in a book of Standing Orders. The importance of referral is stressed for both CHW cadres.

Training

The training curriculum for VVHWs is flexible and based on local needs. CHEWs receive three years of formal training.

Supervision

Supervision of VVHWs is variable and often involves NGO staff. CHEWs are supervised by the person in charge of the closest health facility.

Incentives and remuneration

The VVHWs are just that, volunteers. CHEWs, in contrast, are local government employees and receive approximately US\$ 281 per month.

Impact

The smaller scale VVHW programs have increased access to and utilization of services. The Community-directed Treatment with Ivermectin CDTI Program and its volunteer Community Drug Distributors has demonstrated impressive gains in population coverage of specific evidence-based interventions. Evaluations of the CHEW program are poorly documented, and the results are mixed.

Historical context

Because of the sheer size of its population of 180 million inhabitants, its cultural diversity, the multiple levels of governance levels, and its wide variety of health care options in the public, private and non-governmental sectors, Nigeria has not followed one unified path in developing a primary health care (PHC) system nor in developing a system of community health workers (CHWs). PHC development in Nigeria has followed two broad streams starting in the 1970s. One began with experimentation with Volunteer Village Health Workers (VVHWs) in the rural northeastern part of the country. The other grew out work at the University of Lagos in the densely populated community of Shomolu that focused on developing a formal cadre of community health agents, later known as Community Health Extension Workers (CHEWs).

These efforts predated the 1978 Declaration of Alma-Ata as well as the formal enshrining of PHC as the foundation of Nigeria's health policy and strategy in 1986. Each of these two pathways was taken in order to reach the large rural and urban populations of the country that had limited access to formal health care services. There have been some efforts to coordinate these two distinct programs via the National Primary Health Care Development Agency (NPHCDA), but the goal of implementing a consistent national CHW effort remains elusive.

The Voluntary Village Health Worker Path

The first documented VVHW program began in 1973 by the Christian Health Association of Nigeria (CHAN) in what was then Gongola State in the northeast in response to the obvious needs of communities the rural area. CHAN, itself, was founded in 1973 by the Catholic Bishops Conference of Nigeria and the Christian Council of Nigeria. CHAN serves as an umbrella organization for Nigeria's 4,400 church-based health centers and hospitals, which are distributed across the country. The *Lardin Gabas* Rural Health Program of the Church of the Brethren Mission began training village health workers from 119 villages in northeastern Nigeria; in 1976, the program was scaled to an additional 33 villages in the central plateau region by the Church of Christ in Nigeria Rural Health Program. The program used parables and local stories, drama, songs and riddles to convey health messages to the population, a technique that received considerable international exposure in the literature.¹

CHAN's members continue to provide a large portion of primary and secondary care in Nigeria, and even serves as a recipient of funds from the Global Fund to Fight AIDS, Tuberculosis and Malaria to support these efforts in the areas of where malaria, TB and HIV are significant problems. Based on the success of the *Lardin Gabas* Program, CHAN established a PHC Unit and provided technical assistance to clinics and hospitals of member organizations that wanted to develop their own community health services. A common thread was the participatory approach used by CBM.

A participatory approach

The *Lardin Gabas* Rural Health Program employed a participatory approach in training its volunteers and engaging community members. Program staff visited village leaders and asked them if they were interested in addressing their health needs. If a village expressed interest, a day was set for a second talk with as many of the village people as could be gathered together, including opinion leaders.

The health needs of the village were presented by the villagers themselves, and then discussed. Villagers were asked to prioritize their needs and suggest solutions. After this discussion, the program staff described the Rural Health Program, and the villagers were given time to ask questions. If the group showed interest, they were encouraged to meet at least once or twice as the entire village to discuss the program and to determine if the village as a whole was interested in participating.

The village leaders then contacted the program staff, set another meeting, and program staff explained the responsibilities of the village health committee (VHC) and how the village should select the VVHWs to be trained for their village. The VHC kept the villagers informed about the program, provided oversight to the

VVHWs, and collected any funds needed to support the program such as transport money for the VVHWs to attend training and monthly stipends.

The VHC also met to review the characteristics, tasks and responsibilities of the VVHWs and then to later select them. The VVHW training methods were also participatory and involved locally relevant methods such as storytelling and discussion. The idea was that the VVHWs could use these same methods when providing health education in the village. This approach to adult education served as a model for PHC efforts throughout Nigeria and in other parts of Africa as well.

Adoptions and adaptations

Other similar projects arose, such as the rural health training site of the University of Ibadan in what was then the Ibarapa District. This PHC pilot program was intended to meet the needs of the scattered farm hamlets surrounding the town of Idere and involved the community selection and training VHWs to tackle guinea worm disease and other common health problems identified by the villagers. Community efforts in the selected hamlets resulted in improved water supplies and elimination of guinea worm. Since residents were no longer disabled by guinea worm disease during key agricultural activities, there was a noticeable improvement in the economic status of the inhabitants as witnessed by the shift from grass to iron-sheet roofing.²

The Idere PHC effort expanded to most all of the surrounding 40 hamlets and many of the family compounds in the main town through a grant from the Tropical Disease Research Program (TDR) of the United Nations Development Program/World Bank/the World Health Organization/United Nations Children's Fund. The VVHWs formed their own association which aided in supervision and continuing education.³ The group undertook additional community projects such as producing cloth water filters to prevent the ingestion of guinea worm larvae, developing a revolving drug fund, and testing the acceptability of pre-packaged medicines to treat malaria and pneumonia at the village level.⁴ Later these VVHWs played a major role in onchocerciasis control as described next.

A variation on the VVHW approach appeared in the mid-1990s with the advent of the Community-directed Treatment with Ivermectin (CDTI) Program to control onchocerciasis. This later evolved into Community-directed Interventions (CDIs) with Community-directed Distributors (CDDs) recruited to achieve the goals on tropical disease control initially and later to provide essential primary care services.

In 1995 Nigeria fielded four research teams to test the feasibility of a community-directed approach to provide ivermectin once yearly to control onchocerciasis.⁵ CDTI was structured such that health departments would ensure supplies of ivermectin and train CDDs, but it was the community that drove decision-making in terms of selecting CDDs, conducting a village census, choosing dates and places for the ivermectin distribution, mobilizing the community for that distribution, and monitoring and evaluating the process in their village.

Community roles and functions within the CDTI Program were quite similar to those established in the initial VVHW approach of the *Lardin Gabas* process. A study compared the effectiveness of using the CDTI approach with the usual approach of the local health departments without community volunteers.⁴ The study showed that the CDTI Program achieved a greater population coverage of ivermectin distribution than did the alternative approach. Local health departments saw the value of this community approach and, based on local needs and community approval, gave additional tasks to the CDDs.⁶ These consisted of polio immunization, community development activities such as improvements in water and sanitation, and a mix of other health and disease-control efforts.

A study was conducted in eight sites (four of which were in Nigeria) to determine if expanding the CDD's scope of work further could be beneficial. Additional services included malaria home management, provision of vitamin A, insecticide-treated net distribution, and directly observed treatment of TB.⁷ All the interventions achieved a significantly higher coverage with the CDTI strategy than with other delivery approaches for all interventions except for directly observed treatment for TB. The results for malaria

interventions was particularly striking—a doubling of the population coverage. The social stigma surrounding TB meant that it was not possible for the CDDs to deliver TB treatment at all sites. The Federal Ministry of Health considered these findings as offering support for the further development of the existing, widespread and well-functioning community volunteer program to serve as a platform upon which to expand and improve community-based PHC services.

The success of the CDTI Program and its CDDs heralded the adoption and adaptation of the model by different CHW programs: the Role Model Caregivers/Role Model Mothers as CHWs (for malaria prevention and treatment in pregnant women) and the Community-oriented Resource Persons (CORPs) as CHWs involved in the implementation of the home management of malaria. This culminated into recognition by the National Health Strategic Development Plan 2010-2015 (Section 3.4.1) of the need to establish or expand training for CHWs and other cadres of supportive staff.⁸ Between 2012 and 2014, the Federal Ministry of Health made another attempt to harmonize the scope and coordination of the activities of CHWs. This effort led to the approval of a National Task Shifting and Task Sharing Policy of essential health care services in Nigeria by the National Health Council in 2014.⁹ The task shifting policy brought together all the cadres of VVHWs, including the Role Model Mothers/Role Model Care Givers, CDDs, and VVHWs and others under one umbrella name—CORPs. However, the implementation of the task shifting policy still remains fragmented and largely uncoordinated.

The National Primary Health Development Agency recently revised its National Health Strategic Development Plan (NHSDP) and established the Community Health Influencers and Promoters Services (CHIPS) Program in 2018.¹⁰ The CHIPS program is another attempt to expand maternal, child and reproductive health interventions at the community level, as well as strengthen the community health service delivery system. Through the CHIPS program, national learning resource packages and materials, as well as training methods for CHWs, were harmonized. All health workers at the community level, apart from CHEWs, are trained for 14 days using the nationally approved tools and are supervised by community empowerment personnel and those in charge of affiliated PHC centers. The government will be responsible for the payment of monthly stipends to CHIPS Agents and their supervisors. Therefore, each implementing agency/partner working at the community level is expected to upgrade the status of their CHWs as CHIPS Agents while state and local governments are encouraged to participate in the program.

The Path of Community Health Extension Workers

Between 1968 and 1976, Professor Olikoye Ransome-Kuti directed the Institute of Child Health of the College of Medicine, University of Lagos. In this post he developed a successful community-based child health and family planning program in the Lagos neighborhood of Shomolu.¹¹ The program relied on frontline trained and paid health staff who reached out into the community to provide essential services. In 1975, he had the opportunity to build on this experience and propose a system of Community Health Aides, Community Health Assistants and Community Health Officers to form the backbone of Nigeria's new Basic Health Services Scheme.

The effort required a restructuring of local government health departments to ensure that higher-level health centers supervised an array of health clinics that in turn managed smaller health posts where the Community Health Aides or Community Health Assistants would be based. The endeavor also necessitated a major update to the training of health workers in Nigeria's Schools of Health Technology. A new curriculum was developed for these new cadres that was practical and algorithm-based such that trainees could work from a manual of standing orders. After graduation they were supposed to take these Standing Orders into the field to treat illness and prevent disease. The most recent version (of 396 pages)¹² was revised in 2015 (Federal Ministry of Health, 2015) to align with the 2014 National Task Shifting and Task Sharing Policy of essential health services in Nigeria.

CHEWs had been engaged at the health facility in tasks beyond their training, such as delivering babies. Thus, PHC policy shifted to emphasize midwifery roles and delivery of family planning services with the creation of the Midwives Service Scheme (MSS). Nigeria had previously eliminated separate midwifery training and added

midwifery as a specialization to nurse training. In 2009, when the need for health workers with midwifery skills in rural communities became more acute, the MSS was started under the National Primary Health Care Development Agency (NPHCDA). By 2010, over 2,600 newly trained midwives were posted to PHC clinics.¹³ It was intended that CHEWs would work alongside midwives and conduct community mobilization around utilization of midwifery services.¹⁴

Professor Ransome-Kuti became Minister of Health in 1985. He championed the concept of PHC and ensured that the 1986 National Health Policy embraced it. Subsequent updates have maintained PHC at the forefront. The Community Health Aides and Community Health Assistants have recently been renamed as Junior and Senior CHEWs. Health and development committees at the village, ward and district levels and community participation became major components of the CHEW Standing Orders. This was one of the earliest efforts at what is now termed ‘task-shifting’ in Nigeria. Professor Ransome-Kuti noted in 1986, “We have learned that even lesser trained health personnel, down to the level of the village health worker, can be successfully trained to assume some of these responsibilities.”¹⁵

Health needs

Nigeria’s health indices still rank among the worst in the world. The recent national health survey 2018 shows that maternal mortality ratio is currently 512 per 100,000 live births, a minimal decline from 576 in 2013. The under-five mortality rate is currently 132 per 1,000 live births, a modest reduction from 157 in 2008; the infant mortality rate is 67 per 1,000 live birth compared to 75 per 1,000 live births in 2008 while the neonatal mortality rate did not show any change at 39 per 1,000 live births.¹⁶ Total fertility rate has declined from 5.5 in 2013 to 5.3 in 2018 while the contraceptive prevalence rate (with modern methods) increased minimally from 10% in 2013 to 12% in 2018.¹⁶ As reflected by the continued high levels of mortality in spite of these modest reductions, the population coverage of the much-needed lifesaving medicines, interventions and treatments is not insufficient. This necessitates the continuous and urgent need for CHWs to help to increase coverage.

Health system structure

The health care delivery system in Nigeria is pluralistic, with an abundance of traditional practitioners together with a broad variety of practitioners trained in the modern, Western tradition. The government’s attempts to harmonize and streamline these divergent practices have not been successful. Health care is essentially provided by both the public and private sectors, with church mission and faith-based facilities forming an important component of the health system (oftentimes classified as the private, not-for-profit sector).

Government health care is stratified into three tiers, with funding from different levels of government depending on the tier. The federal government is responsible for tertiary health care, policy formulation and technical support. The state or regional government runs the secondary level of health care while providing support to the local government, which is responsible for PHC services. So, the PHC is the closest to the population and forms the bedrock of the government’s national health care delivery, though it is poorly funded. Delivery of PHC center services in Nigeria is regulated and supervised by the NPHCDA through the Ward Minimum Health Package. The package recommends at least one PHC center in each political ward. Nigeria has 774 Local Government Areas (LGAs) and thousands of political wards. LGAs are the same as districts in many other countries. Current government efforts to provide Universal Health Coverage include the upgrading of about 10,000 PHC centers. This is a massive investment, with funding provided from the National Health Act of 2015.

CHW program features

As described above, there have been multiple community health programs in Nigeria. Each stakeholder establishes a program to meet a specific need, and this has led to a verticalization of multiple community health structures. The result has been a lack of coordination, collaboration and synergy among programs and interventions: on one hand was the VVHW that grew out from the efforts of faith-based organizations and mission hospitals. This later included other categories such as Community-Oriented Resource

Persons (CORPs), Role Model Care Mothers and others already mentioned; on the other hand, Community Health Extension Workers (CHEWs) were formally trained in a three-year program in colleges and schools of health technology. Finally, some of the government health staff worked directly at frontline PHC centers. The coordination, supervision and regulation of these services fall within the oversight functions of the NPHCDA.

The Government of Nigeria has continued to look for solutions to improve health care service delivery. The National Health Act authorizes the Basic Health Care Provision Funds to bring changes to the implementation of basic health care services in Nigeria. First was the prioritization of PHC reforms, otherwise known as “PHC centers under one-roof.” This policy aimed to ensure that there is a modern fully equipped and functional PHC in each ward of the 774 LGAs in Nigeria. Second, the reform sought to ensure that all the PHC centers are managed and regulated by the State Primary Health Care Development Agency that has the autonomy to hire, fire, and pay all the staff at the PHC level. Therefore, any state that would want to access funds from NHA must have put all these mechanisms in place through the act of the State House of Assembly. In principle the NHA, through the Basic Health Care Provision Funds, will address the issues of PHC management and regular payment of CHEWs salaries.

There are approximately 43,000 CHEWs, one for approximately every 4,000-4,400 Nigerians. The number of VVHWs is unknown since these persons are trained and supported by individual NGOs and some local governments and there is no central registry for this cadre.

Scope of work

In the case of both the VVHWS (including CDDs and CHIPS Agents) and CHEWs, there was a plan to link them to the nearest health facility. The very name of CHEW implied that they would be an “extension” of the health service. This would mean conducting home visits, community education sessions and possible mobile clinic/outreach sessions offering immunizations and other services. In reality, due to shortages of facility-based professional staff such as nurses, midwives and pharmacists, as well as shortages of funds for transportation, the CHEW program has ended up mainly filling human resource gaps in peripheral health facilities.

VVHWs, on the other hand, were based in their villages. The smaller-scale VHW programs run by NGOs and university researchers were usually trained and supervised with the help of staff in the public and NGO sector health services, and thus had a link. Essential medicines and supplies were obtained by establishing revolving drug funds to purchase. The VHWs working within the CHAN system had a similar process.

These small-scale efforts were useful for piloting new ideas but were not easily scalable for national programming. In contrast, the CDTI Program with its CDDs, focused initially on one drug, ivermectin, and was able to develop a supply chain from the national level to the state level to the local government authority and onward to the community level. Later research demonstrated that CDDs could deliver other basic health commodities like malaria medicines, vitamin A supplements and insecticide-treated bed nets. The success of this research led the National Malaria Control Program and the Family Health Division of the Federal Ministry of Health to consider how to use the CDD model of VVHW implementation within a broader community-based PHC system. Recently, the NPHCDA introduced the CHIPS program that attempts to harmonize all categories of CHWs.

To reiterate, Nigeria's formal PHC system evolved in three stages according to Aigbiremolen and colleagues¹⁷, beginning in 1975 with a front-line facility focus under the Basic Health Services Scheme (BHSS). Community Health Aides and Assistants, the forerunners of the CHEWs, reached out from these facilities, but overall, there was not a major community involvement component to the BHSS. The BHSS was based on an urban community health pilot program by the University of Lagos in the Shomolu community. The second phase started in 1986 using LGAs as the basic unit for planning and delivery of PHC services. Fifty-two LGAs served to pilot this phase, and with a greater emphasis on community involvement through village health committees, enabling a number of achievements such as improved immunization coverage. Finally, the

NPHCDA was established in 1992 to provide technical assistance to LGAs and guide the training of PHC staff. A major contribution of this phase was the establishment of ward health and development committees that remain the backbone of the government-sponsored PHC system.

The CDDs, and CHIPSs are selected by the catchment communities of affiliated health facilities located in the political ward. In the CHIPS program, each ward selects 10 -12 CHIPS Agents. Two out of the 12 are called Community Empowerment Personnel and responsible for supervising the rest of the members of the team in the ward. A key selection criterion is that the person(s) live in the community s/he would serve. The VVHW (CDD or CHIPS Agent) was expected to be chosen by co-villagers after a deliberative process during which community members would discuss the characteristics of the people whom they wanted to serve them. In some CDTI Program areas, and similarly in the CHIPS program areas, the local health staff encouraged villagers to select people who could read and write and thus keep records, communicate appropriately in the local dialect, who were of good social standing, and of course who were willing to volunteer their services. That said, the reality was that in many rural settings villagers had little or no formal education.

The basic principle for this latest effort was that the CHIPS program would improve program sustainability and ownership. The CHIPS program is coordinated by the NPHCDA through each State Primary Health Care Development Agency. The program is implemented in collaboration and consultation with partners and development agencies. Partners are encouraged to align, harmonize interventions, and channel funds to support the program at the community level while targeting accountability and transparency through good governance, openness and responsiveness, thereby building community trust and community participation. Communities are assigned roles and engaged through the ward development committees to ensure that the roles are implemented.

The recruitment of CHEWs has been formalized. While local government health departments may have consulted with community leaders, they were basically recruiting people who had some secondary education. The residency criterion referred to residency in the LGA, not in a specific village. When the program first started, local governments were actually recruiting for established positions, and the local governments and states were to be responsible for the residential training that lasted two years. In later years, when positions were filled and funds were short, local governments stopped recruitment and sponsorship, and people with the requisite educational background applied for training on their own. Later they might be hired when vacancies arose in the LGA Health Department, or they might even set up their own medicine shops or mini-clinics.

Roles/responsibilities

The roles of VVHWs (including CDDs and CHIPS Agents) are similar, though the CHIPS Agents have a broader mandate. Nonetheless, these all differ from the roles and responsibilities of the CHEWs. CHEWs were originally supposed to spend 60% of their time at the PHC center and 40% in the community. The service delivery at the community level includes home visits to provide community health education and counseling, treatment of minor ailments, identification and referral of pregnant women and sick young children to the health facility, and supervision of the VVHWs (including CDDs and the CHIPS Agents). However, over time with the shortage of medical doctors, nurses and midwives as well as with their maldistribution, the need for support at the PHC center crowded out the availability of CHEWs to work in the community.

At the PHC center, it is easy to define the roles and responsibilities of CHEWs because of the existence of 400 pages of Standing Orders¹² that guided their training and their daily work routines. The Standing Orders are a set of algorithms developed by clinical and public health professionals which, if strictly followed by the CHEW, would mean that their practice would be considered safe and acceptable. Each CHEW used the Standing Orders as a textbook during their training at the various state and national Schools of Hygiene or Health Technology. They were expected to keep this large text on their desks at work for ready reference.

While the main focus of the Standing Orders is on curative clinical care, the role of CHEWs also concerns public health interventions such as immunization outreach. The main challenge to fulfilling the public health role was the weakness of the local government health system. The lack of clinicians in rural areas, as already mentioned, put the pressure on CHEW to focus on the needs of sick patients. The lack of funds as well as the inability of CHEWs to allocate funds for transportation to the villages was another component of the health system challenge. Finally, unlike VVHWs, CHEWs were based at a health facility that had several “communities” or villages in its catchment area, and therefore one could not in reality call the CHEW a community-based CHW.

On the other hand, the job description of VVHWs (including CDDs and CHIPS Agents) was variable. VVHWs who were recruited and deployed through voluntary agencies such as church health programs or university research teams had a mix of preventive and curative responsibilities that were often derived from an assessment of local community needs. While this meant that a program could be seen as relevant to the community, it was more difficult to maintain them and scale them up. That said, many of the programs undertook what could be thought of as a combination of (1) the Integrated Community Case Management (iCCM) approach that addressed the leading causes of death among children and (2) health promotion services such as family planning and mobilization for immunization services. Many programs had trained VVHWs (including CDDs and CHIPS Agents) to provide the following roles and services at the community level:

- Early identification of pregnant women and referral to the health facilities for antenatal care.
- Promotion of the use of long-lasting insecticide treated bed nets in the household, especially among young children and pregnant women.
- Promotion of the program called the Intermittent Prevention and Treatment of Malaria during Pregnancy, where pregnant women received treatment at a health facility.
- Administration of medications for the Intermittent Prevention and Treatment of Malaria during Pregnancy Program in the community to eligible pregnant women who failed to attend the health facility.
- Administration of rapid diagnostic tests to diagnose malaria and administer malaria treatment if the test is positive.
- Provision of treatment for diarrhea and pneumonia at the community level.
- Safe keeping of all medicine (including keeping them away from children, from direct sunlight, and fire hazards, storage at the proper temperature).
- Participation in monthly meetings.
- Record keeping/submission of record forms and reporting to Front Line Health Facility Staff (FLHFS), who usually are CHEWs.
- Collection of medicines from the collection point, usually at a health center.
- Notification of the community (through community leaders) when medicines arrive.
- Follow up of those referred to health facilities.
- Counselling of patients and reporting to higher-level health workers when any drug reactions occur.
- Sensitization of community members on malaria prevention interventions at the time of community and church meetings.
- Participation in community mapping and census taking.
- Update on census/community registers.

Selection and training

Training for VVHWs (including CDDs or CHIPS Agents) is provided at the community level by members of the local health team and other resource people such as the staffs of mission hospitals, NGOs, university public health departments or trained staff of the State Primary Health Care Development Agency. The goal was involving as trainers those health staff at the front line who would eventually develop a supervisory and mentoring relationship with the VVHWs.

Usually the times and venues for such training are selected for the convenience of the trainees, who work full time as farmers, carpenters, hairdressers, shop owners and the like. These trainings take place in the afternoon for a few hours, and thus span several weeks. Venues may be convenient locations such as schools, health centers or town halls.

The actual curriculum in many cases is locally determined by a review of patient treatment records and discussions with community leaders about health needs in the community. Training methods emphasize the local culture (storytelling, proverbs) as well as practical exercises. The time between training sessions enables the VHWs to test what they learned and report back with questions and observations at the next session.

The training for CDDs initially focused only on the distribution of ivermectin, but implementation research found that CDDs not only welcomed additional tasks but also gained more respect from the communities for the additional commodities and services they provided.

Recently, the Government of Nigeria through the NPHCDA and in accordance with the 2018-2022 NHSDP, has integrated, streamlined and harmonized the training of all cadres of CHWs through the CHIPS program. The CHEWs pass through a formal school or college of health technology for three years. The CHIPS program is intended to reduce the fragmentation and verticality in the training of VVHWs by different programs as well as to improve the sustainability of these VVHWs and their ownership by the community.

Moving forward, all existing VVHWs and CDDs will be required to be re-trained and upgraded to the status of CHIPS Agents using the harmonized curriculum. The harmonized CHIPS training curriculum consists of 14 days of classroom work and four months of mentorship and empowerment. The 14 days of training covers a broad set of topics: maternal, child and reproductive health; nutrition, HIV, malaria, diarrhea, pneumonia, as well as recording and reporting data. The training is divided into 12 modules, some of which are classroom-based and others of which are field-based.

The training begins first at the national level with a training of trainers. Through a cascading process, the training capacity is passed to trainers at the state level, to the local government level, and then to lower levels. Though still in its pilot stage across the country, the goal is to eventually have VVHWs in all parts of Nigeria with similar training. Though each state is allowed to adapt the training to meet its peculiar health needs, the principles and approach are required to remain the same.

The training for CHEWs, on the other hand, is conducted in a formal residential school setting for three years. The training program is regulated by the Community Health Practitioners and Registration Board of Nigeria (CHPRBN). The CHPRBN is charged with the responsibility of reviewing and developing the training curricula of Junior Community Health Extension Workers (JCHEWs), CHEWs and Community Health Officers (CHOs); accreditation of the training institution (usually Colleges of Health Technology); as well as licensing of those in the higher level of CHWs (JCHEW, CHEWs, and CHOs etc.) after they have passed the national examinations conducted by the CHPRBN. Training is based on what has become known as the Standing Orders.

CHOs are the most senior community health practitioners in Nigeria. These may be CHEWs with five years of experience and trained for an additional two years on administrative, medical and supervisory functions in the PHC center. The CHOs supervise CHEWs. JCHEWs are a lower cadre of community health practitioners, usually trained for two years and supervised by CHEWs. JCHEWs have confirmed academic

qualifications and a minimum of two years of work experience. They can apply for training to become a CHEW.

Support and supervision

In Nigeria, supervision of CHWs is through three mechanisms to support service providers both at the facility and community levels. Each of these three mechanisms complements the other two. All three mechanisms are aimed at improving the performance of CHWs.

CHEWs are supervised by the nurse/midwife or medical officer (where available). In each district, there is usually an Administrative Officer who has the sole responsibility for coordinating and supervising the work of the CHEWs. While the nurse/midwife provides routine supportive supervision during each workday, the District Administrative Officer through a subordinate (usually the District Disease Program Manager) provides quarterly supervision using a nationally designed checklist based on an integrated supportive supervision approach.

The essence of the integrated approach to supervision is to reduce fragmentation of the supervisory process during visits to the health facility, as well as to minimize the interruption of services and the distraction of service providers. During the quarterly organized integrated supportive supervision, personnel from the State Primary Health Care Development Agency /State Ministry of Health (SMOH) and implementing partners might join. However, usually this is not possible because they do not have transport or the checklists/tools. Sometimes the required resources are shared among the implementing partners.

On the other hand, the VVHWs (CDDs and CHIPS Agents) are routinely supervised by the CHEWs who are based at the health facility with which they are linked. In addition, they are supervised by the Disease Program Managers at the District or Local Government Office. There are three different models to this level of supervision. Each model may stand alone or be integrated and complementary. VVHWs are supervised during monthly meetings when they gather to review and submit their monthly report. During the meeting the CHEW uses the opportunity to review service statistics and provide guidance that will help improve the overall performance of the VVHWs. While this model helps in the identification of problems and solving them, it does not benefit an individual VVHW who might be having a problem of service delivery since this supervisory model focuses more on data quality and use of data for decision-making. This supervisory method focuses on the use of incoming data to identify problems among clusters of health facilities along with their catchment communities. Once a problem is identified, a supervisor then visits those clusters to work with the community to solve the identified problems. The process builds the capacity of the VVHWs to problem solve.

The second method aims at providing supportive supervision to the VVHWs during the time that a CHEW makes a home visit with the VVHW. This method focuses more on observation and assessment of the performance of each individual VVHW rather than on the overall performance of the group of VVHWs. During the visit, a supervisory tool is utilized, the performance of the VVHW is assessed, gaps are identified, and the results are used in a mentoring fashion to develop an action plan. The action plan is tracked, and improvements are expected by the time of the next supervisory visit. This model is usually deployed as a post-training follow-up and mentorship program to ensure that knowledge and skill transference from classroom work to practice remains high as the newly trained VVHW moves out to provide services.

The third model is aimed at providing supportive supervision when the CHEW comes to the health facility to replenish their stocks or for any other purpose. This mechanism focuses more on stock tracking, data quality, recording and reporting.

Recently, some programs have added the use of the short message service (SMS)^a to communicate periodically to the mobile phone of the VVHWs for the purpose of monitoring, mentoring and improving

^a SMS refers to Short Message Service, the most widely used type of text messaging which enables one to send a message of up to 160 characters to a mobile device such as a cell phone.

performance. Messages that focus on knowledge and skills retention are sent to VVHWs twice a week to help them remember the appropriate procedures for diagnosis, dispensing of medicines when applicable, and so forth.

Incentives and remuneration

Available evidence from around the world has shown that CHWs can provide multiple interventions effectively. Most of this evidence is focused on maternal, neonatal, child and reproductive health services, especially in terms of disease prevention, behavior change, and demand creation for available services at the health facility. These contributions have led to substantial improvements in maternal and child health. However, issues of motivation and remuneration have not been adequately addressed in most countries.¹⁸ Consequently, one of the challenges faced by CHWs programs throughout the world is the high level of attrition caused by poor incentives and motivation.

In Nigeria as well, the issue of motivation, incentives and remuneration of CHWs is a salient one. First, the distinction between material and intrinsic incentives must be considered. VVHWs do not hesitate to mention the intrinsic rewards they receive by serving their communities and helping their family and neighbors. Nor do they hesitate to acknowledge the value of gaining knowledge and gaining social recognition. In one study, about 52% of CHWs in Nigeria thought that they were adequately motivated and incentivized.¹⁹ This is because the VVHWs perceive of their work to be a humanitarian service – a means of giving back to their community and helping to improve their society.

That said, the issue of material incentives frequently arises. It must be emphasized that the nature of the work of VVHWs was not designed to be a full-time job. In fact, it was expected that VVHWs would have other sources of income as teachers, farmers, mechanics, tailors and so forth. Just like all members of a community (in this case a village or a ward), VVHWs would be contributing to community welfare just as others are expected to do: volunteer village labor helps to improve roads, put roof on the houses of neighbors, and clean the local market.

Also, in Nigeria, especially with the CDTI Program, it was learned that enabling someone to be a volunteer without undue pressure for the benefit of the community required working with the smallest social unit within the community. In western Nigeria, the smallest social group is the farm hamlet; in eastern Nigeria, it is the family kinship group. Such “natural” groups have 50-200 people who could be easily serviced with ivermectin distribution by 1-2 CDDs during the annual distribution. And where VVHWs had been trained to provide community case management (CCM) of childhood illness, the small size of the catchment area meant that the need for case management would only occasionally be required, leading to a manageable workload.

CHEWs are frontline staff at the lowest rung of the civil service ladder. People on this pay scale were previously paid by their local governments from federal or state transfers to local governments. But more recently, they have become employees of State Primary Health Care Development Agencies. Because many rural local governments have had difficulty attracting the professionals such as nurses and pharmacists, not to mention doctors, CHEWs have become *de facto* the officers in charge of frontline health facilities such as dispensaries. This arrangement has meant that CHEWs have rarely been able to conduct the community-based treatment and health promotion work for which they were trained. Furthermore, many of the local governments were unable to pay the salaries of the CHEWs or hire newly trained ones.

Community role

Communities have critical roles to play in the community health system service delivery. These roles are usually carried out through the ward development committee. The ward development committee is a coordinating body that supports the smooth running of PHC centers within its location. Its members are nominated by various communities that make up the political ward. There are other partners and stakeholders in the community that may be coopted to strengthen the activities of the ward development committee. These include representatives from community-based organizations, faith-based organizations, and civil society organizations. For example, the Association of Civil Society Organizations in Malaria Control,

Immunization and Nutrition (ACOMIN) coordinates civil society organizations involved in malaria, immunization and nutrition.

Some of the roles carried out by the community include:

- Participate in the establishment and functioning of community-based health development committees that support the CHWs.
- Select CHWs using agreed-upon criteria and payment of stipends to them. In some instances, the community provides accommodations for the staff of the PHC centers.
- Encourage community ownership of health interventions implemented in their various communities.
- Create awareness through sensitization of community members on the rationale and the implementation process of health interventions.
- Ensure that CHWs carry out their activities in the community in accordance with program guidelines.
- Ensure that CHWs are supervised, that they submit monthly report to the health facilities, and that they provide feedback to the community members.
- Identify barriers to the implementation of community management of malaria and share these with the community so that the community can proffer solutions.

Linkages with the formal health system

Much of good health is produced at home, and people get ill often as a result of what they do or fail to do there. Therefore, as CHWs encourage people to adopt healthy household behaviors, they also promote appropriate health-care-seeking behaviors. CHWs link the community to health facilities partly by referring patients in need of health care services. Experience with Community-Directed Interventions (CDIs) for Onchocerciasis and Guinea Worm Control have shown that when communities take charge of distribution of health commodities, their utilization of health services at facilities increases. Furthermore, by raising awareness and knowledge among community members on the causes of disease such as malaria, they are more willing to incorporate preventive measures into local action and ensure access to early and effective treatment for improved care since malaria commodities are readily available in the community.

Program scale-up

The scale-up of the two types of CHW systems has varied. The formal CHEW system is easier to describe since there are clear origins in the pilot effort training and deploying Community Health Aides and Assistants in Shomolu, Lagos, by the University of Lagos that were later used as the foundation for the national Basic Health Service Scheme that started in 1975. Scale-up included development of national guidance with Standing Orders, which formed the basis of the curriculum introduced into the various state level schools of health technology, where participating local government authorities send their selected students for training.

By 1986 PHC was integrated into the National Health Plan and formalized through upgrading the CHAs into Community Health Extension Workers (CHEWs) and integrating them into the human resources management of the local government service commissions in each state. The use of CHEWs varied by state and location, with more being deployed in rural areas and in Northern states than other areas because of shortages of nurses, doctors and pharmacists who were willing to serve there. Ultimately it was recognized that the needs of such communities included skilled birth attendance, and the Midwife Service Scheme was added to the PHC portfolio in terms of training and staffing. By 2014, some midwifery roles were formally added to the scope of work provided by the CHEWs through the national task shifting and sharing policy of the Federal Ministry of Health. Now, unless a local government has financial difficulties, there is little difficulty in finding CHEWs and midwives to serve in PHC facilities.

The scale up of VVHWs took two separate paths. The Onchocerciasis Control Program adopted a VVHW-type approach with its volunteer CDDs and beginning in 1997 for the following 10 years CDDs were trained in all endemic communities in the endemic states. Landmark research sponsored by the WHO Tropical Disease Research Program and the African Program for Onchocerciasis Control in the mid-2000s, of which four of its eight study sites were in Nigeria, tested expanding CDD duties to delivering a variety of PHC commodities, an approach that was welcomed by the National Malaria Control Program and other state and federal health services. Thus, CDDs could be found providing some form of PHC essential service in all states. At the height of the Onchocerciasis Control Program there were 91,000 CDDs in Nigeria.

The more localized versions of VVHWs started as separate and isolated activities in the early 1970s as explained previously; and while national organizations such as the Christian Health Association of Nigeria promoted the idea of training VVHWs by its mission organizations, the overall effort on a national level was based mainly on individual localized NGO efforts. Over the past 10 years the Federal Ministry of Health has tried to standardize the recruitment, job descriptions and training of VVHWs; but implementation of that effort remains stalled and individual NGO efforts continue in an uncoordinated fashion.

Monitoring and data use

Monitoring of VVHWs is carried out jointly by the ward health development committee, the catchment facility manager (that is, the in-charge of the health facility), the LGA Health Team and other stakeholders working at the community level such as ACOMIN. Monitoring includes routine tracking of program activities, including commodity use and replenishment of stocks. It also involves ensuring that VVHWs are providing services at their respective communities in line with program guidelines and checklists, and that reports are properly and regularly submitted to the supervising health facility. Data that are submitted by VVHWs are reviewed monthly by the LGA Monitoring and Evaluation Officer. The Facility Manager collates and summarizes the reports from all the VVHWs and submits this to the LGA during the monthly state-level program coordination meeting. Feedback is provided to the VVHWs at their monthly meetings for decision-making to improve program implementation.

The Department of Planning, Research and Statistics designed and rolled out the Community Health Management and Information System (CHMIS) as a national dashboard for capturing and reporting community service statistics. The new CHIPS program has a different national dashboard managed by NPHCDA called the National Instance for Community Health Management and Information System to capture service statistics from the CHIPS Agents. The term “Instance” is used to describe how Nigeria has modified the District Health Information Software 2 (DHIS2) for its own purposes. DHIS2 is the world’s largest health information system,²⁰ which has been adapted for use in Nigeria. The difference between the two is that the CHMIS captures aggregate data while the Nigeria’s National Instance of DHIS2 captures individual (as well as aggregate) data regarding services provided to beneficiaries. Whether these two dashboards will be integrated remains to be seen.

Financing

In the case of Nigeria, the Government of Nigeria has committed to pay the CHIPS Agents a monthly stipend, as authorized in the National Health Act of 2015. However, the funds to strengthen in PHC system, including the funding for the CHIPS Agents, were not may available until 2018. Funds are disbursed directly from the Central Bank of Nigeria to each of the PHC centers listed for the support in each state. Each of the PHC centers receives a quarterly allocation of 301,000 Nigeria Naira (US\$ 836). This direct transfer of funds bypasses the current tampering of funds by the State and Local Government Authorities. As a result, Nigeria is now able to overcome one of the major challenges faced by many CHW programs throughout the world, namely the provision of long-term adequate funding once donor funds run out.²¹ Thus, issues of sustainability, ownership and scalability have been addressed.²¹

However, to be able to access these funds, each state in Nigeria is required to meet certain criteria. One criterion is that each state should establish a State Primary Health Care Development Agency. The agency must be independent of the State Ministry of Health (SMOH), the local government commission, and other

authorities. The State Primary Health Care Development Agency should be responsible for hiring, firing, posting and transferring service providers within the PHC system, who are mostly CHEWs. Under the BHCPF, each PHC center should open a bank account to be managed by the facility manager and chair of the ward development committee. The account receives funds from the Central Bank of Nigeria every quarter to cover operational costs.

Impact

Too many women and children in Nigeria still die from readily preventable diseases and health conditions. The efforts of the CHWs have been to increase access to much-needed lifesaving medicines, interventions and treatments that can prevent deaths in women and children. However, there are very few published studies that assess the impact of CHWs. Nonetheless, limited evidence from low- and middle-income countries suggests that CHWs have made substantial contributions to the improvement of maternal and child health interventions.²² In Nigeria specifically, CHWs have improved access to evidence-based interventions. In one study, Okeibunor *et al.*²³ showed that the percentage of pregnant women living in villages with volunteer CDDs who took two doses of an antimalarial medication (sulphadoxine pyrimethamine) was 35 percentage points greater than among pregnant women living in an area without CDDs. Similarly, the use of long-lasting insecticide-treated bed nets among pregnant women in the area with CDDs was 16 percentage points greater than among pregnant women in the control area.

In another study on integrated maternal, newborn and child health programs in Northern Nigeria, Findley and colleagues²⁴ provided evidence indicating that the use of CHWs led to increased population coverage of evidence-based interventions for improving maternal and child health and also reduced infant and under-five mortality relative to a comparison group.

CHEWs have also made important contributions to the Nigerian health sector. Uzundu *et al.* (2015)²⁵ reported that deployment of CHEWs to rural communities in a community-based maternal, newborn and child health program resulted in a significant and sustained increase in the utilization of antenatal care and facility-based delivery services.²⁵

The Onchocerciasis Control Program provides a useful example of the coverage and impact of community-based efforts. Concerning coverage of community efforts, the Nigeria Onchocerciasis Elimination Plan of 2017 noted that community-directed treatment led to a dramatic increase in the number of people receiving treatment in Nigeria – from six million in 1996 to more than 45 million in 2017,²⁶ as well as a dramatic decline in the prevalence of blindness.²⁷

Challenges

There is a need for harmonization of the scopes of work for all cadres of the CHWs using the task shifting and task sharing policy for essential health care services in Nigeria as a framework. This would include the standardization of training curricula and learning resource packages, the monitoring of performance standards and criteria for selection, and the provision of remuneration for all CHWs (including VVHWs). Though much of this has been done in principle, full implementation remains a challenge. Part of this challenge is the weak relationship between the NPHCDA and the FMOH at the national level and between the State Primary Health Care Development Agency and the SMOH at the state level concerning the regulation of the activities of CHWs.

The provision of in-service obstetrical training for CHEWs in Modified Life-Saving Skills (MLSS) that will prepare them to assume their newly assigned midwifery and family planning responsibilities still remains suboptimal. There is a need to accelerate the training of CHEWs in other areas to enable them to provide other essential services to the population that needs them. Similarly, in-service training for tutors and preceptors in the colleges of health technology will improve their ability to implement the newly revised curricula and learning resource packages. Finally, there is a need to review and update the CHEWs Standing Orders. Revised Standing Orders will help to improve the work of the CHEWs as the frontline health care workers in the PHC centers.

Major challenges remain concerning the implementation of CHW programs in Nigeria, mostly regarding overcoming the lack of harmonization and coordination of the scope of work and activities of the general cadre of VVHWs which still contains a variety of different types with different criteria for selection and compensation depending on the program that supports them. In addition, the implementation of the task shifting and sharing policy is fragmented and poorly coordinated. There is no mechanism put in place to supervise and evaluate the activities of the VVHWs. There is a lack of synergy between the NPHCDA, the State Primary Health Care Development Agency, and the LGA concerning the regulation of VVHWs.

The tutors and preceptors responsible for pre-service training of the CHEWs-in-training in the colleges of health technology throughout the country have not received any orientation on the 2015 revised curricula and learning resource packages. There is a need for institutional capacity building in the Department of Community Health in the NPHCDA, the State Primary Health Care Development Agency and the LGA for coordination, training, and supportive supervision and mentoring of all CHWs.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are as follows: Left: CHW administering anti-malaria medicine to a pregnant woman in Ohaukwu community in Ebonyi State, Nigeria. Photo credit: Dr. Bright Orji (2019). Right: A Community Health Extension Worker (CHEW) provides prenatal care. Credit: UNICEF.

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Pakistan's Lady Health Worker Program



Zohra S. Lassi¹, Zulfiqar Kahn², and Rose Zulliger³



¹ Zohra Lassi, NHMRC ECR Fellow at the Robinson Research Institute of the University of Adelaide, Australia

² Zulfiqar Khan, Coordinator (Health System Strengthening), WHO, Pakistan

³ Rose Zulliger, contribution to this chapter was made while she was a student at the Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

One-page summary

Background

The Lady Health Worker Program (LHW-P) was launched in 1994 as part of national strategy to promote health and reduce poverty by bridging the gap between health services and communities. The LHW-P seeks to provide high-quality integrated health services at the doorsteps of communities.

Implementation

Approximately 100,000 LHWs are deployed throughout all five provinces of Pakistan. These workers are attached to a local health facility, but they are primarily community based, working from their homes.

Roles/responsibilities

The scope of services provided by LHWs has grown from an initial focus on maternal and child health to include participation in health campaigns of all types, community management of TB, and health education about HIV/AIDS. Each LHW has, on average, a catchment area of 1,000 individuals. LHWs visit an average of 27 households a week, providing advice and conducting consultations with an average of 22 individuals each week. LHWs also act as a link between the formal health system and the community.

Training

LHWs are initially trained in two phases for a total of 15 months. The first phase consists of three months of classroom training and the second phase is on-the-job training for 12 months. This should include three weeks of field work followed by 1 week of training per month for a period of 12 months as well as 15 days of refresher training each year, although there is substantial variation in training patterns across provinces. After finishing their formal training for 15 months, each LHW receives ongoing training during her tenure. This consists of attending the PHC center one day a month for a refresher course.

Supervision

Supervision is highly organized and multi-tiered. LHWs are each attached to a public health clinic and are supervised by an LHW Supervisor. One LHW Supervisor is responsible for supervising 25 LHWs. LHWs should have community-based supervision at least once a month, at which time the LHW Supervisor meets with clients and with the LHW, reviews the LHW's work using a structured monitoring checklist, and makes a work plan for the next month.

Incentives and remuneration

LHWs receive a salary of about US\$ 180 per month. They are not supposed to engage in any other paid activity, although some do. The LHW stipend is a critical source of family support.

Impact

Pakistan has lagged behind in its achievement of the Millennium Development Goals. Although the LHW-P has many positive aspects, the number of LHWs is still not sufficient to provide adequate coverage of services nationally. Thus, expansion of the program and continued efforts at program strengthening are required to achieve a stronger impact.

Historical context

Pakistan's support for primary health care (PHC) dates back to the country's signing of the 1978 Declaration of Alma-Ata.¹ In 1990, the government of Pakistan began planning a Lady Health Worker Program (LHW-P) which in 1993 became the Prime Minister's Program for Family Planning and Primary Health Care.^{2,3} It was formally launched in 1994 as a Federal Development Program and started employing community health workers (CHWs) who were subsequently named Lady Health Workers (LHWs). Their job was to provide PHC services in their communities. The goal of the program was to reach rural areas and urban slums with a set of essential family planning and PHC services, including promotive, preventive, and curative services; to improve patient-provider interactions; to facilitate timely access to services; to increase contraceptive uptake; and, ultimately, to reduce poverty.^{1,4,5} In the year 2000, the program was officially renamed the National Program for Family Planning and Primary Health Care, but it is still commonly called the LHW-P.³

The LHW-P has evolved over time. The scope of services provided by LHWs has grown considerably from an initial focus on family planning and PHC to now include participation in large health campaigns, newborn care, community management of TB, and health education on HIV/AIDS. LHW activities have also been advertised in a series of mass media campaigns that promote community uptake of and respect for LHW services.⁶ In 2005, Pakistan achieved its target of deploying 100,000 LHWs as outlined in the 2003–2011 Strategic Plan.⁷ In the 2016–2025 National Health Policy, the government has acknowledged the importance of the LHW's role in referring women for institutional deliveries for increasing access to better skilled birth attendance.⁸

Health needs

Although Pakistan has made some health improvements over the past few decades, these have been very modest compared to the targets set for Millennium Development Goals (which were to be achieved in 2015) and the health-related Sustainable Development Goals (to be achieved in 2030).⁹ The mortality of children younger than five years of age declined from 112 deaths per 1,000 live births in 1990–91 to 74 per 1,000 live births in 2017–18¹⁰; and maternal mortality declined from 533 per 100,000 live births in 1990–91 to 276 per 100,000 live births in 2012–13. In 2017–18, maternal mortality declined further by 2.2%.^{10,11}

Still Pakistan is far from reaching internationally set targets. Recent population surveys in Pakistan indicate that over 95% of men and women have knowledge of contraception.¹⁰ However, the rates of unintended births remains higher than in many other Asian countries (93 per 1,000 women aged 15–49 years) and the average family size is still greater than the desired size.¹² Although the contraceptive prevalence rate has increased from 12% in 1990 to 35% in 2018¹⁰, there remains a significant unmet need for family planning (defined as the percentage of married women of reproductive age who do not desire a child during the next two years who are not using a modern contraceptive method of family planning), estimated to be 17% in 2017–18.¹⁰ Government-run maternal and child health facilities currently offer affordable family planning services in many regions across Pakistan. However, such services are underutilized, particularly by those residing in rural areas and those with no education. Health care access in Pakistan is further restricted by Pakistan's patriarchal society, in which men are the primary authority figures and women are subordinate. Social and cultural norms still limit women's mobility outside of the home without an escort.¹³

In 2016, non-communicable diseases such as ischemic heart disease, cerebrovascular disease, chronic obstructed lung disease and diabetes ranked among the top 10 causes of death in Pakistan. However, dietary iron deficiency is the top leading cause of disability in Pakistan, followed by headache disorders.¹⁴

Health system structure

There are three tiers of governance in the Pakistani public health system: federal, provincial, and district. The federal government historically was responsible for broader policies, planning, and budgeting as well as the

health management information system. However, in June 2011, the Federal Ministry of Health was dissolved and responsibility for health services policy and planning was delegated directly to the provinces.⁴

Provinces are responsible for LHW selection, training, and performance. The district level is responsible for recruitment and supervision of LHWs. All tiers of the public health system are involved with the LHW-P, and LHWs are integral to service delivery of most community health initiatives in the country.⁹

Pakistan spends on health only 0.45% of its gross domestic product. According to World Bank, currently Pakistan's per capita health spending is US\$ 36 which is far below the WHO benchmark of US\$ 86 for low-income countries. Most PHC services are free for the public, but the private sector is playing a vital role in the health care services delivery, especially for the higher-income groups.⁵ Most private hospitals, clinics and other private health-related facilities are in the urban areas and are well-equipped with the most current diagnostic and treatment capabilities.¹⁵ Therefore, the demand for private health care is greater than that for public health care, and out-of-pocket expenditures are high.

The overall number of physicians in Pakistan increased from 70,692 in 1995 to 169,696 in 2018¹⁵, and the number of registered nurses increased from 77,683 in 2011 to 94,766 in 2016.¹⁵ Despite this growth, Pakistan still faces serious workforce challenges, most notably a geographic maldistribution with a much greater supply in urban than in rural areas and a marked shortage of health professionals in rural areas, poor management of the health workforce system, and a massive “brain drain” of skilled health workers to affluent countries.¹³

CHW program features

LHWs are deployed to all five provinces of Pakistan.¹⁶ These workers are attached to a local health facility, but they are primarily community-based, working from their homes. The homes of LHWs are called health houses, where services are provided.¹ An LHW is responsible for approximately 1,000 people in her catchment area, with priority given to couples of reproductive age and children younger than five years. There are a total of approximately 100,000 LHWs at present,

An external evaluation of the LHW-P was carried out in 2008 and reported the following in 2009:²

- All LHWs had received three months of full-time basic training and 96% had received at least one refresher training
- LHWs visited an average of 27 households each week
- LHWs provided advice and conducted consultations with an average of 22 individuals each week
- 85% of households reported that they had been visited by an LHW in the previous three months
- 80% of LHWs reported that they worked more than five days a week
- LHWs worked an average of five hours a day
- 11% of LHWs received a lower salary than the LHW-P had promised

The LHW-P offers professional advancement opportunities for LHWs. LHWs who complete additional training can become a Lady Health Worker Supervisor or a Field Program Officer (FPO).³

LHWs have a broad scope of work that includes 22 different tasks.¹ These include promotion of use of contraceptives, provision of family planning services (distribution of oral contraceptives and condoms and provision of injectable contraceptives), antenatal care (in collaboration with traditional and formally trained birth attendants), treatment of illnesses (such as diarrhea, malaria, acute respiratory tract infection, and

⁴ Officially, Pakistan has four provinces, one territory, and one capital province. For the purpose of our discussion here, we will refer to all as provinces.

intestinal worms), and referral of community members with more serious illnesses.^{4,5,9} In addition, LHWs are expected to provide directly observed therapy for TB patients, carry out surveillance for cases of polio, and keep comprehensive records for all of their patients.⁴

The most frequent LHW services, as reported by the 2008 survey of clients, were hygiene promotion, vaccination promotion, and promotion and provision of family planning services.² Households also reported that they consulted with an LHW for medical problems, and they also supported LHW as she mobilized the community to participate in health campaigns such as those for polio.⁸

A 2000 evaluation estimated that 150,000 LHWs were needed to obtain optimal coverage in the country.⁴ This led to a strategic plan in 2003 to have 100,000 functioning LHWs by 2005. This goal has only recently been achieved. Although the expansion of the program from 2000 to 2008 increased LHW coverage in more rural and poorer areas, the program is still struggling to reach the most disadvantaged areas. Coverage rates have, however, improved.² In 2006, the LHW-P covered 60% to 70% of rural Pakistanis.^{4,5}

Scope of work

The primary role of LHW is to provide basic health services to the communities in her catchment area. She also arranges community groups and meetings to involve the community in community development activities and work. They also integrate with the formal health system and ensure coordinated outreach health activities. However, their basic activities include³:

- Register all family members in the catchment areas and maintain regular record of the population assigned to her
- Visit 5-7 households every working day and ensure re-visit every two months
- Keep a close liaison with community leaders, elders, and lay health workers such as *Dai* - traditional birth attendants
- Provide condoms, oral contraceptive pills to eligible couples and provide their proper use and possible side-effects; also refer clients needing IUD insertions and other surgical methods
- Coordinate with local TBAs/midwives or other skilled birth attendants and local health facilities for appropriate antenatal, natal and postnatal services
- Undertake nutritional interventions such as anemia control, growth monitoring, assessing common risk factors causing malnutrition and nutritional counseling
- Treat iron deficiency anemia among all women especially pregnant and lactating mothers as well as anemic young children
- Promote nutritional education with emphasis on breast-feeding and weaning practices, maternal nutrition and macronutrient malnutrition
- Coordinate with the Expanded Program for Immunizations (EPI) for vaccinating mothers against tetanus and children against six preventable diseases, and participate in various campaigns for vaccination against EPI target diseases
- Participate in disease surveillance activities
- Carry out prevention and treatment of common ailments e.g. malaria, diarrhea diseases, acute respiratory infections, TB, intestinal parasites, primary eye care, scabies, snake bites, injuries and other minor diseases using essential drugs, and refer cases to nearest centers as per given guidelines
- Participate in TB and malaria control programs

- Disseminate health education messages on individual and community hygiene and sanitation as well as information regarding preventive measures against the spread of AIDS
- Submit monthly progress report to the in-charge of the PHC center containing information regarding all activities including the home visits, number of family planning acceptors by methods and stock position of contraceptives and medicines

Selection and training

LHWs are women who have a minimum of eight years of education. This requirement has been a challenge in some areas where there are no or few women with this level of education.³ They also must be between 18 and 50 years old; reside in, be accepted by, and be recommended by the communities they serve; and preferably be married. LHWs must also be willing to work from their homes. Preference is given to women who have experience in community development.^{2,3} Of LHWs included in a 2008 external evaluation of the program, 66% were younger than 35 years of age, 97% resided in the community where they worked, 66% were currently married, and the average education level was 9.9 years of schooling.²

LHWs are selected using a clearly delineated process. LHW posts are advertised; applicants are then interviewed and selected based on the above criteria by a selection committee. The committee is expected to comprise the following members: a medical-officer/in-charge who is the chairman, a female Medical Officer, a Lady Health Visitor (who is a female medical technician), a Dispenser (a male technician), and a community member. They also must be recommended by the councilor, who is a local elected official, and provide a written affidavit that they will perform their duties for at least one year after the completion of their training.³ The selected LHW is then formally appointed by the District Health Officer.³ LHWs are then initially employed for one year, although many continue the work long after the first year.⁵

LHWs receive three months of classroom training in PHC and then have one year of on-the-job training. This should include one week of training per month for a period of 12 months, followed by 15 days of refresher training each year, although there is substantial variation in training patterns across provinces.³ The Federal Project Implementation Unit is responsible for approval of all LHW training and, with the FMOH, develops the training curriculum, organizes and coordinates training, and trains master trainers. Provincial and District Project Implementation Units are responsible for the local trainings.² Although there are paths for career advancement, there is no pension program for LHWs.³

The fourth external programmatic review reported in 2009 that 100% of the LHWs had attended the initial training and 96% had some kind of refresher training in 2008. Eighty percent of LHWs had attended training on child health in the previous year. Seventy-two percent had obtained training on counseling cards, 70% on optimal birth spacing intervals, and 62% on injectable contraceptives during 2008. Eighty-eight percent reported receiving training by male medical doctors and 67% reported receiving training by Lady Health Visitors. Eighty-two percent of LHWs had at least one female trainer.²

Recently, training has focused more on counseling skills and competency, although challenges persist. LHW knowledge increased between the third and fourth external programmatic evaluations, but according to the findings of the 2008 survey, there were very low levels of knowledge on certain subjects. For example, only 9% of LHWs stated the correct dosage of chloroquine for children despite having access to manuals and medicine boxes, and only 50% could determine the appropriate weight of a child from a standard-growth monitoring card.²

Additionally, some LHWs felt they had insufficient communication skills, particularly for addressing difficult topics such as communication with men on family planning, establishment of village health committees, and discussion of sexually transmitted infections. These LHWs felt they needed additional training through role plays as well as additional educational materials for communicating with and educating patients.⁶

Support and supervision

Supervision is highly organized and tiered in the LHW-P. LHWs are each attached to a public health clinic and are supervised on a monthly basis by an LHW Supervisor.³ LHW Supervisors, in turn, are supervised by the LHW-P District Coordinator or Assistant District Coordinator. LHWs should have supervision take place in the community at least once a month, at which time LHW Supervisors meet with clients and with the LHWs, review the LHWs' work using a standardized designed checklist, and make a work plan for the next month.²

A 2009 evaluation of the LHW-P found that 80% of LHWs had met with their supervisor during the previous month.² Ninety percent of supervision events occurred in the village, and in 59% of these cases, the supervisor met with clients of the LHW. Ninety-one percent of LHWs also reported that they had attended meetings in the health facility within the previous 30 days, and 98% reported that they had produced a work plan for the previous month. Supervisors frequently used checklists during the meetings and scored LHW performance, although often LHWs were not told their score.²

This same evaluation also assessed the characteristics and knowledge of the LHW Supervisor. LHW Supervisors are required to have completed the 12th grade, but 66% had completed an even higher level of education. The LHW Supervisors are, on average, 32.5 years old; 69% are currently married. They receive three months of full-time basic training at the District Health Office, followed by one week per month of classes for the next nine months. According to the evaluation, 100% of LHW Supervisors had attended the three-month training and 79% had received at least some additional training. They generally had high levels of knowledge, although on a few subjects, their level of knowledge was quite low. LHW Supervisors were each responsible for 23 LHWs on average. Sixty percent had full-time access to a vehicle, although not all receive their allowance for petrol, oil, and lubricants.²

LHW performance is monitored by Provincial and District Coordinators, and the LHW-P also has its own monitoring system.⁴ The Monitoring Information System is the monitoring system implemented by the LHW-P using standardized monthly reports.² LHWs keep comprehensive health records on their community and track individual care and community health indicators. This information is consolidated in monthly reports, and data are presented by managers and inspectors at regular meetings held at all levels to assess programmatic performance and to facilitate discussion of possible resolutions to identified barriers hindering successful program implementation.²

A 2006 rapid assessment of the monitoring system by the World Bank found that there were substantial issues with the system, including irregular and inappropriate quality checks, inaccuracies in the aggregation of LHW reports, and poor understanding and analysis of the data. The 2008 external review found that key indicators such as annual recruitment of LHWs were not collected, internal inconsistencies in the data persisted, and there was little demand for quality information from program managers. The review did find that progress had been made in monthly reporting.²

Community role

There is a community representative, usually a Councilor, who is a locally elected official (also call a Council Nazim/counselor) on each LHW selection committee and on each LHW Supervisor selection committee. The community is also involved in programmatic decision-making, planning, as well as monitoring and evaluation. LHWs are expected to link the community to formal health services and to be members of the community where they work. LHWs also liaise with local traditional birth attendants, skilled birth attendants, and community midwives; the LHWs link them to the formal health facility system. LHWs also provide a range of community development services and participate in community meetings.³ LHWs are expected to establish a village health committee, which has two parts: a women's health committee and a men's health committee.

Incentives and remuneration

LHWs receive a salary of approximately US\$ 180 per month and are not supposed to engage in any other paid activity, although some do.² The LHW stipend is often the only source of family income and is a critical source of family support. Salaries are paid monthly into the LHWs' personal bank accounts, but delays in LHW remuneration are common. Additionally, 9% of patients reported that they paid their LHW for services, which are supposed to be free.²

LHWs are paid a small amount of money during the initial training for the first three months followed by almost half of the regular salary per month. LHWs monthly salary is Rs. 27,881 (approximately US\$ 180). Another incentive they receive is in the form of money that they earn after selling contraceptives to their clients.

Professional advancement and promotions as incentive are also offered to LHWs to learn new skills to advance their career as a LHW Supervisor on completion of minimum education level (intermediate to become a LHW Supervisor) and experience (one year of work experience as an LHW to become a LHW Supervisory and two years of work experience as a LHW Supervisor to become an FPO) required to reach the next level. Hence, advancement is intended to reward good performance or achievement.³

Linkages with the formal health system

One of the key roles of LHWs is referral of patients to the appropriate health facility. LHWs refer sick patients to the PHC center for treatment, and they refer pregnant women to the PHC center for antenatal, safe delivery and postnatal care. LHWs also liaise with TBAs and other skilled birth attendants including midwives.³

Program scale-up

In 2005, the LHW-P achieved its goal of deploying 100,000 LHWs. However, the LHW-P still does not reach 30-40% of the population, mostly in rural, hard-to-reach areas.^{4,5}

Monitoring and data use

The LHW-P has developed pathways and instruments to collect the health status of the communities. Collected data are fed into computers and used by district, provincial, and federal units for proper compilation and analysis for preparation of monthly, quarterly and annual reports. The federal, provincial and district units are linked through WAN or e-mail for timely and efficient transfer of data. LHW MIS system has been in place for proper management of information. LHWs use the following tools for data collection:³

1. Map of community
2. Family (*Khandan*) register
3. Community chart
4. Register and diary to record treatment and family planning activities
5. Mother and child health card
6. Referral slips
7. Monthly report of LHW

Financing

Although the LHW-P has a clear understanding on how it should be funded, it is nonetheless facing financial difficulties. The Government of Pakistan is the largest funder of the LHW-P, but the program has been underfunded since its inception. The LHW-P cost US\$ 155 million in its first eight years (through 2003) and

was largely supported by government funding, with only 11% provided by external donors. In 2004, US\$ 356.6 million was approved for extension of the program from 2003 to 2008. Overall, the program spent approximately US\$ 570 per LHW per year between 2003 and 2008.⁵

Approximately 70% of LHW-P costs are for LHW stipends, drugs, and contraceptives; and additional 4% are for training.² LHW salary costs increased 31% between 2003 and 2008, leading to a reduction in other expenditures, especially for LHW kit supplies.² Other estimates indicate that the cost per LHW (including her salary, supplies, training, supervision, and administration) is approximately US\$ 745 per year (or US\$ 0.75 per person served per year).⁵

Impact

The LHW-P has undergone four external evaluations since its inception, most recently in 2008. The 2008 evaluation included a nationally representative survey of 554 LHWs. There was also a survey of 5,752 households with varying levels of exposure to LHWs (ranging from unexposed households to those that had extensive exposure to LHWs) and extensive qualitative interviews with LHW-P Supervisors and Managers, medical staff, and community groups. The evaluation found that overall LHW performance, defined as the percentage of households who received services from LHWs, improved between 2000 and 2008. Coverage was similar in rural and urban areas. Higher LHW performance was found to be associated with LHW experience, and time spend with community.² Ninety percent of community members surveyed indicated that they considered their LHW had made health improvements in their community.²

The 2008 evaluation assessed improvements in health indicators and found improvements in tetanus toxoid coverage, percentage of deliveries attended, percentage of children fully immunized, awareness in mothers of how to prepare oral rehydration solution (for diarrhea), and level of exclusive breastfeeding. There were, however, some negative trends from 2000 to 2008, such as decreases in maternal knowledge of how to prevent diarrhea and a persistently low prevalence (less than 10%) of certain important health-related behaviors such as purifying water prior to drinking it.²

The LHW-P is widely accepted, and the LHWs have proven adept at taking on additional tasks.¹ The population served by LHWs had substantially better health than the population without LHWs, including an 11% increased likelihood of using modern family planning and a 15% increase in immunization coverage among children younger than three years of age.² The effect of LHW services was generally greatest in the poorest households. The program has, however, had little impact on skilled attendance at delivery, growth monitoring, and incidence of diarrhea and respiratory infections in children.²

The positive effect of LHW services has also been demonstrated in smaller, intervention studies. In 2008 and in 2011, Bhutta and colleagues assessed the feasibility of a package of perinatal health care interventions delivered by LHWs and TBAs.^{17,18} These researchers found that the villages where LHWs and TBAs were linked and received a brief training on newborn care and service delivery had significant reductions in the number of stillbirths and in the neonatal mortality rate. A different study of the impact of the LHW-P on contraceptive use found that women in LHW-P service areas were 50% more likely to use modern reversible contraceptives than those who lived in areas without LHW services.¹³ Another study also showed a feasibility of administering vitamin A supplementation to neonates by LHWs.¹⁹

Challenges

Some of the challenges the LHW-P is facing are underfunding and, in some geographic areas, a shortage of LHWs. Up to 40% of the population is still not covered by the LHW-P.⁴ Other challenges include low-quality LHW training, poor supervision, inadequate supply systems (especially for drugs and contraceptives), and lack of timely payment of LHW salaries. Broader health system challenges include shortages and maldistribution of human resources for health, weak management, absence of quality-control systems, and a lack of coordination across health workforce stakeholders.¹ Although there is a multi-tiered supervision system in place, a recent *Nigraan* Project (which focused on improving structured supportive supervision of LHWs that explored the perspectives of LHWs and LHW Supervisors regarding supervision of LHWs) identified several

gaps in knowledge and skills that have hindered LHWs from providing quality care and therefore suggested supportive feedback from LHW Supervisors which has been lacking.²⁰

There has also been dissatisfaction among LHWs, which has led some to organize and demand additional benefits. LHWs also have become resistant to participating in intermittent campaigns—such as the polio eradication campaigns—because they had become vulnerable to violence.²⁰ There is evidence that LHWs had been abducted and beaten when they were participating in a 2007 vaccination campaign. LHW boycotts of a 2010 campaign led to a subsequent Supreme Court order for a higher salary (double the previous level, from PKR 3,500 to PKR. 7,000 per month).⁹ More recently, in 2017, LHWs boycotted their participation in a polio campaign because they had not been paid during the previous five months.²¹

There are concerns that the expansion in LHW responsibilities has increased their job-related stress.⁶

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are as follows: Left: At a Basic Health Unit in Punjab province, Pakistan, 23-year-old Tahira Rashid receives counseling from Dr. Fauzia Amin, a female medical officer. © 2012 Derek Brown for USAID, Courtesy of Photoshare.

Middle: A health worker attends to an infant at a free medical camp in a flood-affected area of Larkana district, Sindh, Pakistan. © 2010 Population Welfare Department Sindh, Courtesy of Photoshare. Right:

Women attend a free IUD and medical camp at Udani village in Sindh, Pakistan. © 2009 Population Welfare Department Sindh, Courtesy of Photoshare.

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Rwanda's Community Health Worker Program



Harriet Napier¹, Catherine Mugeni², and Lauren Crigler³



¹ Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

² Ministry of Health, Kigali, Rwanda

³ Crigler Global Consulting, LLC, Durham, NC, USA

One-page summary

Background

Rwanda's renowned national community health worker program was launched in 1995, shortly after the culmination of the Tutsi genocide. When the CHW program was introduced, the country's social fabric was particularly unstable, health infrastructure destroyed, and the reality of recent economic and productivity losses grim.

Implementation

The program began in 1995 with a network of 12,000 CHWs endorsed by the MOH. Rwanda has three CHWs (one *Animatrice de Santé Maternelle* [ASM] and one male-female pair of CHWs called a *Binôme*) per village of approximately 50 to 150 households. These CHWs focused primarily on health promotion and referral activities. In the decade that followed, the CHW program grew to 60,000 CHWs, before dropping to 45,000 following the elimination of the CHW In Charge of Social Affairs position.

Roles/responsibilities

The ASM identifies pregnant women, makes regular follow-up visits during and after pregnancy, and ensures that deliveries take place in health facilities in which skilled health workers are available. *Binômes* focus their activities on diagnosis and treatment of childhood illnesses, diagnosis and treatment of malaria for people of all ages, malnutrition screening and referral, provision of contraceptives, and TB treatment.

Training

Although Rwanda's Community Health Policy and Strategy states that CHWs should be appropriately trained in a standardized fashion, neither initial nor refresher trainings of either CHW cadre are standardized, and both are highly susceptible to change in duration and content based on available funding. On average, CHWs have approximately three months of initial training.

Supervision

CHWs are supervised directly by the Health center with the support of Volunteer Cell Coordinators.

Incentives and remuneration

Although CHWs in Rwanda are considered volunteers, they are incentivized through two methods of Community Performance Based Financing (C-PBF): the first is based on CHW cooperative-level achievement of specified targets, and the second (more recently introduced) on individual event-based reporting through a RapidSMS program for cell phones. Anecdotally, CHWs take home around US\$ 5-10 on a quarterly basis.

Impact

Rwanda's success in meeting many of the Millennium Development Goals (MDGs) for health – some far ahead of schedule—is important evidence of the strength of the country's primary health care system. There is consensus internally (as well as externally) that Rwanda could not have achieved the MDGs for maternal and child health three years early without the support of the CHWs.

Historical context

Rwanda is a landlocked, mountainous, densely populated country in East Africa with a population of approximately 11.9 million,¹ of which 71% is rural.¹ Rwanda launched its national community health worker (CHW) program with a network of 12,000 CHWs in 1995, shortly after the culmination of the devastating Tutsi genocide that took nearly one million lives and displaced another three million people.² At the time that the CHW program was initiated, the country's social fabric was particularly unstable, and the reality of the recent economic and productivity losses was grim. The health infrastructure had been destroyed, and the country faced a dire shortage of human resources for health.³

Rwanda's CHW program was not the only community-based, pro-equity program introduced in the process of rebuilding after the genocide; complementary supportive health and social welfare programs such as mutual health insurance (launched in 1996) were initiated in parallel. Also in 1996, Rwanda commenced a forced resettlement program, constructing over 300,000 homes in communal villages; this project helped to successfully resettle the majority of Rwandans who had fled the country during the genocide.⁴ With widespread domestic and international attention, the country's economy recovered at an impressive speed and quickly became one of the fastest growing economies on the African continent, achieving an average annual growth of its gross domestic product of 8% between 2001 and 2015.² The country also made remarkable progress in maternal and child health, malaria, undernutrition, and other key areas.

The CHW program certainly contributed to this progress. In addition, Rwanda's Community-Based Health Insurance (CBHI), the *Umurenge* Program, was launched in 2008 to contribute to poverty eradication, development, and social protection. It includes three relevant programs: *Ubudebe* (which provides direct support to the poorest households), *Girinka* (which distributes livestock such as cows to eligible families) and the Crop Intensification Program (which focuses on key inputs such as seeds, fertilizers, land consolidation, extension services, and post-harvest handling and storage of agricultural produce).² These programs were developed with the intent to stimulate community development from the grassroots, and were accompanied by more than a doubling of overall government health expenditure between 2005 and 2015.⁵

At the time of the national CHW program's inception, supporting documents such as policies, strategies, and operational guidelines were not fashioned in unison.⁶ The country's Community Health Policy, for example, was not issued until 2008. Despite a relatively frail methodological scaffolding, Rwanda's CHW model has evolved into a renowned program, recognized for its contributions in mobilizing communities; responding to the country's shortage of human resources for health; increasing coverage of essential healthcare; and achieving what are, in many ways, unmatched health gains over the past decade.

Health needs

Lower respiratory infections, neonatal disorders, and TB caused the greatest number of deaths in Rwanda in 2017.⁷ Still, as compared to ten years prior, lower respiratory infections and TB caused approximately 25% fewer deaths. Deaths due to neonatal disorders decreased as well, by a smaller percentage (15%). The most stark increase in preventable mortality was due to malaria, which between 2007 and 2017 rose in the charts from the 13th to the 6th leading cause of death.⁷ The majority of deaths are due to communicable, maternal, perinatal and nutritional conditions while non-communicable diseases account for 36% of mortality.⁷

Health system structure

Per the Rwanda Constitution, all citizens have the right to health care, including promotional, preventive, curative and rehabilitative services. In 2017, 79% of Rwandan households had at least one individual covered by health insurance, a percentage that had stayed relatively constant for seven years.⁸ Health care is provided at central, intermediary and peripheral levels through four national referral hospitals, 48 district hospitals, and over 400 health centers. Health posts, and CHWs, exist below the health-center level. The country has been widely applauded for being "ahead of the game" in areas of health and development. However, approximately 46% of the country's total health expenditure is sourced from external donors.⁹ Total per capita expenditure on health in 2016 was only US\$ 52.¹ Although the use of private facilities has increased in recent years, the majority of the

population seeks and receives care through the public sector, with only 15% of health facilities managed by NGOs and faith-based organizations.¹⁰ 41% of the total population is younger than 15 years of age.¹

CHW program features

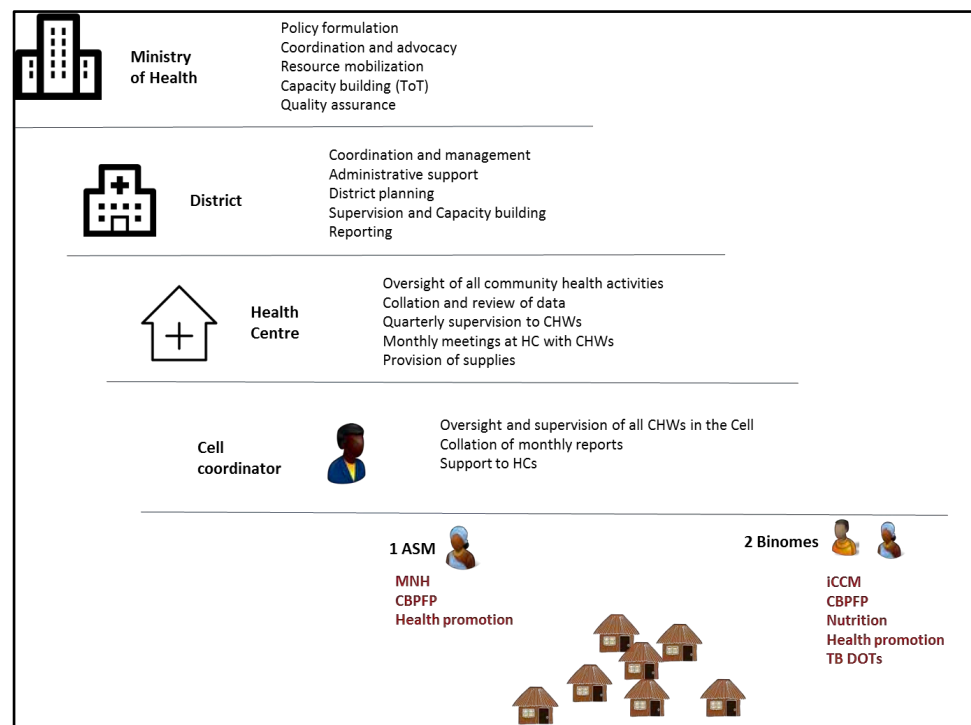
Rwanda has an unusually high density of CHWs with, on average, one CHW for every 200 people.¹¹ In a comparison of the 10 best performing “Countdown Countries” (with mortality in 1990) in terms of progress in reducing under-five mortality, Rwanda’s CHW-to-population ratio was the highest: over twice that of the next highest, Uganda (one CHW for every 455 people).¹¹

As shown in Figure 1, the current structure of Rwanda’s CHW program calls for three CHWs per village (with approximately 50 to 150 households): one *Animatrice de Santé Maternelle* [ASM] and one male-female pair of CHWs called *Binôme*.¹² Villages are grouped into cells, of which there are approximately 2,200 in the country, each with a population of 5,000-6,000 people. Each cell is headed by two volunteer Cell Coordinators. These are senior CHWs who oversee and supervise all of the CHWs in that cell, in addition to providing support and a linkage to the health center.⁹

CHW cooperatives

The 45,011 CHWs serve 14,837 villages, and there are 475 CHW cooperatives having on average 31 CHWs per cooperative.⁹ The cooperatives are entities that receive funds for their collective work, and the CHW members can use them for income-generating activities. Each health center – of which there are 438 in total—typically oversees one CHW cooperative.¹² The CHW cooperatives are one of the unique components of Rwanda’s CHW model, as they serve as a system of community-level organization and accountability to the community. They also serve as a platform for both data collection and revenue generation to sustain the CHW program. (CHW cooperatives will be addressed in more detail as part of the Incentives Section below.)

Figure 1. Structure of Rwanda's CHWs and their roles and responsibilities



Source: ⁹

Note: MNH: maternal and neonatal health; CBPFP: community-based promotion of family planning; ICCM: Integrated Community Case Management; TB DOTS: Directly observed treatment (short course) of TB.

Scope of work

The primary components of the CHW's role include Integrated Community Case Management (iCCM) for childhood illness (including pneumonia, diarrhea, malaria and undernutrition), diagnosis and treatment of malaria for those older than five years of age, maternal and neonatal health, family planning, nutrition, health promotion and behavior change communication, non-communicable diseases (NCDs), HIV and TB. All CHW activities are in line with the priorities of the health sector as outlined in Health Sector Strategic Plan III.⁹

A comprehensive evaluation of the program conducted in 2016 found that, on average, a CHW spends 5-8 hours per week on CHW activities, 25 hours per week on income-generating activities outside of the CHW cooperative, and 45 minutes per week on activities related to the CHW cooperative such as farming or running a small shop.^{9,13}

The job responsibilities of the various cadres – as delineated in the country's current National Community Health Strategic Plan – are outlined in Tables 1 and 2.¹² While there was previously a CHW in charge of social affairs, this position no longer exists and is thus excluded from this report. The specifics of the tasks performed by CHWs depends upon the trainings they have received, and this varies from CHW to CHW.

Table 1. CHW responsibilities

Animatrice de Santé Maternelle (ASM)	Binômes
Identify pregnant women and refer them for antenatal, intrapartum, and postpartum care	Provide Integrated Community Case Management (iCCM), including assessment, classification, and treatment or referral of diarrhea, pneumonia, malaria, and malnutrition in children younger than 5 years of age
Conduct follow-up visits to pregnant women to assist with birth preparedness and identify danger signs	Diagnose and treat cases of malaria for those who are older than 5 years of age
Conduct follow-up visits to postnatal women and their newborns	Screen for malnutrition
Screen children for malnutrition	Provide contraceptives
Provide contraceptives	Provide treatment to TB patients (DOTS, or Directly Observed Therapy, Short Course)
Sensitize families on prevention of non-communicable diseases	Sensitize families on prevention of non-communicable diseases
Conduct regular behavior change communication	Conduct regular behavior change communication
Visit all households regularly	Visit all households regularly

Table 2. CHW Supervisor (Cell Coordinator) responsibilities

Work with Local leaders in planning of health activities (immunization, nutrition, hygiene, sensitization of village members on behavior change.)
Collect and compile data in relation to CHWs activities at the cell level
Collect funds obtained from community health activities and delivering it to the health centers
Submit requisitions for health commodities needed by CHWs
Verify reports brought for compilation have been sent by cell phone (RapidSMS)

Selection and training

In order to be eligible to serve as a CHW, a candidate must be between the age of 20 and 50 years, literate, at least a primary school graduate, willing to volunteer, a resident of the village s/he is applying to serve, and exhibit key characteristics including “honesty, reliability, and trustworthiness.”¹² He/she must be elected by the community during the monthly *Umuganda* (community service day) or at a community meeting.¹²

It is relevant to note that many of the current CHWs are “aging out” of the system and need to be replaced. A 2016 evaluation of the CHW program led by the government in collaboration with the Liverpool School of Tropical Medicine (LSTM) notes that one in four CHWs is over the age of fifty years and therefore no longer in accordance with eligibility criteria.⁹

Both *Binômes* and ASMs receive 3–5 days of training on maternal, infant, and young child nutrition, and community information systems and reporting. Both cadres are trained on when and how to refer cases to the health facility. ASMs may additionally receive six days of training on home-based maternal and newborn care, and *Binômes* may receive five days of training in iCCM. Ten days of training in the community-based provision of family planning is also offered to some CHWs.

Starting in 2005, health system decentralization stimulated increased investment in CHWs, particularly in maternal and child health training. iCCM training was provided to *Binômes* between 2008 and 2011.⁹ The introduction of iCCM was followed shortly by the initiation of the Community-Based Nutrition Program (CBNP) in 2009, wherein both cadres of CHWs (*Binômes* and ASMs) were trained and equipped to provide the intervention called Maternal, Infant, and Young Child Nutrition Counseling.⁹ Starting in 2010, ASMs were trained to provide Home-Based Maternal and Newborn Health (HB-MNH) services and, two years later, were equipped with misoprostol tablets for women to take immediately after delivery of the baby but before the placenta has been expelled. Also in 2010, the *Binômes* received training in community-based provision of family planning (CBFP) in line with the inclusion of family planning within the national community health policy.⁹ The provision of family planning by the *Binômes* was piloted in three districts (Gatsibo, Rusizi, and Kicukiro) in 2010 before being scaled up to the entire country by 2015.⁹ Finally, in 2016, diagnosis and treatment of malaria in those above the age of five years was added to the package of services provided by both the ASMs and the *Binômes*.

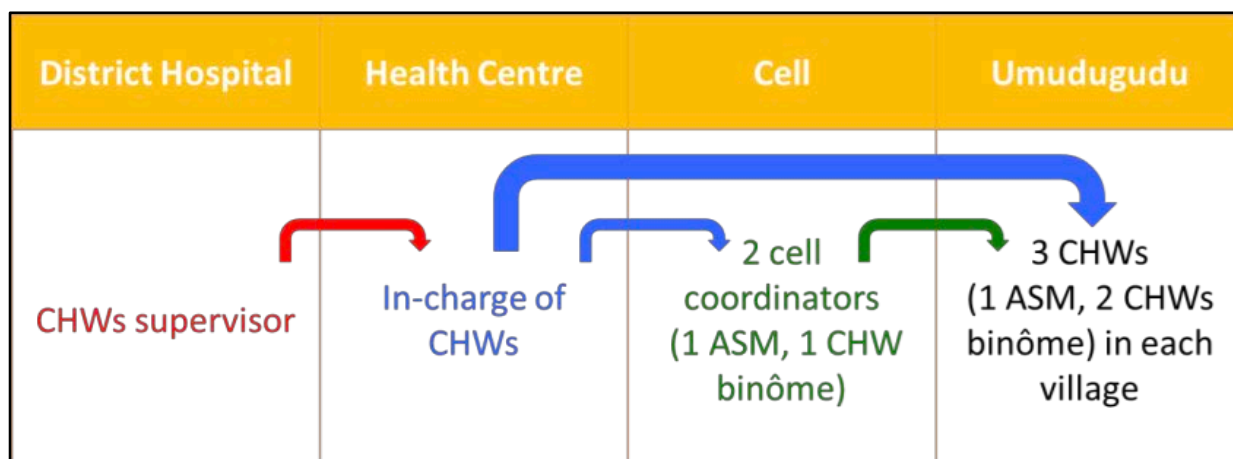
Neither the initial nor the refresher trainings of *Binômes* and ASMs are rigidly standardized. The trainings are highly susceptible to change (in duration and in content) based on availability of funding.⁹ Per the policy, both cadres of CHW are to be trained in nutrition, TB care, and RapidSMS. *Binômes* are to receive cadre-specific training on iCCM and family planning, and ASMs are to receive cadre-specific training on maternal and newborn health.⁹ Across thematic trainings, there is significant variability in terms of length, methodology, and institution in charge of leading the training.^{5,9} Refresher trainings are often provided in unison, and these also include supervisory visits to the community.

Though Rwanda’s CHWs have been largely successful in extending coverage of key interventions to the most dispersed villages, training has been fragmentary and highly dependent upon available funding. The 2016 program evaluation conducted with the LSTM recommended increased capacity building of CHWs to ensure optimal use and quality of these key community-level health actors. On average, CHWs have approximately three months of initial training.

Support and supervision

As seen in Figure 2, CHWs are supervised by two individuals: directly by health center staff and by the Cell Coordinator. Volunteer Cell Coordinators are typically experienced CHWs (often one *Binôme* and one ASM) who are selected to serve in a supervisory role. In this function, they oversee day-to-day programmatic activities, ensuring that CHWs abide by proper data collection processes, and visiting each CHW (ideally once a month). Health center staff who serve as Supervisors do not receive additional pay for their duties as Supervisors, and they are often expected to provide traditional CHW duties in addition to supervisory ones. Their responsibilities as supervisors appear to be significant, particularly as they are responsible for accurate and timely reporting of all CHWs—a component of the work that is taken extremely seriously due to strict audits and the link between reporting and pay.

Figure 2. Supervision structure of CHWs



Source: ⁹

At the health-center level, a specified individual is in charge of the CHW program operating in that health center's catchment area. This individual is responsible for guaranteeing a competent CHW workforce and is often the one who identifies a training need and subsequently reinforces key competencies. S/he is expected to conduct monthly supervisory field visits, for which compensation is provided. Health center committees oversee the work across various activities of the health center, including its outreach, supervision and financial activities.

At the district hospital level, a specific individual is named "in-charge of CHWs." This person also serves in a higher-level managerial capacity, ensuring sufficient integration of CHWs into health system operations. Both individuals in charge of CHWs (at the health center and at the district hospital) are reportedly solely in charge of overseeing community health activities and do not have other responsibilities. In terms of support for commodities and essential medicines, CHWs are connected to the national supply chain and provided with stock cards with which they can submit requisitions to their Volunteer Cell Coordinators.

At the management level, the Rwandan Ministry of Health (MOH) leads the strategy, advocacy, oversight, resource mobilization and management of all community health programs across the country. The central MOH engages across ministries, partners, donors, and other stakeholders operating within the health sector. The Community Health Program Unit coordinates and oversees the national CHW program. It sits within the Rwanda Biomedical Center. The Community Health Program Unit collaborates with districts to promote standardized implementation of the CHW program and is responsible for creating and rolling out quality assurance systems for monitoring and evaluation practices.

Incentives and remuneration

CHWs are remunerated through two methods of Community Performance-based Financing (C-PBF): the first is based on the CHW cooperative's achievement of specified targets as well as on individual event-based reporting through a RapidSMS system. C-PBF payments are channeled administratively through the CHW cooperatives on a quarterly basis after multi-level verification. The C-PBF system was inspired by the success of Rwanda's Facility-based PBF System, which was launched in 2006.⁹ Starting in 2009, World Bank and the Global Fund to Fight AIDS, Tuberculosis, and Malaria (hereafter referred to as the Global Fund) provided financial support to launch an analogous PBF system for CHWs. Initially, the C-PBF Program covered only a few indicators (primarily relating to execution of CHW responsibilities and quality of reporting), but was ultimately expanded to include effective extension of coverage of key interventions and quality of care indicators relating to nutrition, antenatal care, facility-based deliveries, family planning, TB, and HIV.⁹ CHW cooperatives receive C-PBF payments from the central level on a quarterly basis, following (at a minimum) sector-level data validation. 30% of the PBF funds are distributed among active CHWs and 70% deposited into the CHW cooperative itself. Though originally the MOH proposed that the 70% be divided into 20%

capital for the CHW cooperative and 50% pooled funding to sustain the national CHW program¹³, this plan was ultimately rejected. The MOH is working to identify an alternate plan for sustainability. Though these stated divisions of profit are standard, each cooperative has jurisdiction over management of its revenue generation.

C-PBF for RapidSMS, which was launched nationwide in 2017, is tied to alerts submitted by an individual CHW to the corresponding health center or hospital (e.g., pregnant woman in the community with danger signs or a suspected case of measles). Through the RapidSMS Program (for which each CHW has been equipped with his/her own mobile phone), CHWs are individually incentivized to conduct and maintain a regular census of the community and keep abreast of the changing health status of target populations. Anecdotally, CHWs take home US\$ 5-10 on a quarterly basis.⁶ However, there is significant variation in take-home pay based on the level of functioning of the CHW cooperative.¹³

In a 2016 assessment of Rwanda's CHW cooperatives, the Center for Policy Research and Capacity Development identified 475 active cooperatives across the country.¹³ It is relevant to note that there have been some isolated efforts across the country to merge cooperatives in the interest of launching larger-scale business projects. As of now, cooperative income-generation activities (IGAs) range from opening and running small shops to building large-scale farming operations. There is a high degree of variability in terms of (1) the kind of IGAs in which cooperatives are engaged and (2) the degree to which individual cooperatives are successful in generating sufficient income for individual CHWs and for broader income-generating activities.

Community role

Community engagement and participation are core components of Rwanda's health and social welfare strategies. In the CHW program, the process of selecting a CHW is, however, the only instance in which the community is structurally included in CHW program operations. There are not, for example, village committees which oversee the activities of the CHW program, as is the case in CHW programs in other countries; nor are other community members allowed access into the CHW cooperatives.

In addition to supporting in the selection of CHWs, the community fosters in a myriad of ways an enabling environment within which CHWs operate. CHW cooperatives are core community-level structures with decentralized program operations that enable income-generation activities which can, in turn, provide income for CHWs. Embedding CHW cooperatives within communities fosters a range of benefits such as local income generation and local oversight of program operations. Additionally, monthly community service days, community hygiene clubs, and village-level "parents' evening forums" bolster CHWs' promotion efforts around sanitation, behavior change, and broader health issues.

Linkages with the formal health system

Four objectives drive forward Rwanda's CHW program. These emphasize:

- The strengthening of decentralized structures to support community health service delivery;
- Participation of community members in community health activities;
- CHW motivation through C-PBF to improve health service delivery; and,
- Monitoring, evaluation, and coordination of community health services at the central, district, health center, and community levels.⁹

The linkage of Rwanda's CHW program with the formal health system is articulated across multiple inter-sectoral policies and strategies. As it relates to purchasing, Community-Based Health Insurance (CBHI) enables CHWs to provide services in the community largely free of charge, with the exception of iCCM services, for which patients do incur a small cost calibrated in relation to their enrollment in the CBHI

scheme.⁹ For community members enrolled in the CBHI scheme, a fee of 200 Rwandan Francs (FRW) (US\$ 0.21) is incurred for an iCCM visit; for those not enrolled in CBHI, the fee increases to 500 FRW US\$ 0.52).

The Seven-Year Government Program 2010-2017 included a social welfare pillar that explicitly called out the need to decentralize the provision of life-saving services (in particular, family planning, nutrition support, and treatment of HIV, TB, and malaria) to CHWs. The National Health Policy explains the structure of the entire health system in its decentralized state, and in doing so emphasizes the importance of integrating CHWs into the health workforce. Finally, the Health Sector Strategic Plan July 2012-June 2018 further articulates the role of the CHW within the overall health system through declaring that "...introducing community health service delivery close to the community 'fundamentally breaks barriers' for improved access to care and increased services utilization."¹²

The Ministry of Health includes a line item in its annual budget for the CHW program, thus recognizing it as a function of the broader health system. The C-PBF System has subjected the CHW program to a relatively robust system of monitoring and evaluation, and CHWs are rewarded both communally and individually for their contributions to meeting key health targets. However, there is disagreement about the degree to which CHWs are equal players in the country's health space, given their lower levels of training and professional status as compared to their more formal counterparts. This is a challenge which merits careful attention.

At the district level, the Ministry of Local Government provides the health system with administrative support and oversees all community health activities, including the C-PBF Program. For health center staff who are in charge of community health activities, primary responsibilities include validation of community reports (including referrals) submitted from CHW cooperatives and CHWs directly, coordination of community-based health promotion activities, monthly CHW meetings, and field visits for supervision and quality assurance. While previously, health center staff were responsible for managing a sub-account with central funds earmarked for CHW cooperatives, the Ministry of Finance now transfers these funds directly to the bank account of the cooperatives.

Program scale-up

Rwanda's national CHW program has evolved significantly to expand the scope of the CHWs and to respond to the changing needs of the population and the health system. The program began in 1995 with a network of 12,000 CHWs endorsed by the Ministry of Health. In the decade following its inception, the CHW program grew to 60,000 CHWs in 2011. The following year, the number declined to 45,000 following the closure of the position of CHWs in charge of social affairs position.⁹ According to Rwanda Biomedical Centre data accessed for the 2016 LSTM evaluation of the national CHW program, there were 43,290 active CHWs at that time: 29,060 *Binômes* (just under 15,000 male/female pairs) and 14,230 ASMs.¹²

Despite the fact that Rwanda's national CHW program was launched in 1995, the country's Community Health Policy was not issued until 2008. It was later updated in 2015. The most recent National Community Health Strategic Plan (a separate document) exists for the period 2013-2018.⁶ Not only was there a significant time lag between the initiation of the national CHW program and the production of formal community health policies and strategies, there are notable discrepancies as well.

In 2015, CHWs tested 640,000 patients for malaria, of whom 189,000 were positive and were treated. Malaria is the second leading cause of death among children in Rwanda.¹⁴ CHWs also managed 331,000 cases of childhood illness in 2015 using the iCCM protocol, a three-fold increase over the previous three years.¹⁴ In 2015, CHWs also accompanied 150,000 pregnant women for antenatal visits during the first four months of pregnancy, a nearly two-fold increase over the previous three years.¹⁴

Monitoring and data use

In addition to collecting health and service delivery information from health centers and hospitals, *Binômes* and ASMs collect data through an expansive community health information system called *System d'Information Sanitaire Communautaire*/Health Management Information System (SISCOM/HMIS).

CHWs document their activities across 61 SISCOM/HMIS indicators (not all of which are tied to C-PBF). Paper-based records are submitted monthly and collated at the health center, where a rigorous process of data validation takes place prior to the data being sent through to the district hospital and then on to the central level. In addition to being equipped with a paper-based information system (based on household visit registers and stock cards), CHWs use RapidSMS to facilitate fast reporting of key indicators and bi-directional communication between CHWs and health centers related to community event-based surveillance (deaths, referrals, new pregnancies, new births, treatment of children younger than five years of age, and so forth).¹³ This program was piloted in one district in 2009 before being nationalized in 2013. Activity through RapidSMS is tied to the C-PBF, so CHWs are incentivized to report through this platform.⁹ As of today, all 45,000 CHWs have received mobile phones.⁹ Based on the achievement of key designated targets, CHW cooperatives receive funds from the MOH.

Financing

The first-ever comprehensive program costing was conducted in 2016 through a partnership between the Government of Rwanda, the LSTM, and the United States Agency for International Development (USAID). This costing identified an annual program cost of US\$ 26.1 million. Importantly, the National Community Health Strategic Plan (set forth three years prior) identified an annual budget of approximately US\$ 18.5 million. Based on the 2016 LSTM costing, the average cost per CHW is US\$ 580, and the average cost per capita is US\$ 2.25. The primary cost driver of the program by intervention package is the community-based nutrition program, which accounts for US\$ 6.9 million or 27% of the US\$ 26.1 million total annual cost. Community-based nutrition is followed closely by C-MNH, accounting for 26% of the total annual cost. TB is the least expensive intervention, costing a mere US\$ 329,000 per annum. Correspondingly, there is variation in unit cost by intervention package ranging from US\$ 2.20 for HIV to US\$ 10.10 for treatment of childhood pneumonia. The top cost driver across all intervention packages by program component is administration (for salaries of program managers, office utilities, capital costs, and program management meetings) accounting for US\$ 6.6 million (25% of total costs), followed by materials, equipment, and tools (non-consumables, reporting materials, and so forth) accounting for US\$ 5.0 million (19%), and, finally, medicines and supplies, accounting for US\$ 4.4 million (17%). For reference, the principal cost driver in another costing study was the medicines and equipment category, which accounted for 55% of the total costs of US\$ 34.8 million.¹³ If the two categories from the LSTM costing study (for “materials, equipment, and tools” and “medicines and supplies”) are combined, the two studies agree that this combined component of the CHW program consumes approximately 40-50% of the total budget.

The Government of Rwanda/LSTM costing and corresponding LSTM evaluation studies identified 26 development partners along with the Government of Rwanda as donors to the National Community Health Program. Together, the agencies of the United States Government (USG), the Global Fund, and UNICEF covered 76% of total contributions in 2014-2015, while the government funded only 13% of the total cost. An earlier publication led by the Financing Alliance for Health and partners identified a comparable distribution of financing for the Rwanda’s CHW program between 2011 and 2012: Rwandan government (16%); domestic NGOs (2%); foreign NGOs (22%); bilateral donors (52%); multilateral donors (9%).⁵

In terms of how these resources are allocated, 29% of partner funding in the 2014-2015 period was fed into the C-PBF Program, 20% into the C-MNH Program, and 19% into program administration. The program component targeted by each funder varied. With USAID funding, nearly 90% of the total 2014-2015 contribution went towards C-MNH and program implementation. Typically, USAID investment in the national program would be channeled through Implementing Partners who contribute to achieving shared national and organizational objectives.

Though historically donors have picked up a significant portion of the costs of the CHW program, the government is taking notable strides to contribute a greater percentage of the resources required to sustain community health activities.^{9,12} There is now a line item for the Community Health Program in the annual MOH budget, and the government has agreed to cover all costs related to the RapidSMS Program. In 2013, the president of Rwanda directed funds from his own budget to equip all CHWs with mobile phones to

enable RapidSMS, as well as to provide necessary drugs and other commodities.⁹ Finally, the total annual program cost (US\$ 26.1 million) identified in the 2016 evaluation of the CHW program is equivalent to 10% of the total government health expenditure.¹⁵

Impact

An assessment carried out in 2015 included a survey of 1,920 community members in five districts.¹⁴ More than 90% of surveyed individuals were satisfied with the CHWs' services.¹⁴ This same assessment also concluded that one of the key lessons of the two decades of experience in Rwanda with CHWs has been the realization in communities that they address many of their own health needs.¹⁴

Rwanda's success in meeting both MDG 4 (for child mortality) and 5 (for maternal mortality) is important evidence of the strength of the country's primary health care system. There is consensus internally (as well as externally) that Rwanda could not have achieved the MDGs for maternal and child health three years ahead of schedule without the support of the CHWs.⁵ The Health Sector Policy of July 2014 speaks to what is largely perceived as the achievement of Rwanda's community health program objectives:

“The initiation and implementation of community health services [have] increased outreach and brought health services closer to the people they serve ... Implementation of the integrated community health services package ... has been one of the [most] successful innovations in integrated decentralization of health services. The Rwandan health system has greatly benefited from task shifting in which CHWs are delivering primary health services at the community level.”¹⁰

In its 2013 MDG report, Rwanda noted key achievements across universal primary education, gender equality and women's empowerment, infant and maternal mortality, HIV, and environmental sustainability. The country's 2013-2018 National Community Health Strategic Plan linked many of these successes directly to the robust system of community-based healthcare delivery. Decentralization of growth monitoring and malnutrition screening to the community level through trained *Binômes* contributed significantly to the achievement of MDG 1 (Eradicate Extreme Poverty and Hunger). In 2015 alone, 1.1 million children were screened for malnutrition by CHWs.⁹ MDG 4, which aims to reduce child mortality, was targeted directly through CHWs trained and equipped to provide iCCM. Coverage of all basic immunizations increased from 75% in 2005 to 90% in 2010.¹⁶ 91% of under-five children with malaria were treated within 24 hours of diagnosis. Rwanda's community health worker data system (SISCOM) revealed that over 900,000 children younger than five years of age received an evaluation by a CHW between January and December 2015.⁹ The total number of sick children assessed by CHWs increased each year between 2013 and 2015, rising from 665,000 to 940,000.⁹ Not only has the absolute number of young children assessed by CHWs increased over time, the focus of such visits has followed closely the epidemiological profile of the country. For instance, when the country experienced an increased incidence of malaria between 2013 and 2015, the number of malaria cases among under-five children treated by CHWs increased notably while the number of cases of pneumonia and diarrhea treated remained steady.⁹ With the support of CHWs, Rwanda has witnessed its under-five mortality rate drop from 115 deaths per 1,000 live births in 2005 to 41 deaths per 1,000 live births in 2015.¹⁷

With respect to MDG 5 (improve maternal health), Rwanda successfully decreased its national maternal mortality ratio (MMR) from its 2005 rate of 750 deaths per 100,000 live births to 476 in 2011.² In 2017, the MMR had declined further to 248 deaths per 100,000 live births. Over a five-year period following the introduction of C-PBF in 2009, the percentage of births that took place in a health facility increased from 45% to 91%.^{2,18} In 2015, approximately 50% of pregnant women across Rwanda received some kind of support from a trained ASM.⁹

A 2016 survey conducted by the Liverpool School of Tropical Medicine found variation in terms of service delivery across six thematic areas: health promotion, nutrition promotion, TB, iCCM, family planning, and maternal and newborn health. For instance, while 91% and 98% of CHWs reported delivering iCCM and maternal newborn health services, respectively, the percentages of CHWs reporting on TB service provision

and family planning provision were significantly lower at 63% and 43%, respectively. Despite the lack of standardization in and fragmentation of CHW training, *Binômes* and ASMs have made impressive contributions towards Rwanda's health targets. In order to maximize the effectiveness of the CHW workforce, careful attention should be paid to training, unintended consequences of the C-PBF Program (such as overemphasis on the provision of certain services over others), and demand-creation strategies.

Rwanda's CHW program has enjoyed a relatively high degree of parliamentary-level political support compared to other countries with national CHW programs. This support has not only recognized and celebrated CHWs directly, but also facilitated supportive financial relationships that promote a nationally owned program that will gradually be less exposed to the elements of "boom-and-bust" donor financing. With its decentralized health system, Rwanda has built high-quality program management, strategically positioning a CHW focal person at all levels, from the health center to the district and regional levels. Rather than performing multiple duties for the public health system, as is common in other contexts, these individuals focus solely on the CHW program. By tying financial incentives to individual CHW tasks, the country has heightened the pressure placed on management and has, in turn, contributed to the strengthened institutionalization of these systems. At the central level, strong coordinating bodies are in place to ensure harmonization of agendas and promote shared ownership of the program.

Challenges

Despite the many benefits for population health that Rwanda's Community Health System has provided since 1995, numerous challenges in maintaining and improving the national CHW program persist. Many key issues are referenced directly in Rwanda's Community Health Strategic Plan for July 2013–June 2018, including the unsteady flow of resources required to ensure continued functionality of the program, and limited capacity of existing CHWs to respond to the population's evolving health needs."¹²

Additional challenges include fragmented and irregular supervision, stockouts of supplies and medicines, and varying degrees of functioning of CHW cooperatives. Though there appears to have been an immense willingness to volunteer at the time of the CHW program's origination, it is unclear whether such willingness will continue. CHWs in Rwanda are not provided a livable wage; and though CHW cooperatives have been established to fill this gap, their success in doing so is debatable. The relative financial insecurity of the role (with variable take-home pay that does not replace a livable wage) coupled with an aging CHW population (with as many as one in four CHWs now over the age of 50) underscores the uncertainty around the next generation's willingness to volunteer as a *Binôme* or ASM.⁹ Attrition rates are now in the range of 10% per year.¹⁴

As Rwanda passes through epidemiologic and demographic transitions, questions as to how the CHW program will adapt to urbanization, to growing economic opportunities for a rising middle class, and to changing health trends such as an increased burden of NCDs, become even more pressing. Though the model of Rwanda's national CHW program has been acclaimed as pacesetting in many respects, such a designation is not and cannot be considered static. Though success across many health and social areas has been achieved, maintaining this success is a complex, creative, and resource-intensive undertaking.

With donor funds currently providing for upwards of 70% of the expenses of the CHW program, concerns regarding the program's financial sustainability persist. As donor interest in contributing to a health system deemed successful and self-sufficient wanes and sights turn to more pressing humanitarian and global health security crises in other countries, Rwanda must face the challenge of how to pitch the "maintenance" argument. Macroeconomic questions emerge as the country assesses the ability of its growing fiscal space to sustain its robust, post-genocide CHW program, which now comprises of one of the country's largest workforces.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are as follows: Left: a CHW examines a child. Photo credit: MSH (<https://www.msh.org/blog/2013/09/27/rallying-for-uhc-iii-community-health-workers-can-accelerate-progress-towards>); Right: a CHW makes a home visit. Photo credit: <https://www.mcsprogram.org/wp-content/uploads/2017/03/Community-Health-Worker-Sala-Lewis-Jan-2012.jpg>

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Sierra Leone's Community Health Workers



Meredith Dyson¹, Elizabeth Musa², Harriet Napier³, and Jess Gergen⁴



¹ Formerly a Health Systems Technical Advisor to the Ministry of Health and Sanitation in Sierra Leone; currently a Health and Nutrition Specialist with UNICEF, based in Amman, Jordan

² Ministry of Health and Sanitation, Freetown, Sierra Leone

³ Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

⁴ Visualst (a public-interest data design firm), Maputo, Mozambique

One-page summary

Background

Sierra Leone has a long history of “siloed” vertical community-based health programs. Its first National Community Health Worker (CHW) Policy was launched in 2012, providing an umbrella under which some of these previously established programs moved toward harmonization. After three years of experience and many lessons learned during the West Africa Ebola Outbreak (2014–2016), the National CHW Policy was revised in 2015–2016 and relaunched in 2017.

Implementation

The national CHW program is managed through the Directorate of Primary Health Care (DPHC) within the Ministry of Health and Sanitation (MOHS). A CHW Hub (established in 2015 within the DPHC) manages the program implementation at the central/national level, while some decision-making and implementation is decentralized to district health management teams (DHMTs) in all 14 districts across the country. Many non-governmental organization (NGO) partners also support the implementation of the national CHW program. Approximately 13,000 CHWs and 1,300 Peer Supervisors have been trained and deployed throughout every district of the country—in remote rural, peri-urban, and urban communities.

Roles/responsibilities

Sierra Leone’s CHW program focuses on Integrated Community Case Management of Childhood Illness (iCCM); reproductive, maternal, newborn, and child health; and community-based disease surveillance. CHWs conduct quarterly household visits to all households within their communities, during which they promote preventive behaviors and collect essential demographic information. CHWs provide counseling to both men and women on the benefits of birth spacing, and they are equipped to distribute condoms and oral contraceptive pill refills. They conduct community surveillance and reporting for prevalent epidemic-prone illnesses and health conditions, report all births, report all maternal and child deaths, and provide referral linkages to the nearest health facility for complicated conditions and for those outside of their own scope of work. CHWs are expected to work four-to-five hours per day, five days a week.

Training

The curriculum consists of 24 days of classroom training broken up into three modules, with approximately a month of field practice following each module. Peer Supervisors also complete a fourth module (of four days) focused on supervision, coaching, and mentoring skills as well as on data collection and reporting.

Supervision

Peer Supervisors were formally introduced in 2016. Peer Supervisors are full-time supervisors. They do not provide CHW services in addition to their supervisory roles. Peer Supervisor selection prioritizes those who have previously served as a CHW and have been identified as high-performing leaders among the group of CHWs linked to a Peripheral Health Unit. In addition to data collection and reporting, their role focuses on coaching, mentorship, and on-the-job training of the CHWs within their catchment area.

Incentives and remuneration

CHWs receive an incentive of Le 100,000 (approximately US\$ 13.50) per month plus an additional small allotment for travel expenses to attend monthly meetings and to cover communication costs.

Impact

Since the program has just been rolled out, there is not yet any evidence of impact. However, with CHW data now integrated into DHIS2, analysis of impact will soon be feasible.

Historical context

Sierra Leone has a long history of community-based health promotion and delivery programs. For decades, a variety of vertical community-based programs—some managed through the Ministry of Health and Sanitation (MOHS) and others managed through non-governmental organizations (NGOs)—delivered essential services to communities across the country. These included programs to support traditional birth attendants (TBAs), community drug distributors providing prevention and treatment for neglected tropical diseases, community-based providers managing cases of malaria, volunteers who detect diarrhea and provide oral rehydration solution (called Blue Flag volunteers), vaccination mobilizers, and others.

In 2010, UNICEF collaborated with the MOHS and worked through NGO implementing partners to begin piloting Integrated Community Case Management (iCCM) of malaria, diarrhea, and pneumonia for children younger than five years of age in four (out of 13) districts. While community health work during this period was vibrant, it was largely implemented through vertical, disease-specific approaches, with many different actors supporting different programs. The same community members were frequently selected by different vertical programs to perform a variety of roles, leading to overburdened community members, uncoordinated training schedules and motivation/incentive schemes, and a general lack of alignment and harmonization.

The first national CHW policy (2012)

In 2012, the MOHS' Directorate of Primary Health Care (DPHC), with support from technical and implementing partners, developed the country's first National Community Health Workers Policy. For the first time, the diverse community programs were brought together under one umbrella strategy. The 2012 policy outlined a common and standardized set of services/scope of work, training curriculum, job aids, selection guidelines, supervision, and other criteria that a program must comply with. Community health workers (CHWs) were considered volunteers under this policy, and were entitled only to a nominal "transport refund" of Le 15,000 (approximately US\$ 3.75) per month to offset the cost of attending a monthly meeting at their nearest Peripheral Health Unit (PHU), described further below.¹ The scope of work for CHWs in rural areas included both health promotion and iCCM, although iCCM was only functionally scaled up to seven districts (half of the country). In urban areas, where barriers to accessing health facilities (such as long distances and difficult terrain) were considered to be less, the focus was on health promotion and referral only; iCCM was excluded from the scope of work and training package for CHWs in Freetown.²

The 2012 CHW policy took great strides toward harmonizing approaches and integrating maternal, infant, and child health services at the community level. It was the first time the MOHS put forth a national CHW strategy and took oversight of community-based health programs. However, without an implementation management structure or any funding, the MOHS' role was limited to coordination and advisory functions. All funding streams and implementation management for the integrated CHW program remained with partners—primarily UNICEF and a loose coalition of NGOs. The level of compliance with the policy was largely left to the goodwill of NGO implementers. Many tried to harmonize their programs, but some chose to continue operating through their own frameworks. Although coordination improved within the MOHS, stand-alone programs continued to function in the National Malaria Control Program, Neglected Tropical Diseases Program, and the Expanded Program on Immunization.

CHWs and the Ebola outbreak

Only two years after the launch of the National CHW Policy (2012), Sierra Leone found itself at the center of the 2014 West Africa Ebola virus disease outbreak. The rapid and wide-reaching spread of the disease greatly complicated access to and uptake of essential health services. According to a health facility assessment carried out in March 2015³, institutional deliveries dropped by 23%, the number of children treated for malaria declined by 39%, and the number of children receiving basic immunizations decreased by 21% between May and September 2014. The number of antenatal care visits recorded by PHUs declined by 14% between May 2014 and January 2015. While initial drops were seen in the first Ebola-affected districts, service utilization began to improve after the epidemic came under control in those areas. The heaviest-hit districts experienced multiple waves of declines in service use as the epidemic surged through the fall of 2014 and early 2015, and

these districts were slower to recover. Even districts that were minimally affected by the epidemic experienced declines in service utilization at PHUs. PHU staff reported that fears among community members of being stigmatized and of becoming infected by Ebola at health facilities or by health workers were the main challenges affecting the use of services.

During this period, the work of CHWs had to be curtailed significantly. Due to concerns about transmission through interpersonal contact, a "no touch" policy was put in place, under which CHWs were instructed not to come into physical contact with patients and their family members. This policy prevented them from conducting essential diagnostic services such as feeling a sick child's skin for fever and screening children for malnutrition by measuring the mid-upper arm circumference. Testing anyone in the community (both children and adults) for malaria using rapid diagnostic tests (which had been rolled out in iCCM districts earlier that year) was also suspended over fears of Ebola transmission through contact with blood. With health system resources and personnel diverted to controlling the outbreak, health workers had much less time to supervise CHWs. In addition, there were also shortages of many of the supplies that CHWs regularly used, and some CHWs became totally inactive during this period.

At the same time, the role of community-level educators, first responders, and change agents was becoming recognized as essential in rallying the population to take localized actions toward containing and controlling the Ebola outbreak. Many CHWs acted as social mobilizers, community-event based surveillance (CEBS) volunteers, contact tracers, and members of burial teams. Already trained in health promotion and service delivery and having established links with the health system, CHWs provided valuable human resource capacity and contributed significantly to the response efforts. Alongside these additional roles and despite the challenges mentioned above, most CHWs also continued to provide routine services. In 2015, while the Ebola outbreak was still active in much of the country, CHWs provided services to 391,341 sick children 2-59 months of age, conducted antenatal home visits to 83,550 pregnant women, visited 60,000 new mothers for postnatal care, and visited 63,243 newborns at least twice within their first week of life according to information provided to the health information system.⁴ Thus, the roles of CHWs in the Ebola response further underscored the importance of trusted community members who are educated in health topics, who champion community-led initiatives for disease prevention and control, and who connect communities with the broader health system.

Due to the essential role played by a variety of community-level actors, including CHWs, when the MOHS began developing its Post-Ebola Health Sector Recovery Plan, Community Ownership was enshrined as one of the five key pillars of the plan (along with Patient and Health Worker Safety, Health Workforce, Essential Health Services, and Information and Surveillance). The plan recognized CHWs' potential role as a liaison to restore lost trust between communities and the health system. In conjunction with developing the recovery plan, the MOHS also updated its Basic Package of Essential Health Services. In the original 2011 version, community-level actors and services were not highlighted; the little mention they got reflected the pluralistic and uncoordinated nature of community-based health programs prior to the 2012 National CHW Policy. In the updated 2015 version, CHWs were specifically mentioned. The community-level services CHWs provide, including health promotion, referral, and treatment, were listed in the continuum of care.^{5,6}

Revised national CHW policy (2016) and establishment of the national CHW Program

Prior to 2016, the MOHS did not maintain a master database of CHWs throughout the country; data remained program-specific and was available only to the implementer. In 2015–2016, the MOHS (with support from UNICEF and other partners) conducted a georeferenced census of CHWs (or "geomapping") to understand who was serving as CHWs, what services they were providing, and where they were working.

Through this study, a total of 14,732 CHWs were identified throughout all 14 districts in the country. Of these, only 35% were female. Seventy-eight percent were found to be literate, but with large variations by district and by gender: only 57% of the female CHWs identified were literate. Similarly, wide variations were

found in levels of education, with 72% of the CHWs identified—but only 51% of females—having reached secondary school. Nineteen percent of all identified CHWs—but 40% of females—had no formal education. Most CHWs relied on some other economic activity for income: 70% were farmers, 6% (and 37% of females) were petty traders, and 10% were teachers.

While the 2012 policy provided clear guidance that each CHW should serve between 100 and 500 people, the geomapping census found that about 70% of CHWs did not actually know the number of people living in the geographic area they were assigned to cover. Of the 30% who did know, the median coverage area consisted of 250 people, including 50 under-five children, but with wide variation by district; and CHWs in the peri-urban areas outside of Freetown reported that they were covering around 1,000 people, including up to 350 children under age 5.

Retention of CHWs was found to be high, with 85% of those counted through the census having worked in their role for more than two years, and 27% having worked for more than five years (pre-dating the 2012 policy). While 91% of those claiming to work as CHWs had received pre-service training, 20% of those had received pre-service training in 2014 or later, indicating that they had been recruited as part of the Ebola response rather than under the 2012 CHW policy. Of the 71% who had received pre-service training prior to 2014, the median length of training was eight days. Considering the standardized training curriculum set out in the 2012 policy was 10 days, this showed that many CHWs had been trained through programs that were not harmonized and were not following the requirements of the policy between 2012 and 2014.

While most CHWs reported that they were regularly supervised by the PHU to which they were attached, most did not receive regular supervision from the DHMT. There were wide variations in the services CHWs were providing, with most providing health promotion for hygiene behaviors, screening under-five children for malnutrition, and referrals to access services; but far fewer were providing diagnosis and treatment of diarrhea, pneumonia, and malaria.⁷ These results showed that while extensive community health work was ongoing throughout the country, the goals of harmonization of approaches and standardization of program components, including training, supervision, and scope of work, had not been successfully implemented under the 2012 policy.

To take into account the experiences of the first few years of implementation of the 2012 National CHW Policy and the lessons learned through the Ebola outbreak response, in early 2015 the MOHS and partners set out to review and update the policy, develop a new national CHW strategy, and establish the national CHW program within the MOHS. Under the leadership of the National Director of Primary Health Care, a National CHW Hub, a management point for CHW activities housed within the Directorate of Primary Health Care, was established in early 2015. The Hub includes a National Coordinator, four Regional Coordinators, and a Monitoring and Evaluation (M&E) Officer at the national level, as well as a District CHW Focal Person placed within each of the 14 DHMTs throughout the country. The establishment of the CHW Hub was a major achievement, as it marked the first time the MOHS accepted direct responsibility for oversight and management of the CHW program, rather than merely partner coordination.

At the same time, a Technical Work Group (TWG) was established to review the National CHW Policy. This review consisted of a series of stakeholder consultations with MOHS departments, other line ministries, technical partners, implementing partners, local councils, and civil society organizations to consider international and local evidence and best practices. After several months of TWG meetings, workshops, and evidence gathering, policy recommendations were put forth. A revised policy was finalized in August 2016 and launched in February 2017. The policy was accompanied by a national CHW strategy document, an extensively updated national training curriculum, and an M&E framework. Key revisions to the national policy, strategy, and implementation plan included the following:^{8,9}

- Expansion of the scope of work to include community-based surveillance; iCCM throughout the country, including in urban areas; expansion of antenatal care (ANC) and postnatal care (PNC) promotion; and full integration of the National Malaria Control Program's community case management of malaria intervention into the iCCM function under the CHW program;

- More robust supervision structure, including an intermediate layer of Peer Supervisors in between CHWs and PHU in-charges;
- A longer and more practical skills-based training curriculum;
- Provision of financial incentive (although CHWs are not salaried civil service workers, both CHWs and Peer Supervisors now receive a monthly stipend—paid quarterly—in addition to a more substantial transportation reimbursement); and
- Stronger ownership and leadership of the MOHS and greater accountability of partners to the national program.

With increased national ownership, the progress of the national CHW program rollout became one of the key Presidential Recovery Priorities tracked within the health sector by the National Ebola Recovery Task Force. This prominence helped to generate political will to drive the program's success.

The MOHS and partners have now made significant progress in training, equipping, and deploying a unified force of CHWs throughout the country. In 2017, approximately 50% of the 13,000 CHWs and 1,300 Peer Supervisors were trained in the full training curriculum (described below), equipped with job aids and medical supplies, and supervised on the job while performing their tasks in their communities. By September 2019, 12,639 CHWs and 1,322 Peer Supervisors had been trained, and the remaining trainings were in progress. Rather than being seen as a vertical, external program in competition for scarce resources, CHWs are now becoming institutionalized as a part of the Sierra Leone health system, recognized for their essential contributions to the continuum of care.

Health needs

Women and children in Sierra Leone continue to die of preventable maternal and child health-related causes. Women in Sierra Leone have a 1 in 21 lifetime risk of dying due to maternal causes.¹⁰ The total fertility rate in 2015 was 5.2, down from 6.1 in 2004. In 2017, Sierra Leone had the world's fourth highest under-five mortality rate at 114 deaths per 1,000 live births.¹¹ Although this is alarmingly high, it is a reduction of over 50% from 262 in 1990. In 2017, with an infant mortality rate of 83 per 1,000 live births, almost three-quarters of the deaths of children younger than five years of age occurred in the first year of life, and four out of 10 infant deaths occurred during the neonatal period (the first 28 days of life). Life expectancy at birth is extremely low at only 52 years. Only 7% of children ages 6–<24 months of age consume a minimally acceptable diet, leading to 38% of under-five children being stunted and almost one in 10 (9%) being wasted, 4% severely. Communicable diseases and malnutrition are exacerbated by the fact that only 15% of the population use basic sanitation services (24% in urban and a mere 8% in rural areas). Despite nationwide mass long-lasting insecticide-treated bed net (LLIN) distribution campaigns every three years and routine distribution of LLINs at ANC and under-five clinics, only 64% of households report having at least one LLIN, and just under half (49%) of under-five children sleep under a LLIN. Only 32% of adults are literate, but fortunately the primary school enrollment rate is 99%.^{11,12}

Reflecting the shifting demographic and epidemiological profile of the country, 41% of the population lives in what are considered urban areas, with over one-fifth (21%) of the population living in the capital, Freetown, and its surrounding areas.¹² Chronic diseases, non-communicable diseases, and mental health conditions are of increasing concern, although data on the actual prevalence of these conditions is not readily available.

Health system structure

The health system in Sierra Leone is structured as a three-tier system. Peripheral Health Units (PHUs) and CHWs provide primary health care (PHC) services. PHUs themselves have three components: maternal and child health posts (MCHPs), community health posts (CHPs), and community health centers (CHCs). MCHPs are considered the most peripheral level, serving the smallest population, providing the most basic essential MNCH services, and having the closest relationship with their surrounding communities and thus with CHWs. CHCs are usually located in chiefdom headquarter towns and are the only level of PHU equipped with a laboratory and pharmacy. Many CHCs have been enabled to provide basic emergency obstetric and neonatal care services.⁶ In 2018 there were approximately 1,250 PHUs throughout the country.¹³ Sierra Leone's three-tier facility structure, with MCHPs as the most dispersed component of PHUs, primarily staffed by MCH aides, has resulted in the country having reasonable access to health care facilities: 89% of the population is within five kilometers of the nearest PHU and over half (58%) are within 2.5 kilometers.⁷

There are 18 public secondary hospitals and six public tertiary hospitals throughout the 14 districts, with 11 of the 24 in the capital, Freetown.¹³ Most health services are accessed through the public sector, although there are a number of private, NGO, and faith-based facilities at all three levels of the health system. There remains a strong preference for traditional medicine in many communities.

Sierra Leone's Basic Package of Essential Health Services, originally developed in 2010 and updated in 2015, is a high-impact, cost-effective PHC delivery strategy to rapidly scale up health services, with a focus on maternal, child, and sexual and reproductive health. It identifies the services that the MOHS guarantees to make available at the various levels of the health system (community, MCHP, CHP, CHC, and district hospital), and commits itself to making available a minimum set of health staff with appropriate skills to deliver these services. It also details the essential drug list for each level, and allows for costing, preparation of operational plans, and design of monitoring and evaluation systems and tools. For many women and children, the cost of services has been prohibitive. To overcome this barrier, in 2010 the government launched the Free Health Care Initiative (FHCI).¹⁴ This provides maternal and child health services to pregnant women, lactating mothers, and children younger than five years of age at no cost. Since 2011, malaria testing and treatment has been free for the entire population.

As of 2017, the MOHS employed 7,107 health workers nationwide (defined as those who provide clinical care to patients). Another 3,690 health workers were estimated to be working in health facilities and providing patient services as volunteers. These health workers were trained and qualified but had not yet been absorbed into the civil service payroll. At that time there was a gap of 6,903 health professionals between the staffing norms outlined in the Basic Package of Essential Services and the current clinical workforce. By 2025, this gap is expected to diminish, but with a remaining gap of 2,805 health workers. This gap is wider at lower-level PHC facilities and among nursing cadres, and narrower for higher skilled staff such as medical officers. Further, the distribution of health workers compared to the distribution of the population is skewed: while 62% of the population lives in rural areas, only 30% of the health workforce is located there, with 70% concentrated in urban areas. Although this corresponds to some extent with the availability of advanced care (secondary and tertiary hospitals), which are clustered in urban areas, given poor referral networks, this distribution implies significant disparities in access to health care services for rural compared to urban populations.¹⁵ These significant human resource constraints, particularly in rural and remote areas, indicate the potential for substantial impacts to be made by community-based health workers, who can provide basic services and link communities to referral networks. The MOHS' Directorate of Human Resources for Health has incorporated CHWs into its strategy and planning for meeting the country's health workforce needs.^{15,16}

The 2013–2016 West Africa Ebola virus disease epidemic exposed many weaknesses in every area of a health system that was just getting on the road to recovery only a decade after having been decimated by a 10-year civil war. Due to poor water and sanitation facilities and inadequate infection prevention and control measures, transmission of Ebola within the health care setting was common early in the outbreak. This led to a breakdown in trust and reluctance of suspected Ebola patients to seek services in health facilities. Many

health workers lost their lives to Ebola: in Sierra Leone, 328 health workers were infected with Ebola virus, of which 152 (69%) lost their lives. Over half of those affected (167, or 57%) were nurses—the category of health workers who are most often responsible for reproductive, maternal, newborn, and child health care services.¹⁷ It has been estimated that Sierra Leone lost 7% of its doctors, nurses, and midwives to the Ebola outbreak.¹⁸ It has also been estimated that there was as much as a 74% increase in maternal mortality, a 13% increase in infant mortality, and a 19% increase in under-five mortality.¹⁸ If so, this brought the country back to rates last seen in 2000, in the midst of the its civil war, effectively unraveling many of the gains made in the previous 15 years.¹⁸

In the aftermath of the Ebola outbreak, the MOHS and the Government of Sierra Leone are pursuing an ambitious health sector recovery strategy. In addition to getting routine services back on track and improving systems such as the supply chain as well as the water and sanitation infrastructure in health facilities, the health sector recovery strategy includes flagship initiatives such as the establishment of a National Emergency Medical Service (including an ambulance service), an overhaul of the Integrated Disease Surveillance and Response System, and the establishment of a University Teaching Hospital Complex to strengthen secondary and tertiary care. Strengthening and institutionalizing the national CHW program is also a key initiative under the recovery plan as part of a community ownership strategy to restore trust in the health system and increase uptake of essential services.⁵

CHW program features

The ratio of CHW to population in hard-to-reach areas (defined as communities further than three kilometers from the nearest health facility) is 1:250, while the ratio of CHW to population in easy-to-reach areas (within three kilometers of the nearest health facility) is 1:1,000. All CHWs, regardless of their designation as located in easy-to-reach or hard-to-reach areas, deliver the full preventive and curative scope of work, including iCCM. However, those CHWs with easier access to PHUs are encouraged to focus more on health promotion and to refer patients to the nearest PHU whenever possible. Given limited evidence about the effectiveness of iCCM and other community-based services in urban areas, the national CHW program sees this as an opportunity to conduct research and evaluation of urban CHWs conducting iCCM and other community-based services in Sierra Leone. Although the national CHW program, through its policy and strategy, has provided guidance on coverage ratios and related factors to consider, decisions on the actual number and distribution of CHWs within each district are decentralized to the DHMTs.

All services provided by CHWs are covered under the country's Free Health Care Initiative, providing free health services to all pregnant women, lactating women, and under-five children. Cases of malaria are treated for free regardless of age. CHWs do not charge any fees for services nor are they entitled to sell any of the drugs or commodities they distribute. The CHW program has a zero-tolerance policy for accepting payment for services or goods provided under the program. Any CHW or Peer Supervisor found to have accepted money or in-kind payment in return for services, drugs, or commodities will be immediately removed from the program and replaced.

Scope of work

CHWs focus on reproductive, maternal, neonatal and child health (RMNCH), including iCCM, and community-based disease surveillance. When the policy was under revision, other potential roles and responsibilities were considered for inclusion, many of them stemming from roles CHWs had performed during the Ebola outbreak. Because of persistently low levels of RMNCH indicators and given concerns of over-burdening CHWs (who are not full-time salaried workers), the program decided to maintain a focus on evidence-based interventions proven effective when implemented by lay workers and to have an impact specifically on improving RMNCH outcomes. The full CHW scope of work is outlined in the National CHW Policy 2016-2020.⁸ There are no fixed hours of work, but most CHWs work approximately 20 hours per week.

Selection and training

CHWs are selected jointly by the local community governance structure (representatives of the village development committee and the Facility Management Committee,) and the in-charge of the PHU to which the CHW will be attached. This collaborative selection process reflects the unique role of CHWs—that they are from their community, accountable to their community, and also linked to the formal health system. CHWs must be permanent residents in the community they are selected to serve.

CHWs are not required to meet any educational requirements. While literacy and numeracy are an advantage, they are not mandatory. Given that women have much lower literacy rates than men in Sierra Leone, this decision removed barriers for women and encouraged the selection of female CHWs. In particular, the decision was meant to promote inclusion of former TBAs, who are banned from performing home deliveries under the country's Free Health Care Initiative, but who are still trusted and sought out by many women and families in times of pregnancy and childbirth and who are often illiterate or low-literate. The training materials, job aids, and reporting forms used in the program all have a focus on pictorial content, to ensure that these tools are appropriate for illiterate and low-literate CHWs to successfully carry out their work. Peer Supervisors (for whom literacy is a requirement) may also focus their support more intensively on these CHWs and help them fill out their reporting forms as necessary. Commitment to their community, an interest in health and welfare issues, recognition as a respected member of the community, and permanent residence in the community are essential qualifications in CHW selection.

CHWs may be removed from the program and replaced under certain circumstances. These include failure to submit monthly data forms, failure to attend monthly meetings at the PHU, reports from their community of inappropriate behavior or misconduct, and poor performance in technical skills and services. CHWs are strictly prohibited from providing services outside of their scope of work including, but not limited to, providing traditional medicines or spiritual healing, administration of injections or possession of injectable materials, and giving out iCCM medications for anything other than their intended purpose. CHWs found to be selling medications or accepting a fee in return for services or commodities provided to community members may be immediately removed from the program. CHWs who are frequently away from their community and those who move away will be replaced.

Peer Supervisors are selected and promoted from among high-performing CHWs. Because Peer Supervisors are tasked with both technical coaching and data reporting roles, their selection requirements are stricter than those for CHWs. Peer Supervisors must be literate and numerate, and they must have completed at least their basic education requirements (that is, completion of junior secondary school). Peer Supervisors will have previously served as a CHW, with a demonstrated record of high performance and leadership skills. In addition to these educational and experiential requirements, they must also uphold similar values as CHWs—be committed to serving their community, have an interest in health and social welfare issues, live permanently within the catchment area of the PHU to which they are attached, and generally be a respected and upstanding member of their community. Due to the nature of their role, Peer Supervisors must also be willing and available to travel frequently throughout their surrounding communities to supervise up to 10 CHWs on the job. Like CHWs, they may also be removed and replaced for performance issues, misconduct, or if they move away from their PHU catchment area.

CHWs go through a standardized pre-service training. Under the 2012 policy, the standard training curriculum consisted of 10 days of mostly classroom-based training. During the policy review, it was concluded that this was insufficient, and the training curriculum was reviewed and significantly expanded. The revised training curriculum now consists of 24 days of classroom training broken up into three modules, with approximately a month of in-community, intramodular practice with intensified supportive supervision. Module 1 (seven days) covers community health basics, interpersonal and behavior change communication skills, community-based surveillance, and routine household visits (preventive behaviors, WASH [water, sanitation and hygiene], and nutrition promotion). Module 2 (six days) covers iCCM. Module 3 (11 days) covers RMNCH, including promotion of birth spacing and family planning; detection and referral of danger

signs among pregnant women, newborns, and postnatal mothers; infant and young child feeding promotion; and other ANC- and PNC-related key messages.

Peer Supervisors participate in all of the CHW training modules, so they can serve as mentors to newer CHWs and practice their supervision skills in the training setting (classroom and practical sessions) with the CHWs they will eventually be supervising. They also must complete a four-day fourth module focused on supervision, coaching, and mentoring skills as well as data collection and reporting. This is divided into two days after CHW Module 1 and one additional day each after CHW Modules 2 and 3. During the in-community practice periods following each module, Peer Supervisors practice their supervision, coaching, and mentoring skills. A skilled health worker also provides in-community supervision to both CHWs and Peer Supervisors during this period.

CHW trainings are rolled out through a cascade model. Thirty-four master trainers were selected and trained at the national level. Master trainers are MOHS employees in national-level programs such as EPI, Nutrition, Malaria, and Child Health; as well as a few staff from implementing partners involved in the CHW program. Master trainers deploy in groups of four or five to train between 30 and 45 district trainers in each district.

District trainers are mostly DHMT or PHU staff. Many are PHU in-charges who are directly responsible for supervision of CHWs and Peer Supervisors. Some district-level NGO staff are trained as district trainers as well. District trainers then directly train all of the CHWs and Peer Supervisors throughout their own district. Ideally, master trainers continue to supervise and conduct quality assurance of CHW and Peer Supervisor trainings. However, even though quality assurance is part of the training plan, it has been implemented inconsistently, largely due to challenges securing funding. The entire cascade is overseen by the CHW Hub, with some technical support provided by UNICEF and the national TWG.

Education and career progression

The training that CHWs go through is perceived by them as an educational opportunity. Both CHWs and Peer Supervisors are motivated by the new skills they learn. Some illiterate CHWs have learned basic writing and numeracy through filling out their monthly forms, often with support and coaching from their Peer Supervisor. Some CHWs and Peer Supervisors have become so interested in health care work through the program that they have applied and gained admission to health worker training schools, have graduated to become formal health workers, and are now working under the civil service or with NGOs. These examples are celebrated publicly by the program and provide motivation to their colleagues to strive for excellence in their work.

Support and supervision

In the 2012 policy, supervision of CHWs was the responsibility of the PHU in-charge. However, given human resource constraints and generally overburdened health workers, in reality in-community supervision happened infrequently and was not sufficiently robust. This demotivated CHWs, as they felt detached from the PHU and unsupported. It also undermined confidence in the CHW program by health workers and senior MOHS leadership. There were concerns that the MOHS did not really know what CHWs were doing in their communities, and doubts about the quality of the services they provided, due to insufficient supervisory oversight. For this reason, a layer of dedicated Peer Supervisors was added during the 2015–2016 program revision.

Peer Supervisors only conduct supervision; they do not provide routine CHW services. They coach, mentor, and conduct on-the-job training of CHWs, as well as support data collection and reporting. One Peer Supervisor oversees up to 10 CHWs within a PHU catchment area. Peer Supervisors are expected to visit each CHW they supervise at least twice per month within the CHW's own community.

Peer Supervisors are not intended to replace PHU in-charges as supervisors. The PHU in-charge is expected to accompany the Peer Supervisor on monthly visits to communities and is expected to visit every CHW in that CHW's own community at least once per quarter. In this way, the PHU in-charge supervises the Peer

Supervisor and has an opportunity to improve his/her supervision, coaching, and mentoring skills, while also retaining ultimate responsibility for the quality of CHWs' work.

Throughout all in-community supervision, the focus is on supportive supervision, coaching, mentoring, and quality improvement, rather than didactic or punitive approaches.

The monthly meeting at the PHU also provides an opportunity for CHWs to interact with both the Peer Supervisors and PHU staff. At these meetings, PHU staff and Peer Supervisors may provide refresher training on a topic or skill they have detected as challenging during supervision; roll out a new protocol or guideline; share compiled data with CHWs so CHWs understand the impact of their work; or correct any mistakes or inconsistencies in CHW reporting. Monthly meetings at the PHU can also serve to resupply CHWs with essential commodities.

The District CHW Focal Person, who is a member of the DHMT, conducts quarterly supervisions throughout the district. In districts where an NGO partner also supports implementation, the District CHW Focal Person and the NGO partner conduct the quarterly supervision jointly. The District CHW Focal Person is expected to supervise every PHU catchment area at least once each year. Their supervision includes supporting the PHU in-charge to improve their supervision skills and observing a sample of Peer Supervisors and CHWs on the job (in their communities).

The National CHW Hub visits each district at least once per quarter. During their visit, they support the District CHW Focal Person to trouble-shoot and resolve any challenges they are facing. They also visit a sample of PHUs, Peer Supervisors, CHWs and communities within the district.

Finally, in 2017 the MOHS began piloting Integrated Supportive Supervision Visits, in which teams of representatives from various programs jointly conduct supervision of the comprehensive PHC essential services package. The national CHW program has been working with the M&E Unit in the Directorate of Policy Planning and Information, which leads the program of Integrated Supportive Supervision Visits, to ensure CHWs are included in this integrated initiative.

Community role

CHWs in Sierra Leone are *of* their communities and *for* their communities. Communities have an equal role with the health system in selecting their CHWs, and communities also have the authority to recommend a CHW be removed and replaced. Community structures such as village development committees and Facility Management Committees are also involved in performance assessment of CHWs, in collaboration with the PHU in-charge. These groups are further expected to intervene with the PHU or even the DHMT on behalf of the CHW if there is a dispute between the CHW and the PHU in-charge, for example over insufficient drug stocks or inadequate supervision. The CHW program is accountable to the communities it serves, and community structures and leaders have the right and the obligation to demand accountability from the program. However, this kind of community ownership is newly formalized throughout the Sierra Leone health system, and the mechanisms for ensuring it are still in an experimental phase. Many health sector partners including NGOs and research institutions are currently undertaking research into the relationships between communities and the formal health system, including how communities can most effectively interact with the CHW program. Once more robust evidence is generated around this, it will be used to further review and inform the program going forward.

CHWs are expected to be leaders in health promotion within their community and to serve as positive role models for the behaviors they promote. Communities often have other volunteer health workers or health groups, such as community health clubs, mother support groups focused on infant and young child nutrition, WASH clubs, water point maintenance committees, and others. CHWs and Peer Supervisors are often members of these groups and frequently serve in leadership roles such as chairperson, lead mother, or secretary. CHWs are expected to maintain active and positive relationships with these groups and provide them with a formal link to the health system when necessary.

Incentives and remuneration

CHWs in Sierra Leone are lay people selected from within their own community to serve their community with health promotion and basic service delivery. CHWs and Peer Supervisors are not expected to work full-time and are assumed to have other income-generating activities outside their CHW work. Many are farmers and traders, and some have full-time jobs such as teaching. CHWs and Peer Supervisors do receive some financial remuneration, but it is much lower than the civil service minimum wage. While they are considered to be a part of the formal health system, they are "incentivized volunteers" rather than employees. They are expected to work 4-5 hours per day, five days a week.

One major policy change made in 2016 is the CHW remuneration package. Under the 2012 policy, CHWs were provided with the equivalent of US\$ 3.75 for transportation to and from their monthly meeting at the PHU. Under the 2016 policy, CHWs are entitled to receive an incentive of Le 100,000 (approximately US\$ 13.50) per month. CHWs serving communities within three kilometers of a health facility receive an additional Le 50,000 (approximately US\$ 6.67) per month and CHWs serving communities three kilometers or further from a health facility receive an additional Le 80,000 (approximately US\$ 10.67) per month as reimbursement for transportation costs to attend their monthly meeting at the PHU and to support communication costs for making referrals and for reporting findings from community-based surveillance.

Peer Supervisors receive an incentive of Le 150,000 (approximately US\$ 20) per month and an additional Le 100,000 (approximately US\$ 13.50) per month for transportation and logistics to support their travel to supervise CHWs in their communities and to cover cellphone costs.

Many CHWs report that formal recognition, both within their community and by the MOHS, greatly motivates them to continue their work. Under the 2012 program, CHWs were supposed to receive some formal recognition provided by the implementing organization, but there was no unified national registry or certification process. For these reasons, under the revised 2016 program, certification and formal recognition of CHWs was introduced. After selection and successful completion of all pre-service training modules, the DHMT awards each CHW with a certificate, signed by the District Medical Officer (representing the MOHS) and the District Council Chairperson, formally recognizing them as a trained and qualified CHW. Each DHMT keeps a database of all the district's CHWs, and the district databases are aggregated into a national CHW database, so all CHWs know that they are recognized and tracked by the MOHS. Upon successful completion of training, the DHMT also provides each CHW with an identification card with a standardized national template that has their name, photo, a unique identification number, and the district, community, and PHU they serve; a T-shirt and backpack with the national CHW program logo; rain gear; job aid booklets for all the services they provide; and supplies including a tape for measuring mid-upper arm circumference (to assess nutritional status), a medicine box, a sharps container, rapid diagnostic tests for malaria, and medicines required to treat IMCI illnesses (antibiotics, oral rehydration salt packets, zinc, and anti-malarial medications).

Linkages with the formal health system

The MOHS has primary ownership and leadership of the national CHW program. The CHW Hub, a management structure housed within the DPHC, was established and staffed between 2015 and 2017. Since 2016, some donor funding for the program has flowed directly through the MOHS. The MOHS sets the policy and strategy guidance for the program, leads training rollout and incentives disbursement, and is responsible for all program data collection. Technical and implementing partners still play a crucial role in providing technical support; generating financial support; procuring and distributing supplies; training and supervising CHWs; and supporting other aspects of the program at national, district, and community levels. The DPHC convenes a National CHW TWG (consisting of MOHS staff along with technical and implementing partners) and a National Steering Committee (composed of MOHS directors and program managers only), assembling national government and NGO partners quarterly to facilitate coordination and address key challenges. Each DHMT also convenes a monthly District CHW TWG for stakeholder coordination around more localized implementation issues.

Community-level services delivered by CHWs were formally added to the Basic Package of Essential Health Services, the guiding operational document for the Sierra Leonean health system, in its 2015 update. The MOHS has issued a formal policy detailing their roles and management structure. While CHWs are not civil servants, they are managed by a dedicated unit within the MOHS' Directorate of Primary Health Care, and there is a dedicated CHW Focal Point in every DHMT. CHWs are attached to specific health facilities, and the staff from those facilities are involved in the selection, training, supervision, data collection and reporting, and performance assessment of CHWs. Data on services provided by CHWs are now incorporated into the national Health Management Information System.

Program scale-up

The national CHW program formally began in 2018. By September 2019, 12,639 CHWs and 1,322 Peer Supervisors had been trained in 13 of the country's 14 districts, and trainings in the 14th district were in progress. CHWs are now becoming institutionalized as a part of the Sierra Leone health system at scale across all districts throughout the country, recognized for their essential contributions to the continuum of care.

Monitoring and data use

Data are collected monthly by CHWs using registers. Peer Supervisors transfer this information onto their own forms. The data are then compiled and inputted into the PHU reporting system and subsequently into the DHIS2 and the HMIS. The PHUs, the DHMTs and then CHW Hub analyze CHW data and use them for decision making and actions to improve the national CHW program. Analyzed data are also shared with the MOHS, implementation partners, and donors. The DPHC and the CHW Hub are working to harmonize the Community Health Information System (CHIS) across all districts. Efforts have been made to harmonize all reporting processes and tools and to integrate the complete CHIS into the National Health Management Information System.

Financing

In 2017, the DPHC, in partnership with the Financing Alliance for Health, conducted a comprehensive costing of Sierra Leone's CHW program using the UNICEF/MSH Community Health Planning and Costing Tool. Conservatively, the program is expected to cost US\$ 57 million over the period from 2018 to 2021. This total program cost (which averages to be approximately US\$ 14.3 million annually) includes all functions and activities of the program including CHW and Peer Supervisor training; CHW and Peer Supervisor incentive and logistics payments; program management activities and salaries; all medicines and commodities; and all equipment required for CHWs, Peer Supervisors, and management staff at national, district, and PHU levels to execute their responsibilities. Based on currently available data, the average annual cost per CHW is US\$ 1,120 and the average annual population cost per capita is US\$ 2.20.

The primary cost drivers of the program are CHW incentives (approximately US\$ 3.4 million annually), medicines and commodities (particularly as CHWs increase coverage of life-saving interventions and thereby increase demand for commodities at the community level), pre-service and recurrent training, and management. By intervention package, the community-based iCCM work can be associated with approximately 60% of annual program costs; this is due, in great part, to the costs of associated commodities. The total cost of US\$ 57 million over the period of 2018 to 2021 reflects the approximate cost required to run a fully functioning CHW program in Sierra Leone per the guidelines of the 2016 Community Health Worker Policy.

As of early 2018, funding for Sierra Leone's CHW program has come from multiple sources. The Global Fund (through both its Health System Strengthening and Malaria grants) and the World Bank have funded the MOHS directly. The United Kingdom's Department for International Development (DfID) and Gavi (the Vaccine Alliance) have provided funding through UNICEF to NGO implementing partners. USAID has additionally provided some funding to NGOs, which has, in turn, supported the enabling environment in which the CHW program is implemented.

Commodities and essential medicines are covered through the Free Health Care Initiative (which, through 2017, received substantial DFID support). The Government of Sierra Leone pays the salaries of key management staff including the Director of Primary Health Care, the four regional coordinators, and all CHW focal points at the district level. To date, outside of those human resource contributions, the Government of Sierra Leone has not provided further domestic funding to the program. The DPHC continues advocacy efforts within the MOHS for inclusion of the CHW program within the national health budget in future financing cycles.

Impact

CHWs are making a positive impact on the lives of mothers and children across the country. Available data from 2017 show that, despite the transition out of one CHW policy and into a new one, CHWs treated 176,000 sick children (ages 2-59 months) using the iCCM protocol training in eight out of 14 districts. Twenty-three percent of these children were referred to a PHU by the CHW. The primary reason that CHWs treated young children was for malaria diagnosis and treatment (approximately 46% of 2017 visits), with fewer children seen by a CHW for pneumonia and diarrhea. In 2017, CHWs visited 73,000 pregnant women at home to provide ANC and 75% of these women receiving a second visit. Also, CHWs provided 50,000 post-partum mothers and 22,000 newborns with a postnatal home visit during the same year.

Although some NGOs may have independently evaluated their own projects, the national CHW program under the 2012 policy was never formally evaluated. The current national CHW program has not yet been evaluated and its impact is not yet known. Such an evaluation would present an exciting opportunity for continuous learning and quality improvement.

Challenges

Sierra Leone's national CHW program has undergone significant improvements in quality and functionality in the past several years. However, some key challenges remain.

The program continues to face some internal resistance within the MOHS. Some skilled health workers (particularly doctors and nurses) and MOHS leaders fear that CHWs are not qualified to provide services and that CHWs may become "rogue community doctors." The program has taken a variety of measures to mitigate these uncertainties. All services included in the CHW's scope of work are backed by a robust national and international evidence base, and even those who are illiterate or low-literate can perform them effectively and safely. This evidence is shared with MOHS leaders and health workers who express concern. Further, it is clear within the policy that CHWs may be "fired" and replaced if they provide services outside of their scope of work or overstep their bounds. Throughout the CHWs' and Peer Supervisors' training, this point is emphasized repeatedly. CHWs are instructed very clearly that patients with any medical problems outside of their scope of work must be immediately referred to the nearest PHU. Increased exposure to the program and interaction with those concerned about CHWs overstepping their bounds have been shown to change health worker attitudes. Some Community Health Officers, District Medical Officers, and others who are skeptical about the CHW program have reported that, after conducting in-community supervision or serving as a CHW trainer, they have been convinced that CHWs are competent, trustworthy, and provide a valuable complementarity to services offered at PHUs. Thus, this fear has been assuaged and their resistance to the program reduced after having interacted with it closely.

Supply chain management persists as a significant challenge throughout the entire health system at all levels across the continuum of care. As the most peripheral point of service delivery, CHWs are often understocked. PHU staff often perceive CHWs as a competition for scarce resources, rather than as a complementary program whose services could actually reduce the demand for drugs and supplies at the PHU. And CHWs report that at times they have to fight with PHU staff for drugs and supplies.

Stockouts are a significant demotivator for CHWs and their work because they are not able to follow through on their commitment to their communities, and communities lose trust in them and stop going to them when they are sick. In response, the CHW Hub and its partners continually engage in extensive advocacy to show

that CHWs complement PHUs rather than compete with them, and to convince PHU staff that if CHWs are successful, the burden of work and demand for both time and medications at PHUs will decrease. The program is working on plans to evaluate the impact of CHWs' work on the workload and supply demands of PHUs, and it hopes to have robust evidence to present on this in the future.

Although important strides have been made in securing funding for the national CHW program, it is still tied largely to relatively short-term donor funding cycles, and continuity of these grants is not assured. The program is 100% dependent on donor funding (with the exception of management salaries and commodity costs), and it is not included in the country's domestic health budget. The program is currently working on a longer-term financing strategy, but its overall program sustainability from a financial standpoint remains uncertain.

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The credits for the photographs on the cover page are as follows: Left: A CHW speaks to members of her village during a meeting to discuss healthy household behaviors and household registration. Accessed on Flickr on 25 February 2020: <https://www.flickr.com/photos/unicefsierraleone/26952250368/in/photolist-H4Fk2S-Fx8L4M-247zS2N-22rm3Jq-23QkxUH-22rm6i3-23QcY24-23QcZ7F-247CYqU-247D2y7-H4EyyqN-25ciLma-22rkLFd-H4FkMQ-H4Fkz5-258AqY3-25chJtK-H4Fmdj-258ArJm-H4FHBS-FxaAdR-25cguox-25chHSe-FxayY6-25chCy8-23QdpuP-22rmjbs-H4ErRf-22rjBmd-22rjDFJ-H4DJku-FxanBt-22rmnXf-25cgzSt-H4Eqmw-Fx7CN6-AGhxoP-pJzTK2-23QazMZ-258ASL5-25cfyge-258ARoA-22rt76m-258xGYf-pXcVpb-pXcVfd-258z1dU-23Qkuri-22rkhw7-H4NgqQ>. Right:

A mother and her newborn child are visited by a CHW. Accessed on Flickr on 25 February 2020: <https://www.flickr.com/photos/unicefsierraleone/40821632771/in/photolist-25cgxdF-23Qdf7k-22rmkLb-pDXY3r-pumQUa-pEdccl-H4Ewim-H4Ev2U-22rm9rh-25ch43a-22rkMyq-H4FkfY-H4Fk2S-Fx8L4M-247zS2N-22rm3Jq-23QkxUH-22rm6i3-23QcY24-23QcZ7F-247CYqU-247D2y7-H4EyyqN-25ciLma-22rkLFd-H4FkMQ-H4Fkz5-258AqY3-25chJtK-H4Fmdj-258ArJm-H4FHBS-FxaAdR-25cguox-25chHSe-FxayY6-25chCy8-23QdpuP-22rmjbs-H4ErRf-22rjBmd-22rjDFJ-H4DJku-FxanBt-22rmnXf-25cgzSt-H4Eqmw-Fx7CN6-AGhxoP-pJzTK2>

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Ward-Based Primary Health Care Outreach Teams in South Africa



Helen Schneider¹, Emmanuelle Daviaud², Donnela Besada³, Sarah Rohde⁴, and David Sanders⁵



¹ School of Public Health and SAMRC Health Services to Systems Research Unit, University of the Western Cape

² Health Systems Research Unit, South African Medical Research Council

³ Health Systems Research Unit, South African Medical Research Council

⁴ Independent consultant

⁵ School of Public Health, University of the Western Cape and Department of Pediatrics, University of Cape Town (deceased, see Acknowledgments at end of chapter)

One-page summary

Background

In 2011, South Africa adopted the Ward-Based Primary Health Care Outreach Team (WBPHCOT) Strategy. Outreach Teams are made up of generalist Community Health Workers (CHWs), who are supported by nurses as Outreach Team Leaders and linked (for referral, support, and oversight) to local primary health care (PHC) facilities. These Outreach Teams build upon a pre-existing NGO-based community care and support system that emerged as a response to HIV/AIDS in South Africa.

Implementation

By early 2017, 42% of the estimated required total of 7,800 teams were reporting activity data through the District Health Information System. A Policy Framework and Strategy was launched in December 2017, and an investment case for the policy has been completed. However, additional resources have yet to be allocated for roll out of the strategy. This and other constraints have led to slow and uneven implementation of the WBPHCOT strategy nationally.

Roles/responsibilities

The Policy Framework proposes a generalist CHW whose role encompasses prevention and promotion, adherence support for chronic lifelong conditions, early identification of ill-health through screening and referral, and basic therapeutic, rehabilitative and palliative care. The WBPHCOTs are to work in close cooperation with facility-based health workers, other government departments, NGOs, community structures and the private sector. The major focus is households, with some additional activities in schools and other community venues for childhood development activities.

Training

A standardized and accredited curriculum for a comprehensive CHW cadre has been approved nationally and is being implemented through a decentralized training infrastructure. The training consists of a series of classroom-based and practical trainings that total 12 months in length.

Supervision

WBPHCOTs are supervised by Outreach Team Leaders, who are higher-level (professional) or mid-level nurses specifically appointed or seconded from local PHC facilities. Teams refer clients and report to designated PHC facilities, which are also supposed to provide supplies and space for the Outreach Teams. There are challenges in the relationship between the communities and the facility teams.

Incentives and remuneration

Remuneration levels for these generalist CHWs are in the range of US\$ 150-290 per month, below the lowest rungs of the public sector employment regime and in many instances, below the national minimum wage.

Impact

There is widespread support for the reorganization of the community-based health sector, and specifically for the WBPHCOT Strategy. There has been one national process evaluation of the strategy but so far there has been no national impact evaluation.

Historical context

South Africa has a long history of small-scale experimentation with community health worker (CHW) programs, starting with the Pholela community-oriented PHC initiative in the 1940s¹, and gaining momentum after the Alma-Ata Declaration on primary health care in 1978.² Although the post-apartheid, democratic government elected in 1994 did not formally adopt CHWs as a cadre,³ rapidly changing care needs generated by an overwhelming HIV/AIDS epidemic led to the emergence of a large community-based health sector in the 1990s.⁴ Care in this sector was, in the main, provided by lay health workers (referred to as Home-Based Carers) organized through non-governmental organizations (NGOs) and community-based organizations (CBOs) as intermediaries. This fulfilled a range of care and support functions—from palliative home-based care to HIV counseling and testing, directly observed treatment, short-course (DOTS) for TB follow up, and support for orphaned and vulnerable children. With time, its functions expanded as new programs were introduced, such as the prevention of mother-to-child-transmission (PMTCT) and universal access to antiretroviral therapy (ART) requiring adherence counseling and support.⁵ As dependence on these community-based services grew, state subsidies and contracting of NGOs expanded and lay health workers increasingly received stipends as part-time workers. By 2010 there were more than 70,000 such workers deployed through nearly 3,000 NGOs.⁶ The NGOs and their workers were often single purpose cadres with a wide variety of titles and training, reporting through vertical HIV/AIDS program structures that were organized along budget lines and minimally integrated with the formal PHC system.

The precarious status and difficult working conditions of lay health workers, their low remuneration, and poor management of NGO contracts resulted in growing calls from an active and organized HIV/AIDS civil society sector for a formalized CHW program and incorporation into state employment. Over the years, several policy initiatives sought to regularize the community-based sector and the status of community care workers. This culminated in 2010 in the appointment of a “Primary Health Care Re-engineering” Task Team⁶ and the formulation of the Ward-Based Primary Health Care Outreach Team (WBPHCOT) Strategy, South Africa’s current national CHW program.

The PHC re-engineering strategy proposed a renewed focus on district health and PHC systems, and on the reorganization and integration of the existing community-based services into Outreach Teams working in neighborhoods delineated along electoral wards. The Ward-Based Outreach Teams (WBOTs) would consist of a team of generalist Community Health Workers (CHWs), led and supported by nurses and working in close collaboration with other cadres such as Environmental Health Officers. The teams would be responsible for a defined number of households and form close links with the local health facility. The role of these teams would include HIV/TB but also include maternal-child health and chronic non-communicable diseases. In addition, they would incorporate a strong preventive/promotive focus into the existing care and support orientation.

The National Department of Health defined an overall model and roles for the WBPHCOTs, issued a set of implementation guidelines,⁷ developed a reporting system through the national District Health Information System, and established an accredited national CHW curriculum through the Quality Council of Trades and Occupations. However, the detailed design, funding and implementation of the WBPHCOTs strategy was left to provinces, which proceeded to adapt the strategy in varying ways and at different paces from 2011 onwards.⁸ PHC re-engineering features centrally in the overarching reform agenda of the National Health Insurance (NHI),⁹ and NHI pilot districts have received resources to develop the Outreach Teams in their districts. Despite this, national implementation has been highly uneven across the country. By March 2017, there were 3,275 WBPHCOTs submitting information through the national District Health Information System,¹⁰ 42% of the estimated total of 7,800 Outreach Teams required.¹¹ Anecdotal evidence suggests that many Outreach Teams are incompletely staffed.

In December 2017, the National Department of Health released a WBPHCOT Policy Framework and Strategy, with the overarching goal being “the efficient management and leadership of WBPHCOTs to support the delivery of primary healthcare services in South Africa”.¹⁰ The policy outlines four goals and a

number of objectives (Table 1), each of which are currently part of more detailed implementation planning processes convened by the National Department of Health.

Table 1. Goals and Objectives in the Ward-Based Primary Health Care Outreach Team Policy

No	Goal	Objectives
1	Improve the working conditions of WBPHCOTs	Standardize the WBPHCOT management structures at provincial and district level
		Standardize roles and responsibilities of actors in the provision of community-level services
		Complete the CHW investment case to obtain the required budget over the Medium-Term Expenditure Framework period for a well-resourced and well-functioning CHW program
		Complete and maintain the national CHW information database and use the information to confirm the existence of the required CHWs in teams required to serve specific communities
2	Improve human resource recruitment, selection, placement, development and management pertaining to the WBPHCOT program	Define an adequate ratio of WBPHCOTs to population and households allowing for differences in the geographic distribution of households (including the difficulty of reaching households in rural areas)
		Ensure that WBPHCOTs are fully staffed and equitably distributed throughout South Africa
		Ensure appropriate implementation and management of recruitment, selection, appointment, placement, remuneration, skills development, dispute resolution and occupational health and safety processes for all members of WBPHCOTs
		Ensure adequate supervision and support for CHWs as well as for WBPHCOT Team Leaders
3	Standardize the WBPHCOTs scope of work and ensure standardized application in all nine provinces of South Africa	Ensure standardized implementation of the approved scope of work
		Confirm training content and method for ensuring the WBPHCOTs have the capacity to provide the required services
		Ensure, as part of the Ideal Clinic Program, that WBPHCOTs have adequate physical space in clinics to prepare for their day in the field and to meet their data-recording and reporting responsibilities
4	Improve and maintain the monitoring and evaluation system for the WBPHCOT Program	Review and standardize current indicators and data collection tools across all provinces
		Establish the required structures at national, provincial, district and PHC-facility level for data collection and reporting
		Ensure submission of monthly activity data from PHC facilities into the District Health Information System, quarterly progress reports as well as five-yearly outcome and impact reports from the National Department of Health and provinces

Additional resources for implementation of the policy have yet to be allocated. The investment case does not appear to have mobilized the required political and budgetary commitment and is currently sitting at the National Health Council, the highest national health sector decision-making body. Nonetheless, the investment case estimates that modest levels of additional expenditure (relative to existing health spending) in the community-based platform would have powerful life-saving and economic multiplier effects.¹¹

Health needs

South Africa faces a formidable burden of ill-health, referred to as the quadruple burden of disease, consisting of four components: (1) HIV/AIDS and TB, (2) maternal, perinatal, nutritional and communicable diseases other than HIV and TB, (3) non-communicable diseases, and (4) injury and violence.

South Africa is the home to the world's largest number of people living with HIV, estimated in 2017 to be seven million—12.6% of the country's total population of 57 million.¹² Of these, 3.8 million (about one-half

of the total) were receiving antiretroviral treatment (ART) in 2017 through a program of universal access to ART free at the point of use.¹³ South Africa is also one of 30 high-burden TB countries with an incidence of 781 cases per 100,000 population in 2016, declining in recent years as access to ART has increased.¹⁴

Greater control of HIV has also led to improvements in maternal and child mortality. However, these remain unacceptably high for an upper middle-income country—a maternal mortality ratio of 152 per 100,000 live births in 2015 and an under-five mortality of 32 per 1,000 live births in 2016.¹⁵

Along with trends globally, South Africa is facing a rapidly growing burden of non-communicable diseases, with hypertension and diabetes as key components. A recent national demographic and health survey found that 46% and 44% of adult women and men (15 or more years of age), respectively, were hypertensive, while 31% of men and 68% of women were considered overweight or obese (with a body-mass index 25 or greater)—a key risk factor for type-2 diabetes.¹⁶ These problems are compounded by high levels of mental illness (anxiety, depression and substance-use disorders, in particular), which in 2016 accounted for 18% of years lived with disability in South Africa.¹⁷ The government's tobacco control policy has succeeded in reducing a major risk factor for cancer and cardiovascular disease: the prevalence of smoking among adults declined by half over a 20-year period, from 32% in 1993 to 16% in 2012.¹⁸ However, there are very low levels of physical activity or aerobic fitness in young adults 18-40 years of age, with 45% of females and 28% of males assessed as unfit in a national survey.¹⁸

Regarding the fourth major component of disease burden, South Africa has an injury death rate of 158 deaths per 100,000 population per year, which is nearly twice the global average of 86.9 per 100,000 population and higher than the African average of 140 per 100,000.¹⁹

These disease burdens have their distal causes in the social, political and economic legacies of centuries of dislocation, dispossession and discrimination that have made South Africa one of the most unequal societies in the world.²⁰ More immediately, factors such as rapid urbanization, changing local food environments, marketing of processed food and sugar-sweetened beverages, low-quality schooling, discriminatory gender norms, and high unemployment together form a powerful mix of social determinants of ill health.²¹

While access to treatment and care through South Africa's public PHC system has helped to mitigate the impacts of this burden, much of it remains preventable. Retention in care for chronic life-long conditions—both communicable and non-communicable—and stepped up prevention and promotion, including community-based responses to them, are the two key priorities of South Africa's public PHC system.

Health system structure

South Africa's health system is divided into parallel private and public sectors. These mirror the wider inequities of South African society, with stark differences between a well-resourced, insurance-based private sector that serves 16% of the population but consumes half of the total funds spent on health in the country, and a tax-funded public health system that serves the remaining 84% of the population. The National Health Insurance White Paper²² outlines proposals to pool public and private resources along with tax funds into one National Health Insurance (NHI) fund that will ensure more equitable distribution of resources across the country. The NHI fund would purchase services from accredited public and private sector providers.

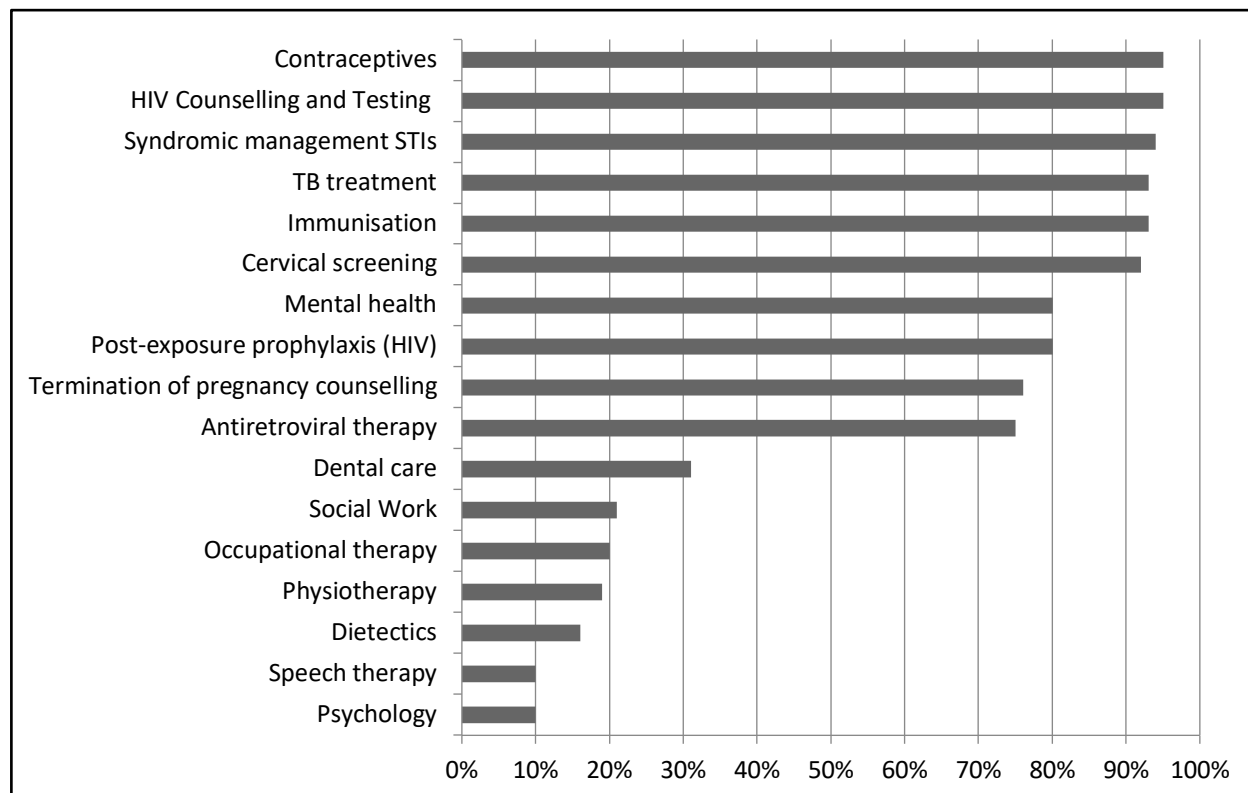
The public health system is structured into a National Department of Health, nine Provincial Health Departments, and 52 Health Districts. In South Africa's quasi-federal political system, the national sphere sets overall policy and frameworks, and the provincial sphere has the main responsibility for service delivery, including operating the district health system, including its PHC services. Local authorities provide environmental health services and some preventive services.

Public PHC is provided through a nurse-based, doctor-supported infrastructure of more than 3,500 clinics and community health centers available within five kilometers to more than 90% of the population. The PHC system and district hospitals together form the District Health System (DHS), considered in policy and

legislation to be the core building block of South Africa’s health system. PHC is also provided by fee-for-service private general practitioners as well as traditional healers. Public PHC services are free at the point of use (a policy implemented first in 1994 for pregnant women and children and then expanded for everyone in 1996). Out-of-pocket payments are relatively small (less than 7% of total health expenditures), although this does not consider the costs of utilizing health services (mainly transport), especially for chronic conditions. South Africa is not dependent on external donor funds, which constitute less than 2% of expenditures (although they do account for a significant share of expenditures on HIV/AIDS services).¹⁹

Public PHC facilities offer a comprehensive package of services, including antiretroviral and TB care (Figure 1). There are gaps in services for oral health, mental health and rehabilitation.

Figure 1. Percentages of PHC facilities offering specific services



Note: STIs: sexually transmitted infections

Source: Based on a survey in 2011/2012 of 3,356 facilities by the Health Systems Trust, 2013²³

Nurses are by far the largest category of health workers in South Africa. Of the more than 170,000 health professionals working in the public health system in 2015, 77% were nurses, 11% were doctors (generalists and specialists), and the remainder consisted of other cadres—pharmacists, dentists, rehabilitation therapists, psychologists and environmental health practitioners.²⁴ Nurses form the backbone of PHC in South Africa. They consist of three cadres—professional nurses (with four years of training), enrolled nurses (with two years of training), and nursing assistants (with one year of training). Health workers are poorly distributed between the public and private sectors: one half of professional nurses and doctors work in the private sector, which serves only 16% of the population. There are similar geographic maldistributions of nurses and doctors with marked shortages of skilled workers, including nurses, doctors and midwives, in rural areas.¹⁹

CHW program features

The policy envisages that each WBPHCOT will cover approximately 6,000 individuals (or 1,500 households). This translates into 150–250 households per CHW. However, it is acknowledged that the number of households covered by each CHW in the WBPHCOT has to be adjusted to accommodate for differences

within catchment areas based on distance and travel time between households (varying considerably between urban and rural areas), demographic structure, and the burden of diseases in households. The following norms have recently been proposed:

- For urban/peri-urban areas: 250 households per CHW
- For rural areas (non-urban settlements with households grouped together): 169 households per CHW
- For deep-rural areas (scattered settlements with households some distance from each other): 96 households per CHW²⁵

Further modeling work is being undertaken to provide more up-to-date recommendations on CHW norms according to the current population's demographic profile, socioeconomic conditions, and burden of illness.

The CHWs in WBPHCOTs have been recruited from the pool of existing lay health workers in communities. They are then trained and entered into new organizational and contractual relationships with local health systems. A significant proportion of the original lay health workers remain outside of the WBPHCOT system and they may outnumber those CHWs who are integrated into the WBPHCOT system. The perceived lesser status and at times lower remuneration of the original Home-Based Carers who are not incorporated into the WBPHCOT system is a source of significant local tension, especially where the original Home-Based Carers do not have the new minimum educational requirements to be incorporated into the new system.²⁶

Scope of work

The WBPHCOT Policy Framework and Strategy envisages that community-based health workers will provide: “health promotion, primary prevention of disease, healthy behavior counseling, treatment adherence counseling, secondary disease prevention through basic screening with appropriate referral and basic therapeutic, rehabilitative and palliative care services to vulnerable communities, in close cooperation with facility-based health practitioners, other government departments, non-governmental organizations, community structures and the private sector.”¹⁰

The team will consist of generalist CHWs (6–10 per team) with the support of a nurse Outreach Team Leader (OTL) and a Data Capturer. In the execution of these roles, the WBPHCOTs are considered to be an extension of and part of the existing PHC facility staff, and the managers of the PHC facility provide oversight, support and supervision of teams.²⁶

Specifically, the scope of work for CHWs calls for them to:

- Conduct community-, household- and individual-level health assessments
- Identify potential and actual health risks, and assist the household and/or individuals in the household to seek appropriate care
- Screen and refer individuals for further assessment and testing, where appropriate
- Identify pregnant women and conduct home visits during pregnancy and during the postnatal period to promote healthy and safe births and identify those with danger signs who need extra care
- Provide extra encouragement for healthy behaviors during early childhood, including exclusive breastfeeding
- Provide screening and health promotion in school programs and at Early Childhood Development Centers
- Work in partnership with the School Health Team and other health care workers

- Counsel on and provide support for family planning choices
- Provide follow-up and assistance to persons with health problems, including distributing medicines according to the Integrated Chronic Disease Model, helping with adherence to treatment, and tracing of treatment defaulters
- Promote and work with other sectors and undertake collaborative community-based interventions for early childhood development, palliative care, geriatric care, and so forth.

Observations in two districts across two provinces in 2016 indicated that WBPHCOT provides a comprehensive scope of activities, program areas and target groups (Table 2). Emphases vary by district and by urban and rural localities within districts and by the varying demographic profile of each site.²⁵ In broad terms, the activities of WBPHCOTs are household focused on two key activities: (1) preventive maternal-child health and (2) follow up of chronic lifelong conditions for adults (including delivery of medication in some areas). Specific practices of CHWs extend to advice on oral rehydration solution for diarrhea, administration of pregnancy tests, provision of vitamin A supplements and anti-helminthic medication, sputum collection for patients with symptoms of TB, and in some instances home HIV testing. There is advocacy for expanding these activities to include the diagnosis and treatment of childhood pneumonia, neonatal sepsis and acute malnutrition, currently not part of the CHW scope.²⁷

Table 2. Activities, conditions and target groups in observations of two districts (Gauteng and KwaZulu-Natal)

Type of activity	Screening Health education Delivery of medication Tracing of defaulters Provision of home-based care Provision of directly observed therapy, short course (DOTS), for TB Referral
Programs	Maternal and child health HIV/TB Chronic diseases Nutrition Family planning
Target group	Pregnant women, post-partum women, and newborns Infants and children Adults The elderly

Source:²⁵

Selection and training

As indicated above, the initial selection of CHWs for the newly created WBPHCOTs drew from pre-existing community-based cadres, and these candidates had a wide range of educational, training and experiential backgrounds as well as varying levels of competencies. This has resulted in a cadre of CHWs with varied literacy levels, capacities, and skill levels.

The WBPHCOT Policy states that CHWs are to be selected by a committee that includes a representative from the health facility, the Outreach Team Leader/Professional Nurse, the Health Facility Operations Manager, and, where applicable, an NGO representative. Priority in the recruitment process will be given to current community-based workers and to those that reside in the community being served. It goes further to stipulate a minimum educational requirement of a school-leaving certificate (grade 12 or “matric”). There is the concern that this requirement will exclude many existing CHWs,²⁶ although the policy does open the possibility of recognition of prior experience for those already in the system and who are trained.

Other requirements include the ability to work flexible hours, adequate mobility to undertake home visits, adequate visual and hearing capacity, and legal clearances to work with children and older persons.¹⁰ Men and women 18 years or older can be selected, although in practice, the vast majority are women.

One of the early steps taken in the implementation of the WBPHCOT strategy was to set up short training courses that would be conducted in phases. This has been followed by the development of a national qualification through the Quality Council for Trades and Occupations, the body that regulates work-based learning and apprenticeships. The training of CHWs has thus evolved incrementally. Phase One (initiated in 2012) involved a 10-day course covering an orientation to the structure and functioning of the health system (including the WBPHCOT), to HIV/AIDS and TB, and to maternal, child and women's health and nutrition. Phase Two (initiated in 2014), also a 10-day program, expanded this to cover the topics of non-communicable diseases and social support. Phase Three (initiated in 2015) is the fully fledged and accredited one-year curriculum referred to as the "Health Promoter" qualification. This is expected to be the future standard. A system of career progression in community-based services is still to be established, although in some areas of the country, CHWs who have school-leaving certificates (12 years of schooling) are preferentially selected for further professional training.

In a number of provinces, decentralized training systems have been established at district and even sub-district levels through an in-house mechanism referred to as Regional Training Centers.²⁸ A national appraisal in 2015, however, found that "the organization and timing of available training is inadequate, particularly the need for CHWs to complete Phase 1 before they begin to go out into the community; the slow pace of progression through the phases; the absence, shortages or delays in materials, un-conducive learning spaces, and a lack of budgeting and generally poor planning."²⁶ Systems of induction, and in-service and continuing education, while central to successful performance, remain ad hoc and poorly connected to the basic training.

Support and supervision

The quality of support and supervision is central to the functioning of WBPHCOTs. The policy envisages that each Outreach Team will be supported by a mid-level nurse (an enrolled nurse), referred to as the Outreach Team Leader (OTL). Initially, professional nurses with four years of training were recruited as OTLs, and in many provinces OTLs are still a mix of enrolled and professional nurses. However, the strategy of placing highly trained professional nurses into the position of OTL, while hugely beneficial to the team's functioning,²⁸ has run into difficulty because of the shortage of these nurses.²⁶ Attempts to draw in retired professional nurses or asking facilities to second a nurse for this role have had negative impacts on both the Outreach Team and facility functioning.²⁶

Insufficient supervision has been a persistent challenge for WBPHCOTs due to under-resourced, overstretched, or absent OTLs. An indicator of quality of supervision and support is the rate of patient referrals from CHWs to local PHC facilities, which remain low in many areas. In theory, supervision is to occur in weekly WBPHCOT meetings that provide support, feedback and coaching, and through accompanied home visits conducted quarterly by the OTL. OTLs are meant to devote 70% of their time outside the facility, providing supervision support and evaluation for CHWs in the field and liaising with other service providers. The remaining 30% of time is to be spent on administrative tasks in facilities. Where OTLs are seconded from health clinics, competing demands and lack of transport limit their capacity to provide community-based supervision. Furthermore, this arrangement inevitably also pulls CHWs into facility-based tasks. In some areas of the country, this has been compounded by initiatives to do away with lay counselors, who support facility-based HIV testing, counseling and ART treatment preparation.

Incentives and remuneration

CHWs in South Africa originally emerged from mobilization of volunteers to provide community-based care and support. Over time their roles became formalized and expectations emerged that CHWs would have stable work and that income that would increase over time. A system of stipend payments through NGO intermediaries was established, with remuneration levels way below formal public sector employment. In many instances they were below the minimum wage.

While the original PHC Re-engineering Discussion Document proposed incorporation of formally trained CHWs into the civil service, the resources required for this were never mobilized. CHWs thus remain a source of labor on the margins of the formal health system, without benefits or rights. Payments continue to be provided through NGOs, through companies contracted as “paymasters,” or through special contracts falling outside of the routine employment systems. Remuneration levels and working hours are highly variable across the country. CHWs can be expected to work anywhere between 20 and 40 hours a week and earn in the range of R1,800–R3,500 (US\$ 150–290) per month.

The WBPHCOT Policy Framework and Strategy does not address the remuneration and working conditions of CHWs. The investment case has proposed remuneration at around the minimum wage (R3,500/US\$ 290) per month. Achieving acceptable working conditions and pay remain a major unaddressed issue and a stumbling block to the implementation of the WBPHCOT strategy. Recent years have seen increasing instances of collective action by CHWs and attempts at establishing representative bodies, such as the National Union of Care Workers of South Africa (NUCWOSA) in 2016.²⁹

Community role

In several parts of the country, sites of delivery go beyond the household and include community-based mobile outreach sites, designated WBPHCOT health posts as well as in non-health facilities and in community venues to meet with support groups.^{26,30} In a number of provinces the WBPHCOTs have engaged other government entities such as Social Development, the Social Security Agency of South Africa and the Department of Home Affairs to coordinate access to social grants; they have also participated in inter-sectoral “war rooms” at the community level and they have worked closely with local political structures.^{21,28,31}

Notwithstanding these actions, the training and scope of practice of CHWs have not focused on sensitization to the social determinants of health or on the development of skills required for community mobilization. There is considerable potential for WBPHCOTs to further promote local action on the social determinants of health—whether on food environments, pedestrian safety, or access to services from other sectors (such as policing, grants, health promotion at schools, and so forth). The CHW training curriculum does include modules on community mapping and mobilization. However, in order to achieve this, the value of such activities must be recognized and CHWs must be actively supported through appropriate training and support from cadres such as environmental health practitioners. Unfortunately, WBPHCOTs do not have any formal role in the governance structures of community participation or the accountability structures of the formal health system such as Facility Health Committees. **

Linkages with the formal health system

In terms of the policy, each WBPHCOT is linked to a PHC facility that provides support, receives referrals and ensures involvement in campaigns that are organized locally by PHC centers. The Outreach Team Leader reports to the Facility Manager, and WBPHCOT data are submitted to the District Health Information System through the PHC facility. PHC facilities are also supposed to provide space, supplies and equipment for the WBPHCOT.

While this arrangement makes organizational sense, evaluations have concluded that PHC facilities often have fundamentally different orientations and see themselves in competition with Outreach Teams for scarce resources: “attaching WBPHCOTs to clinics adds additional management and service responsibilities onto already strained, overstretched, under-resourced and underperforming clinics and CHWs.”³² As a result, relationships between Outreach Teams and facility staff are often described as strained and unsupportive.²⁸ This is compounded by dual reporting lines in many parts of the country, where CHWs remain linked to and receive stipends from NGO intermediaries while being accountable to PHC facilities.

Approaches that enable greater autonomy of community-based services have been experimented with and have been proposed as alternatives.³² These include separate physical locations in health posts and specifically designated support teams at district and sub-district levels.

While the policy spells out roles for different spheres of government, overall program governance at district, provincial and national levels remains poorly developed.⁸ There is little active coordination and oversight from the national sphere, and mechanisms for stakeholder participation and voice that would enable the learning and feedback to ensure successful implementation are lacking.

Program scale-up

Scale-up has been uneven across the nine provinces. The health system has regarded the WBPHCOT strategy as an unfunded mandate and therefore has adopted it with varying levels of enthusiasm and intensity. Certain districts, notably those piloting aspects of the National Health Insurance Policy, have received support through “ring-fenced” conditional grants for WBPHCOT implementation. Teams continue to be established and trained. As indicated earlier, in 2017 42% of the estimated required total of 7,800 teams were considered functional (based on reported activity data).

Monitoring and data use

At the inception of the WBPHCOT strategy, a routine monitoring system was designed as part of the existing District Health Information System. Core activity indicators were defined and a system of individual household records, consisting of paper-based tick lists and forms, were developed for collated upward reporting. This system provides monthly reporting on the number of households that receive CHW activities, disaggregated by type of activity the household received, head counts and referrals. Data are entered at the facility with other data elements from facility-based activities. A back-referral system was devised using paper referral forms to be brought to a clinic and filled in by attending clinicians for ongoing care in the community when a referral is completed. Apart from back-referrals, this paper-based system is relatively well-adhered to, and effort is put into ensuring that the information that is fed into the system is quality controlled. However, the information gathering, verification, collation and capture processes are time consuming and prone to error, loss and delay. The information is not easy to access or use and storage space is a problem.²⁶

At the time of initial registration of households, information on each members of each household is collected, including details about the types of referrals that have been made. However, no provision was made for these data to be entered into the District Health Information System, and the data remain un-collated and unused.

An mHealth system for WBPHCOT has been designed and successfully piloted in parts of the country. This is likely to become a key part of the future monitoring and evaluation system.^{32,33}

Financing

Reflecting its origins, most of the financing of community-based services is through conditional grant allocations for HIV/AIDS and TB. Other funding sources include the Expanded Public Works Program and grants allocated directly by provincial and local governments. A study of expenditure on WBPHCOT in two districts estimated that it amounted to only 4% of per capita PHC expenditure in the districts. If the CHWs were paid the national minimum wage this would rise to less than 5% of PHC expenditures.²⁵ In 2017, the total cost of community-based services was only R2 billion (US\$ 166 million). An additional R4.6 billion (US\$ 380 million) would be required if the strategy were scaled up to all wards and if all CHWs were paid the minimum monthly wage (US\$ 290). This represents only 3.5% of total public sector health expenditure.¹¹

Promisingly, new announcements by the Minister of Finance in his annual budget speech suggested that revenue from the introduction of a Sugar Tax would be earmarked for health, including funding for the WBPHCOT program.

Impact

The performance of the PHC system, measured through routine indicators such as antenatal and immunization coverage and TB cure rates, has improved over the last decade. However, the role played by WBPHCOT in these improvements is uncertain.

Localized studies have shown that Outreach Teams can improve health outcomes, especially for maternal, neonatal and child health.³⁴⁻³⁶ These studies have also demonstrated the value of enhanced Outreach Team supervision and continuous quality improvement programs on outcomes such as the number of CHW visits during pregnancy and the postnatal period as well as on exclusive breastfeeding rates.³⁷ Studies have also documented the impact of disease-specific community cadres on HIV testing and disclosure as well as on ART uptake and adherence in adults and children.^{38,39}

However, many of these studies have been conducted under controlled experimental settings and do not necessarily represent impacts in the routine institutional environment. An analysis drawing on routine data and applying a difference-in-differences methodology was performed for data from the North West Province, an early adopter of the WBPHCOT approach.²⁸ Changes in facility-level indicators sensitive to community-based action were compared in facilities with and without Outreach Teams. Facilities with teams had significantly greater improvements in family planning and measles coverage as well as in the incidence of severe diarrhea.²⁸ In Gauteng Province, hypertensive patients receiving home delivery of medication and follow-up by WBPHCOTs had higher levels of blood pressure control than those attending the clinic.⁴⁰

An extensive modeling exercise, drawing on evidence from South Africa and elsewhere, on effective CHW interventions for MCH, HIV/TB and non-communicable diseases, estimated that a properly resourced, scaled up WBPHCOT program would save 200,000 lives and more than five million productive disability-adjusted life years over 10 years.¹¹ The multiplier effects of saved lives and employment creation would inject billions of rand in additional revenue into the economy.¹¹ These models form part of an investment case for the WBPHCOT Strategy presented to policy makers.

Challenges

Since its inception, the WBPHCOT strategy has received widespread support. It is now anchored in formal policy and is being implemented in many parts of the country. There is increasing consensus on the core elements of the model and its associated scopes of work.

However, the lack of clear national leadership and political commitment to date, inadequate budgetary commitments, unclear governance mechanisms, low remuneration of CHWs, and poorly developed support systems (including links to and roles of health facilities) are important constraints to the scale up and performance of the WBPHCOT strategy. Implementation has thus been slow and uneven, and coverage is still relatively low. Impacts are likely to be sub-optimal until these are addressed. The WBPHCOT program is caught in a “catch-22” dilemma: unless additional resources are allocated impacts will be hard to achieve, but additional resources will be required to show impacts.

In addition to the above, key issues that will need to be addressed in the future include:

1. Strengthening the relationship of WBPHCOTs to governance structures at the community level – including to local health committees
2. Promoting the role of CHWs in community social mobilization activities
3. Developing the relationship between CHWs and environmental health practitioners in undertaking/catalyzing local environmental activities
4. Defining optimal ratios of CHWs to households
5. Creating specialized community-based teams and functions to support the challenges that WBPHCOTs face in addressing needs for community-based mental health, rehabilitation, and palliative care, to mention only a few areas.
6. Developing methodologies for assessing impact, including developing the routine information system and funding operational and evaluative research programs (e.g., on the effectiveness of CHWs providing treatment for acute childhood illnesses, on the benefits of intersectoral actions on health, and on the benefits of supportive supervision of CHWs)

7. Developing systems of support that enable feedback learning among implementers across the system – both horizontally and vertically – and feeding the results into the policy processes nationally
8. Developing frameworks and guidance for sub-district- and district-level managers in priority settings for planning, monitoring and supporting WBPHCOTs.

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The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>). The photographs on the cover page are as follows: On left, CHWs demonstrating for better salary and working conditions (photograph courtesy of Mzi Velapi). On right, two CHWs counseling a mother with her child (photograph courtesy of Nali'ibali).

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Tanzania's Community-Based Health Program



Katharine D. Shelley¹, Gasto Frumence², Amalberga Kasangala³



¹ Senior Evaluation Officer at PATH/Seattle, USA

² Senior Lecturer Muhimbili University of Health and Allied Sciences/Dar es Salaam, Tanzania

³ Assistant Director of Health Promotion, Ministry of Health, Community Development, Gender, Elderly and Children/Dodoma, Tanzania

One-page summary

Background

Tanzania has a long history of community health dating to the late 1960s when the first village-based volunteer community health workers (CHWs) were trained. In 2014, Tanzania approved the National Community-Based Health Program (CBHP) Policy Guidelines, paving the way to establish its first national public sector cadre of paid CHWs.

Implementation

The pilot class of CHWs graduated in November 2016 and approximately 12,000 CHWs have been trained and deployed to date. Financing constraints and other challenges have limited the ability of the government to employ CHWs and scale up the program further. In addition, approximately 41,000 Volunteer CHWs are present who mainly work with NGOs to implement vertical, selective disease-control programs. Efforts are underway to harmonize their relationship with the newly trained CHWs.

Roles/responsibilities

Responsibilities of the paid CHW cadre include a mix of health promotion and basic curative services: implementing community health interventions, collecting and analyzing community-based data, conducting household visits, identifying patients needing referral, and collaborating with other Volunteer CHWs, with local officials, and community groups. Two paid CHWs cover one village in rural locations (with approximately 6,000 people per village) or one *mtaa* (urban neighborhood with approximately 9,000 people per *mtaa*).

Training

Applicants for CHW training are required to have completed their secondary school education and be a resident of the locality, 18 years or older, and nominated by the village health committee. Accepted students are assigned to a government-accredited Health Training Institution nearest to their locality, and they are expected to pay for their own training fees. The CBHP pre-service training consists of a 12-month integrated competency-based curriculum. It includes 14 modules aligned with Tanzania's National Essential Health Package. Upon completion, trainees receive a Basic Technician Certificate in Community Health.

Supervision

CHWs receive on-the-job supportive supervision and training on clinical tasks from the in-charge/focal person at the nearest health dispensary or health center. Administratively, CHWs are supervised by the Village Executive Officers, to whom they report daily. The CBHP policy recognizes the role of non-clinical community-based staff (e.g., Agricultural Extension Workers) as a resource for CHWs to refer patients and provide information that CHWs may not have. In addition, periodic supportive supervision is conducted by high-level staff.

Incentives and remuneration

CHWs are supposed to receive a monthly salary equivalent to approximately US\$ 140 per month, plus benefits such as health insurance and annual leave. However, the government has not yet begun employing and paying CHWs. Non-financial incentives include community recognition and opportunities for further career advancement.

Impact

Establishing a cadre of government-salaried, multipurpose CHWs is a historic step in Tanzania's journey toward Universal Health Coverage. Formal research and evaluation will be necessary to assess the impact of the CBHP policy and its contribution to improving health equity.

Historical context

Following Tanzania's Independence from Britain in 1961, the national health system was established with a focus on providing decentralized health care to the predominantly rural-based population.¹ In 1967, President Julius Nyerere's Arusha Declaration, a political statement on socialism and self-reliance, ushered in a commitment to primary health care (PHC) through an increasing focus on health equity.² The Arusha Declaration is also notable for renewing government efforts to mobilize resettlement of the rural population into *Ujamaa* villages, which offered the government a more efficient means for building schools and health facilities.^{2,3} In the late 1960s, there were efforts to train volunteer community health workers (CHWs), given the reality that health facilities were not yet built within reach of each village. These initial CHWs were not paid nor were they formally included in the health system.²

In 1983, the government launched its national village health worker (VHW) program as part of Tanzania's National PHC Initiative.² Through focusing on community health education, preventive health services, and care for minor ailments, the VHW program linked communities and health facilities.^{1,4} However, the VHW program faced several implementation constraints: low retention, lack of supervision support, inadequate remuneration, drug shortages, transport issues, in addition to community expectations that VHWs prioritize curative services over health promotion activities.² During the 1990s, as government funding for the VHW program waned, funding from an informal network of vertical, disease-specific programs appeared. These programs were operated and supported through various externally funded development partner organizations.⁴ These organizations provided VHWs with a nominal monthly stipend and periodically administered vertical, single-disease-oriented training, but generally they did not offer the wider primary health care training that had previously formed the basis of the national VHW program.^{4,5}

The United Republic of Tanzania, including the Tanzania mainland and Zanzibar, is the sixth largest country in Africa, with a population of 54 million people, 70% of whom live in rural areas.⁶ The country is facing an ongoing and severe health care worker shortage, with an estimated 56% shortfall, that challenges efforts to improve equity and access to health care especially in rural areas.⁷ In addition to an overall shortage of health workers, there is a geographic maldistribution of health workers, with three times the number per capita in urban districts compared to rural districts.^{1,8,9} In 2014, 554 Health Dispensaries across Tanzania were identified to be without any skilled health workers.¹⁰ A mapping and landscaping analysis in that same year identified an estimated 41,000 CHWs, mostly volunteers, who were engaged primarily in highly specific activities directed by vertical programs.¹¹ This extensive network of partner-supported CHWs has been filling an important role in the health system. However, challenges in harmonization, coordination, standardization, supervision and monitoring of the various cadres have emerged. This has prompted government interest in establishing a revitalized single national cadre of paid CHWs with formalized training in an integrated package of preventive and basic curative and rehabilitative skills.

In 2013, Tanzania formed a National CHW Task Force to provide advice to the government on the development of a new CHW cadre that would be integrated into the formal health system. In 2014, Tanzania's Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) approved the National Community-Based Health Program (CBHP) Policy Guidelines to support the establishment of the new CHW cadre.¹² In 2015, a national CHW training curriculum was developed based on the CBHP Strategic Plan (2015-2020) outlining program priorities and objectives.¹³ By the end of 2016, the first cohort of students from the national CHW training program graduated.¹⁴ In 2017, the CBHP Implementation Design was published, providing further guidance on establishing and operationalizing the CBHP in Tanzania, including guidance on the integration of the new CHW cadre into the national health system.¹⁵ This chapter presents details about the new national CHW program and its implementation progress.

Health needs

Communicable diseases constitute the main driver of Tanzania's morbidity and mortality burden, although non-communicable diseases, including heart disease, stroke and diabetes, are increasingly more common.¹⁶ Neonatal disorders, lower respiratory infection, and HIV/AIDS were the top three causes of death in 2017.¹⁶

An estimated 1.6 million Tanzanians are living with HIV, yielding a prevalence rate of 4.7% among adults 15-49 years of age. HIV/AIDS disproportionately affects women relative to men. The prevalence among women is 6.2% while among men it is 3.1%.^{17,18} Tanzania has made steady progress in reducing the mortality rate among infants and children younger than five years of age over the last few decades, but progress in reducing maternal mortality has been slower, with the estimated lifetime risk of maternal death currently at 1 in 33.^{19,20} Tanzania's total fertility rate remains high at 5.2; and the unmet need for contraception among married women is also high at 22%, suggesting limited access to preferred contraceptive methods.²¹

Establishing a paid, multi-purpose community-based cadre will help address staffing shortages, particularly in rural Health Dispensaries, to ensure preventive and curative care extends to the village. Beyond human resource constraints, additional health system factors limit Tanzania's ability to respond to its key health needs, including unreliable drug and supply stocks, lack of equipment, poor transportation, low motivation among health care workers, inadequate referral networks, and insufficient communications.¹

Health system structure

Tanzania's health system encompasses numerous entities for managing and coordinating service delivery, human resources for health, drug and medical commodity procurement and distribution, data and monitoring systems, financing, leadership and governance across national, regional and district levels. Within the national government, the MOHCDGEC and the Presidents' Office – Regional Administration and Local Government manage and oversee the health system.¹³ The mainland of Tanzania includes 26 regions, consisting of 40 urban councils and 132 rural councils (districts). Each council contains approximately 300,000 residents. Zanzibar is a semi-autonomous region of Tanzania. The Zanzibar Archipelago, 25–50 kilometers off the coast of the mainland in the Indian Ocean, consists of two large islands, Unguja and Pemba, and many smaller ones. Zanzibar contains four urban authorities and seven rural councils (districts).²² Councils make up the administrative units within Local Government Authorities, including district councils in rural districts and town and city councils in urban districts. Councils are responsible for supervising the implementation of all plans for economic, commercial, industrial, and social development in their respective areas. Regional and Council Health Management Teams work in close collaboration with the Local Government Authority in managing the health system at the regional and district levels, including community health planning and implementation.^{13,22} Rural districts are further organized into wards covering four or five villages each, where ward development committees, village health committees and village development committees work together on supervising and coordinating local health system activities.^{13,23} Similarly, urban councils are organized by wards and *mtaa* (the smallest geographic division of an urban ward), where *Mtaa* Committees link to the ward development committees.²²

Tanzania's formal health care delivery system is multi-tiered and decentralized, with increasingly specialized care available at more central facilities.¹ Primary health care services are delivered at the community level by community-based cadres and through tiered health facilities serving the district: Health Dispensaries (with a catchment area of 6,000-10,000 people), health centers (with a catchment area of 50,000 people), and district hospitals (one serving the entire district).¹ Districts vary greatly in size, from 50,000 to 1.5 million people. Regional hospitals, covering four to eight districts, offer more specialized care.¹ Tanzania's continued investment in the rural health system to ensure delivery of care as close to the community as possible has resulted in one of the highest densities of health facility infrastructure among countries in Africa.⁵ The public sector includes 6,882 health facilities, of which 87% are health dispensaries and 9% are health centers. These serve as the main source of health service delivery, particularly for Tanzanians living in rural areas.²⁴ Treatment guidelines have been developed for the services offered at each type of facility as well as for the indications for referral to a higher facility level.²⁵

CHW program features

The CBHP is situated within the MOHCDGEC's Department of Preventive Services, Health Promotion Section. Approximately 12,000 CHWs have been formally trained, but few have been hired by the government to date. Some have been hired as medical attendants since the CBHP included a training component in this area that made them qualified to serve in this role. In addition, an estimated 41,000

Volunteer CHWs, mainly serving with vertical, selective disease-control programs supported by NGOs contribute to the health system.¹¹ Per the new policy guidelines for 2020, Volunteer CHWs will begin working in a harmonized manner with the formally trained cadre of CHWs.

Scope of work

To support their scope of work, CHWs are provided with a kit of essential supplies and equipment, including: a thermometer, a timer (to measure respiratory rate), a solar-powered torch (flashlight), gumboots (rubber boots), an umbrella, soap, gloves, scissors, a razor blade, a mid-upper-arm circumference (MUAC) tape (to screen for malnutrition in children), over-the-counter medicines, essential basic life-saving drugs in line with the service package, registers and reporting forms, referral forms, standard operating procedures, an identification card, and a backpack.¹⁵

The CBHP minimum service package outlines promotive, preventive, curative, rehabilitative, and palliative care services provided by CHWs. In addition to these services, CHWs are responsible for mobilizing, motivating and organizing communities to participate in CBHP activities.¹⁵ For promotive and preventive tasks, CHWs conduct community and household education and health promotion on a variety of topics. (See the Training section below for full module list). For curative tasks, CHW responsibilities include:

- Identify pregnant women and neonates with danger signs and refer them for additional care.
- Provide oral rehydration solution and zinc for children with diarrhea and refer for care if needed.
- For lower respiratory infection, start initial dose of amoxicillin and refer for ongoing management.
- Administer a rapid diagnostic test (RDT) for patients with signs and symptoms of non-severe malaria and provide a full dose of Artemether/Lumefantrine following positive RDT results. Immediately refer patients with signs of severe malaria for further care.
- Provide support to HIV patients regarding disclosure, adherence, and retention in care and treatment services. Refer HIV patients with deteriorating conditions for further care.
- Refer patients with suspected TB to the health facility for further assessment.
- Support management of home-based TB treatment.
- Provide counselling on family planning, distribute oral contraceptive pills and condoms, and refer clients to health facilities for additional services and method types (e.g., injectable contraceptives).
- Identify patients with signs of mental disorders and refer for care.
- Participate in the early response and management of disease outbreaks (e.g., cholera and dysentery).
- Perform basic first aid.
- Provide psychosocial support.

CHWs also provide rehabilitative and palliative care. Illustrative examples include: establishing recreation groups for elderly people in the community; performing home visits to ensure adherence to home-based rehabilitation following injury; supporting home-based palliative care needs; assisting with TB support groups and leprosy self-care groups; identifying women with obstetric fistulae and facilitating their referral to care; identifying community members with physical disability and referring them for health and welfare services; and facilitating self-care and social welfare support for families with children with congenital conditions.

Selection and training

The Department of Human Resources within MOHCDGEC is responsible for setting standards for training institutions, including CHW training requirements. The National Accreditation Council for Technical Education (NACTE) has developed the curriculum as well as the required qualifications and details of the nomination and application process, including posting of CHW training advertisements to the Council's website.¹⁵ The village health committee manages the CHW nomination process. Applicants must be at least 18 years of age and have a minimum of four years of secondary schooling, including a pass in biology.^{15,26} Applications and the village health committee nomination form are submitted online.¹⁵

Accepted applicants are assigned to a government-accredited Health Training Institution (HTI) nearest to their locality. Applicants are expected to pay for their own training fees, although some scholarships may be available (with a stipulated agreement to return to the village for CHW service for a minimum of three years).¹⁵ CHWs are trained following a 12-month curriculum, including field work, for a Basic Technician Certificate in Community Health.¹⁵ The integrated, competency-based curriculum includes 14 modules which are aligned with components of the National Essential Health Package, including: reproductive, maternal, newborn, child, and adolescent health services; HIV/AIDS; malaria; TB and leprosy; neglected tropical diseases; non-communicable disease control; mental health; emerging diseases and outbreaks; physical injury and trauma; nutrition; oral health; eye care; environmental health, hygiene and sanitation; social welfare and social protection (gender based-violence, gender mainstreaming, child protection, assistance to vulnerable populations, and health of elderly).^{15,26} One study of the initial cohort of CHWs has been published that demonstrates a high level of satisfaction of CHWs with the training they received.²⁷ After completion of training, the Ministry of Finance and the President's Office—Public Service Management handle employment permits, whereas the Ministry of Health and the President's Office—Regional Administration and Local Government is responsible for CHW deployment to working stations. The CBHP implementation plan stipulates that CHWs will be hired and given an employment contract that contains details of the job responsibilities and employment conditions;^{13,15} however, this has yet to materialize given national budget constraints.

Support and supervision

Supervision aligns with the government's structure from the national to the village level. The national level is responsible for providing supervision guidelines, technical support, and supervision oversight to the Regional Health Management Team mainly through CBHP Coordinators. The regional level is responsible for disseminating guidelines, whereas the council level provides technical support to the health dispensary and health center focal persons and Village Executive Officers who supervise the CHWs directly. Council Health Management Teams are supervised by a Regional Health Management Team trained on the competencies of providing supportive supervision to CHWs using national guidelines.^{13,15} The Council Health Management Team and a CBHP Coordinator plan the activities and provide supportive supervision to ward and community-level actors. Council Health Management Teams are responsible for budgeting for and integrating CBHP supervision into district level plans. Similarly, the health centers and dispensary management teams are responsible for budgeting and integrating CHBP supervision into the health facility plans (in line with Tanzania's Direct Health Facility Financing program introduced in 2017). The village health committee is responsible for overall supervision of the CBHP within the village catchment, including implementation of village health plans, mobilizing resources, compiling reports, and supervising the nominee and application process.¹⁵

CHWs receive administrative supervision from Village Executive Officers, to whom they report daily. CHWs receive periodic on-the-job supportive supervision and training on clinical tasks from the in-charge/focal persons at the health dispensary or health center to which the CHW is attached. The CBHP policy also recognizes the role of non-clinical community-based staff as a resource for CHWs for referral and information on non-medical issues outside of their scope (e.g., linkages to agricultural extension workers as a resource for supporting gardening to address malnutrition). At the community level, the village health committee and village development committee regularly monitor and evaluate the CBHC. Supportive

supervision includes mentoring, coaching, and use of checklists for directly monitoring CHW activities, including reviewing data quality and reporting methods.¹⁵

Incentives and remuneration

Per the Scheme of Service, the new cadre of CHWs was budgeted to receive a salary equivalent to approximately US\$ 140 per month plus benefits such as health insurance and annual leave.¹³ For comparison, Tanzania's gross national income was US\$ 85 per month per capita in 2018.²⁸ In addition, non-financial incentives include opportunities for community recognition. There are also opportunities for career advancement built into the CBHP strategy and Scheme of Service. For example, CHWs can be promoted to the position of Senior CHW. An alternative path to career advancement is to obtain a higher-level position through additional education.¹⁵ However, the government has not yet begun employing and paying CHWs and the CBHP is too new to assess whether and how career advancement opportunities are being realized.

Community role

Per the CBHP policy guidelines, the community has an important role to play in the operations of community-based health services. The community is responsible for establishing and implementing strong governance and an accountability mechanism for CHWs, including for example by: ensuring active participation of CHWs in village health committee meetings; mobilizing resources for the CBHP, including promoting community health financing; coordinating civic input into the CBHP; and ensuring information sharing between CHWs and the village and ward levels, including reporting to the village health committee on issues related to quality of care and client satisfaction.¹⁵

Linkages with the formal health system

As laid out by the CBHP policy, curriculum, and implementation guidance documents, CHWs are an officially recognized government cadre of salaried health workers that are integrated into the formal health system. CHWs are part of Tanzania's human resources for health component who serve communities by linking them to health dispensaries and health centers within the public sector health system. CHWs improve Universal Health Coverage, particularly in the rural areas where Tanzania's shortage of human resources for health is critical. As Tanzania moves towards adopting a people-centered approach to health systems strengthening in which the perspectives of individuals, families and communities are taken into account, as proposed by the World Health Organization²⁹, the CBHP becomes the cornerstone in linking the communities with health facilities.

Program scale-up

The pilot class of 3,737 CHWs graduated in November 2016.³⁰ To date, approximately 12,000 CHWs have been trained and deployed. The Government of Tanzania has set a target of 24,888 CHWs to be trained by 2022.¹⁵ The aim is for each village (with an approximate population of 6,000 people) to have a minimum of two full-time CHWs,¹⁵ a commitment which was reaffirmed in May 2019 when the Minister of Health announced the government's plan to fund two skilled and trained CHWs in every village beginning in the 2019-2020 financial year. Unfortunately, this goal has not been realized.³¹ Financing constraints and coordination challenges have prevented the government from further scaling up this model, although several donors and partners are currently supporting some of the CHWs trained through this program. Owing to these challenges and other considerations, the government has decided to suspend the 12-month training course until further notice. In the interim, adaptation plans are underway for a three-month training curriculum that includes a comprehensive social welfare component.³² A draft policy guidance document is under review and is expected to be endorsed and released in 2020.

Monitoring and data use

CHWs are responsible for recording data on community and household activities using national HMIS reporting forms (MTUHA Book No. 3 and 10), including recording all cases identified, services offered,

treatment administered through CHW services, as well as reporting on referral and linkage to additional care.¹⁵ CHWs also assist in reporting to the nearest health facility all births and deaths that happen in the community. Additionally, they report on any risks or hazards identified in the community, as well as any accidents, traumas, or other reportable events to the nearest health facility.¹⁵ On a monthly basis, CHWs prepare and submit monthly reports on health issues to the Ward Executive Officer, village health committee, and village leadership.

Financing

National budget constraints have limited the ability of the Tanzanian Government to employ the approximately 12,000 CHWs who have been trained under the CBHP program since it was launched in 2016.³³ To date, the government has employed 72 of the trained CHWs in one Council, where they are serving as health attendants. Donors and partners are providing additional support. For example, the African Medical and Research Foundation (AMREF), Doctors with Africa/CUAMM, Pathfinder International, Jhpiego, THET/Partnerships for Global Health, and the Benjamin Mpaka Foundation have supported the training and deployment of CHWs.³³ CHW training candidates are already responsible for self-financing their education costs. However, ensuring sustainability of the CBHP will require developing innovative health financing structures, including private sector partnerships, a revolving fund, CHW small-scale entrepreneurial businesses, and increased community financing.³³

Impact

Results are available from the Connect Project, a four-year cluster-randomized controlled trial carried out between 2011 and 2015 to assess the child survival impact of deploying paid CHWs to provide doorstep preventive, promotional, and curative antenatal, newborn, child, and reproductive health care in three rural Tanzanian districts.³⁴ During the first two years of operation, the trial demonstrated a 15% decline in 1-59-month mortality when the logistics and supply support systems were managed by the Ifakara Health Institute. During years 3 and 4, the MOHCDGEC took over the management of the logistic and supply support systems. There was no mortality impact observed during this period, and the increased mortality during the last two years of the trial were associated with stockouts of supplies.³⁴ Further process evaluations are needed to learn which aspects of the national CHW program are working well and which aspects of recruitment, training, supervision, logistical and supply support, reporting and data use, financing, and governance need further adjustment.

Challenges

Establishing the CBHP and a cadre of government salaried, multipurpose CHWs is a historic step in Tanzania's journey toward Universal Health Coverage. However, financing constraints have limited the ability of the government to employ CHWs and, as described above, implementation of the CBHP is already undergoing some adaptations to the original plans for operationalization. Research and evaluation will be necessary to assess the impact. As the program matures, the Government of Tanzania will need to address several challenges, including:

- Retaining CHWs
- Meeting the in-service needs of CHWs and their career advancement opportunities
- Harmonizing the paid CHW workforce with the existing Volunteer CHWs
- Financing the CBHP, including CHW salaries
- Ensuring quality of CHW-delivered services
- Establishing community trust and acceptance of CHW-delivered services
- Improving data use for decision making by CHWs

- Assessing the impact of the CBHP
- Coordinating partners working in the CBHP

Acknowledgements

The map on the cover page was downloaded from the public domain

<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>.

Cover photo on left: CHW providing health education during a home visit. Photo credit:

<https://www.hifa.org/projects/community-health-workers/>

Cover photo on right: CHW providing health education to a group of neighbors. Photo credit:

<https://twitter.com/UNICEFTanzania/status/1127181801397653506>

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Village Health Volunteers in Thailand



Krit Pongpirul¹



¹ Assistant Professor, Chulalongkorn University, Bangkok, Thailand; Adjunct Faculty, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; Research and Quality Advisor, Bumrungrad International Hospital, Bangkok, Thailand

One-page summary

Background

As part of its primary health care policy that was established in 1977, Thailand has gradually expanded its cadre of Village Health Volunteers (VHVs), or *Or Sor Mor*. At present there are more than one million VHVs.

Implementation

VHVs can recognize age-specific health problems as well as surveil the community for infectious and non-infectious diseases. They participate in planning for and management of community health problems, utilizing financial support from the Ministry of Public Health (MOPH) or other sources.

Roles/responsibilities

Each VHV is responsible for 10 households on average. They assist the local health workers in promoting health and preventing diseases as well as in providing basic health services to local communities.

Training

Initial training is 43 hours of classroom work. Follow-up training is provided on a regular basis. Topics cover comprehensive health management for persons in different age groups, infectious disease surveillance and control, health promotion, mental health, consumer protection, as well as traditional health knowledge.

Supervision

The VHV program is under the Primary Health Care Division of the Department of Health Service Support (DHSS) of the MOPH. VHVs are supervised by on-site local health workers. A web-based VHV information platform has been developed and is widely used, and a mobile Android application “SMART Or Sor Mor” has been introduced.

Incentives and remuneration

Each VHV receives a monthly salary of 600 baht (US\$ 20), in addition to the social recognition they receive, the sponsored leisure activities, parties, field trips, and possible national awards.

Impact

VHVs have contributed to a broad range of health promotion and health prevention activities. For example, they are active with avian flu surveillance, HIV prevention and control activities, as well as the promotion of children’s oral health. Thailand has been a global leader among low- and middle-income countries in reducing its under-five mortality rate.

Historical context

Thailand has invested substantial effort into the implementation of its primary health care (PHC) policy, of which the Village Health Volunteer (VHV) or *Or Sor Mor* has been a key component for almost seven decades.¹ During the 1950s, hookworm, TB, and malaria were common health problems in communities. Community volunteers, introduced in the malaria control program, later became VHVs. In 1975, Thailand announced its first national policy to provide free medical care for the poor and began the expansion of community health centers and rural hospitals. Health systems were restructured to promote multisectoral coordination, community organization, as well as community self-financing and management. VHVs and Village Health Communicators (VHCs), or *Or Sor Mor*, were set up in most villages during the 1970s. The number of VHVs has exponentially increased to more than one million as of February 2018. Approximately 70% are women.² The VHV program contributed to the improvement of nutritional status, immunization coverage, and access to clean water and essential drugs. Thailand has succeeded in becoming one of the best-performing countries in terms of its reduction of early child mortality, that now measures one-fifth of what it was 30 years ago.^{3,4}

In 1977, one year prior to the Declaration of Alma-Ata, the PHC program was officially initiated in Thailand as part of the Fourth National Health Development Plan (1977–1981). Key components of PHC program, including the National Primary Health Care Committee, the Village Medicine and Medical Supplies Fund, and VHVs/VHCs, were established as pilot projects in 20 villages. Potential candidates in each village were nominated and trained to become either VHCs or VHVs, and responsible for eight tasks: (1) nutrition, (2) health education, (3) basic medical care, (4) essential medicine and medical supplies, (5) sanitation and access to clean water, (6) maternal and child health and family planning, (7) infectious disease control and prevention, and (8) immunization.

The Fifth National Health Development Plan (1982–1986) expanded the number of VHVs/VHCs to cover all rural areas and introduced the VHVs/VHCs to urban areas. In 1982, the ASEAN Training Center for Primary Health Care Development (later called ASEAN Institute for Health Development) was founded as a joint effort of the MOPH, Mahidol University, and the Department of Technical and Economic Cooperation of the Royal Thai Government. and four regional training centers were established. Two tasks were added to the VHV/VHC responsibilities: (9) dental and (10) mental health.

In the Seventh National Health Development Plan (1992–1996), the VHC program was merged with the VHV program, and self-care was promoted. A Community Primary Health Care Center was established in each village. Four VHV tasks were added — (11) environmental health, (12) consumer protection, (13) accident, safety, and non-infectious disease control and prevention, and (14) HIV/AIDS control and prevention. The Eighth National Health Development Plan (1997–2001) introduced an annual allocation of 7,500 baht (US\$ 248) to each village for human capital development, addressing public health problems, and Community Primary Health Care Center management. The amount was raised to 10,000 baht (US\$ 330) in the Ninth National Health Development Plan (2002–2006). The VHV is under the Primary Health Care Division, Department of Health Service Support (DHSS), Ministry of Public Health (MOPH).

Health needs

The establishment of the VHV program was a response to the need to control infections and infestations. However, as Thailand rapidly moved from lower to upper-middle-income status, its health problems have also transitioned from primarily infectious diseases to more chronic diseases. Consequently, there is a greater need for secondary and tertiary care, while the VHVs are now regarded as more of an adjunct to the health care system rather than a central feature.

Health system structure

Thailand's health system is comprised of more than 1,300 hospital facilities located throughout the Bangkok metropolitan area and in the 12 geographic regions comprising 77 provinces. 80% of the hospitals are government-owned, and they are broadly classified into community (district) and provincial hospitals. There

are approximately 740 community hospitals grouped into five categories based on number of beds (10, 30, 60, 90, and 120 or above). Each province has at least one provincial hospital. There are 17 regional hospitals in larger cities around the country. There are about 350 private hospitals in Thailand, mostly concentrated in Bangkok and in the larger cities of the Central region.

Each district or “Amphur” is comprised of a subdistrict or “Tambon.” Each Tambon usually has one or two health centers that are responsible for providing basic medical care to the population. The health center was ‘renamed’ to Tambon Health Promoting Hospital (THPH) despite no fulltime physician nor inpatient beds.

CHW program features

The VHV program is under the Primary Health Care Division, DHSS. VHVs are each responsible for 10–20 households but the number can vary from 8–30 and in some cases even 50. There are now one million VHVs in Thailand.

Scope of work

Viewed as change agents within their communities,³ the first and most important task of a VHV is to convey important public health news and messages to community members, especially when epidemics occur. They also provide basic medical care services, including the distribution of oral contraceptives and, when necessary, coordinate referrals from health centers to first-level hospitals. VHVs should be able to recognize age-specific health problems as well as surveil infectious and non-infectious diseases. They participate in the planning and management of community health problems, utilizing financial support from the MOPH or other sources.

VHVs are usually very familiar with their communities. They have both formal and informal interactions with villagers and authorities. They communicate well in the local language and are respectful of local cultural and religious practices.

In addition to the above activities, VHVs lead and/or participate in activities to promote the physical and mental health of their communities. For example, VHVs identify and promote local healthy vegetables, fruits, and other food, herbs, and folk remedies. Their expertise in traditional medicine, religious practice, and village drama is beneficial for their communities at minimal expense. These activities are part of the implementation of the Sufficiency Economy Philosophy (SEP) promoted by his Majesty King Bhumibol throughout Thailand.⁵ SEP is:

“a philosophy that stresses the middle path as an overriding principle for appropriate conduct by the populace at all levels. This applies to conduct starting from the level of families to communities and to the nation in terms of development and administration, so as to modernize in line with the forces of globalization. ‘Sufficiency’ means *moderation*, *reasonableness*, and the need for *self-immunity* to protect from impacts arising from internal and external change. In addition, a way of life based on patience, perseverance, diligence, wisdom, and prudence is indispensable in creating balance and in coping appropriately with critical challenges arising from extensive and rapid socioeconomic, environmental, and cultural changes in the world.”⁶

VHVs also contribute to the activities of medical, nursing, and public health students by providing field supervision. Some might argue that the VHV is a more crucial component of the village health system than health workers. However, the success of VHVs is limited to rural and semi-rural communities, as the Bangkok Metropolitan Area does not have any VHVs.

Selection and training

The criteria for nominating a VHV are: age at least 18 years, residency in the community for at least six months, literate (but no formal education required), having good interpersonal relationships, generous, and having had at least one job. Villages are divided into segments of 8–15 households for coverage by one VHV. If there is more than one VHV candidate, the VHV is chosen by majority vote of the community members.

The candidate then has to participate in the training and pass an examination before receiving a certificate issued by the DHSS, which is valid for four years. Renewal of VHV status depends on track record and productivity; VHV status can be removed by a majority vote of the community members or when the VHV relocates or resigns.

Thirty-seven hours of training in core subjects along with six hours of training in elective subjects are required. Subjects for initial and ongoing training include the following, and the training for the subject is usually given all on the same day:

- Comprehensive Sub-district Health Management for Age Groups
- Infectious disease surveillance and control
- Health promotion
- Community mental health
- Prevention and management of mental health problems
- CPHCC management and health Security
- Consumer protection for health
- Prevention and management of HIV/AIDS in the community
- Community health management
- Traditional health knowledge
- Maternal and child health (including promotion of breastfeeding)
- Special topics: diabetes mellitus, home health care, disability care, health surveys

VHVs have comparatively low educational and economic backgrounds.¹

Support and supervision

VHVs are supervised and supported by local health workers of the responsible health centers. The supervision is mostly informal in nature as VHVs are considered ‘autonomous’.

Incentives and remuneration

Each VHV receives a monthly salary of 600 baht (about US\$ 20), which is paid at the monthly mandatory meeting at a place in the neighborhood. Aside from the compensation, becoming a VHV is seen as a privilege. A number of leisure activities, parties, and field trips sponsored by local health and non-health authorities are other types of incentives. VHVs are usually recognized first in most community events. Some VHVs are nominated for provincial and regional competition; nationally recognized VHVs receive prestigious awards.

Community role

Aside from responding to the messages and recommendations of the VHV, the community’s main role is to select the VHV and to replace a VHV who is not performing satisfactorily or who has resigned.

Linkages with the formal health system

VHVs receive a monthly allowance from the MOPH and they are supervised by lower-level health workers of the MOPH.

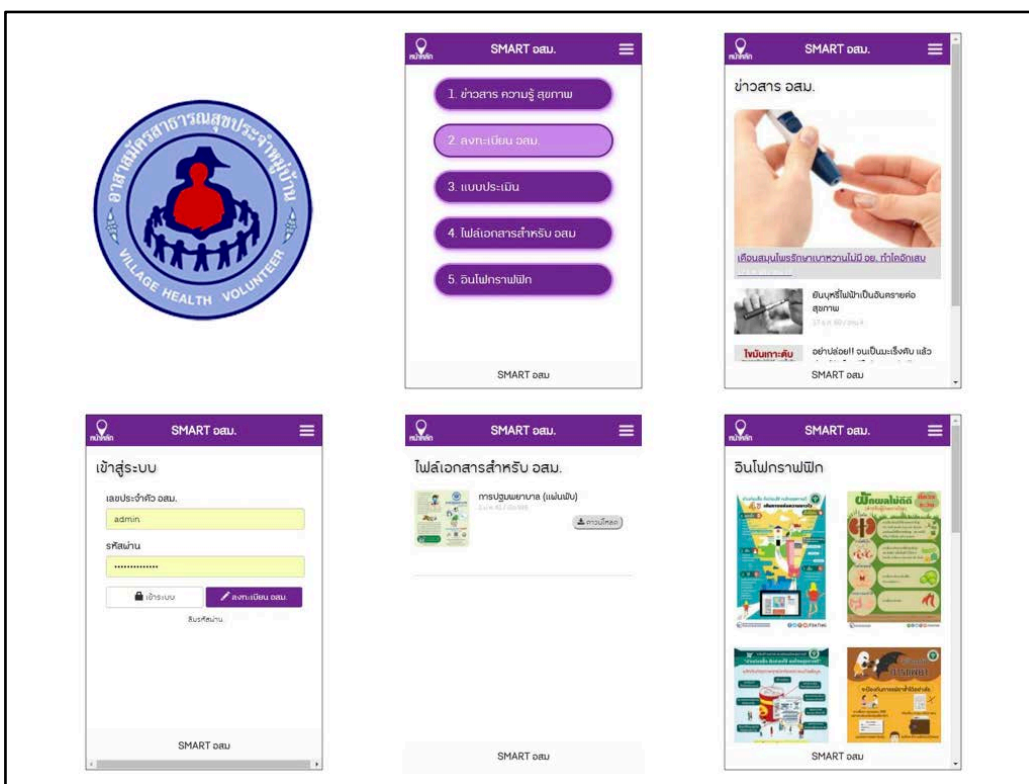
Program scale-up

The VHV program scaled up to one million VHVs in the 1980s and has remained at this level since. Current efforts are geared toward a paradigm shift in which VHVs are now becoming “health supporters” to help community members become more aware that individuals not only have rights to health care but also the responsibilities to maintain and promote their own health.

Monitoring and data use

A web-based VHV information platform has been developed and widely used (www.thaiphc.net). Recently, the mobile Android application “SMART Or Sor Mor” has been introduced.

Figure I. “SMART Or Sor Mor” application



Source: Google Play Store (play.google.com/store/apps/details?id=com.smartosm)

Financing

The VHV program is managed and financed under DHSS, MOPH. There are three major public health insurance schemes, covering almost 100% of the population. The Civil Servant Medical Benefit Scheme covers government employees, retirees, and their dependents, including parents, spouses and children, and is managed by the Department of the Comptroller General in the Ministry of Finance. The Social Security Scheme covers employees in the formal private sector. It is regulated by the Ministry of Labor and managed by the Social Security Office. The Universal Coverage Scheme was introduced in 2001 to expand health benefits to Thai citizens not covered by the first two schemes and, therefore, is the largest scheme, covering 80% of the population. These three health insurance schemes cover the costs of hospital care needed by the majority of the population. The VHV program falls under the Primary Health Care Division, Department of

Health Service Support (DHSS), of the Ministry of Public Health (MOPH), and has a separate budget allocation system.

Impact

VHVs have been critical components of primary health care in Thailand. They have contributed to a broad range of health promotion and disease control activities.³ VHVs have contributed to avian flu surveillance.⁷ They were also important contributors to HIV prevention and control activities⁸ as well as to promotion of children's oral health.⁹ With the help of VHVs, Thailand has been a global leader among low- and middle-income countries in reducing its under-five mortality rate. Its under-five mortality rate is currently on par with that of the United States – 9 deaths per 1,000 live births. Its infant mortality rate declined from 30 to 8 between 2000 and 2018.¹⁰ Between 1990 and 2006, Thailand had the highest average yearly reduction in its under-five mortality rate among all low-income countries.⁴

Challenges

VHVs in Thailand performed comparatively well on short-term tasks but not on the work that requires sustained attention.¹¹ That is, VHVs have been assigned to assist in some specific activities that take a few hours in one day, but they have never had a chance to propose a project that has to be implemented in a longer term.

Rural villagers have high expectations for VHVs. This might put some VHVs in difficult situations that they cannot handle and lead villagers to lose confidence in them. Findings from a few studies regarding VHVs' competency have been inconclusive. For example, one study revealed that even though their health literacy was higher than that of the general population, there were areas of deficiency such as knowledge of herbs and dietary supplements, health information in general, and the importance of promoting physical exercise.¹¹ However, another study of 36 VHVs found that they could be trained to detect problems in relation to the dosage of medications for chronic diseases such as diabetes and hypertension.¹²

Another interesting challenge is that VHVs have been drawn into politics and have become involved in local, regional, and national issues.¹¹ Local politicians usually regard VHVs as vote supporters, potentially distracting them from their health mission.

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The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>). The photo on the left shows a CHV providing information about the female reproductive system to women coming for antenatal care. The photo on the right is of CHVs attending a monthly meeting. Photographs provided by Krit Pongpirul.

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Uganda's Village Health Teams Program



**David Musoke¹, Joviah Gonza², Rawlance Ndejjo³,
Amanda Ottosson⁴, and Elizabeth Ekirapa-Kiracho⁵**



¹ Lecturer, Makerere University School of Public Health, Kampala, Uganda
² Research Assistant, Makerere University School of Public Health, Kampala, Uganda
³ Research Associate, Makerere University School of Public Health, Kampala, Uganda
⁴ Independent Consultant, Kampala, Uganda
⁵ Senior Lecturer, Makerere University School of Public Health, Kampala, Uganda

One-page summary

Background

Community health workers in Uganda work as members of Village Health Teams (VHTs). The VHTs program was established in 2001 as a cost-effective way to link communities with health services. VHTs support the Ministry of Health (MOH) to bring health services closer to the population.

Implementation

In Uganda, each village is mandated to have four VHT members, at least two of whom provide Integrated Community Case Management (iCCM) of Childhood Illnesses.

Roles/responsibilities

The main role of VHTs is to mobilize communities for better health services, hence bridging the gap between communities and health facilities. Other specific roles of VHTs include: conducting home visits, managing malaria, diarrhea and pneumonia among children under five years, distributing health commodities, and conducting referrals to health facilities.

Training

All VHT members must be above 18 years and able to read and write, preferably in the local language. Initial training is provided to all VHT members, with those involved in the provision of Integrated Community Case Management (iCCM) receiving additional training. Refresher trainings are conducted by the MOH and implementing partners as needed although on an irregular and non-standardized basis.

Supervision

VHTs are supposed to report to a health facility within their community where a health worker supervises them. A parish coordinator often offers support to all VHTs within a parish, and the District Health Educator is mandated to oversee the work of all VHTs in the district. However, due to limited funding and human resource capacity, supervision of VHTs is often irregular and inconsistent.

Incentives and remuneration

According to the MOH VHT strategy, VHT members are community-selected volunteers who do not receive financial payment for their services. However, they may receive non-monetary and sometimes ad hoc monetary incentives from the MOH or from their implementing partners that work with them in communities. These incentives are not standardized and vary throughout the country, and mainly depend on the implementing partner that is supporting the VHTs.

Impact

VHTs have made a significant contribution to increasing access and utilization of health services as well as improving health outcomes in communities, including reduction of morbidity and mortality of children younger than five years of age.

Historical context

The 1999 Uganda National Health Policy established Village Health Teams (VHTs) as part of the Uganda National Minimum Health Care Package to combat the high disease burden of communicable diseases and the rising rates of non-communicable conditions as well as to ensure equitable access to health services.¹ The 2000/01–2005/06 Health Sector Strategic Plan I also noted the need for the extension of health services especially to the rural population, where close to one-third were living below the poverty line, and hence recommended the establishment of the VHT strategy.² The Ministry of Health (MOH) thereafter launched the VHT program in 2001 as a cadre of volunteers with the responsibility of empowering communities to take charge of their own health and well-being, and to actively participate in the management of local health services.^{3,4} VHTs were established to be the first point of contact for health care delivery in communities as well as the provider of health messages and the provider of support for patient follow-up and retention in care.

The later Health Sector Strategic Plans (II⁴ and III⁵) called for the roll-out and consolidation of the VHT strategy to support delivery of basic health care services directly to households and communities in Uganda. In 2015, the MOH commissioned a comprehensive national assessment of the VHT program to establish its status and functionality in order to improve planning and health service delivery to communities. The review identified critical gaps in the VHT program in funding, training, supervision and coordination across all levels of the health system. Following this assessment⁶ and a series of document reviews and benchmarking exercises, the MOH recommended the establishment of Community Health Extension Workers (CHEWs), which is currently being explored as a potential community health system strengthening program.⁷

Health needs

Although significant progress has been made in dealing with several causes of ill health and mortality, Uganda is still faced with a high disease burden dominated by communicable diseases, which account for over 50% of morbidity and mortality.⁸ These communicable diseases include malaria, diarrhea, HIV/AIDS, TB, and vaccine-preventable diseases.⁸ Moreover, the country is still plagued by high maternal mortality, with 336 women dying for every 100,000 live births, and high infant mortality, with 43 deaths per 1,000 live births.⁹ The other burden to the health sector is due to neglected tropical diseases and sanitation-related conditions, which disproportionately affect rural and poor communities. In addition, there is an escalating emergence of non-communicable diseases such as cardiovascular diseases, cancer and diabetes in Uganda. These diseases are now making an increasingly important contribution to the illnesses and deaths currently occurring within the population.⁶

The attention that Uganda gave to achieving the health-related Millennium Development Goals (MDGs) led to a halving of the under-five mortality rate along with a reduction in the prevalence of malaria in children by more than 50% between 2009 and 2014.¹⁰ The number of deaths from other causes such as measles and TB also declined substantially. Furthermore, access to improved drinking water sources increased significantly from 52% in 2001 to 72% in 2013, and the level of poverty declined by two-thirds.¹¹

Despite the existence of VHTs within communities, the health system is still affected by lack of adequate resources to recruit, deploy, and motivate human resources for health across all levels of the health system, especially in rural communities.¹² Other challenges in the Ugandan health system include a lack of quality assurance for health services, lack of timeliness and incompleteness of reporting of health information, stockouts of essential medicines and medical supplies, and the emergence of antimicrobial resistance due to inappropriate use of medicines, poor prescription practices, and counterfeit medicines.⁸

Health system structure

In Uganda, the national health care delivery system is decentralized following a tiered structure, with VHTs occupying the lowest level of the health system. At the top of the health system structure are national referral hospitals (that offer highly specialized services), followed by regional referral hospitals (offering high-level surgical and medical services). At the district level, a district hospital along with primary health care (PHC)

facilities and outreach workers provide preventive, promotive and curative services. There are three lower levels of PHC centers: Health Center IV at the sub-district level, Health Center III at the sub-county level, and Health Center II at the parish level. In addition, VHT constitute Health Center I at the community level.² The health system is managed and overseen by District Health Teams and the MOH.

CHW program features

There are an estimated 179,000 VHT members in Uganda. With a population of 42.9 million people, this equates to approximately one VHT member for every 240 people. They are volunteers within the communities they serve. They deliver a set of preventive, educational, and curative health services. Within each village, some VHTs are involved in Integrated Community Case Management (iCCM) of Childhood Illnesses where they assess and treat malaria, pneumonia, and diarrhea among children younger than five years of age. The iCCM strategy is particularly intended to target hard-to-reach areas where health facilities are far away to increase access to treatment of life-threatening childhood illnesses. VHTs also take part in disease prevention and health promotion by carrying out home visits, mobilizing communities for participation in health campaigns such as mass immunization, providing health promotion and education, following up people recently discharged from a health facility and those on long-term treatment, distributing health commodities such as mosquito nets, collecting community health information, and performing disease surveillance.² In addition, VHTs advise on basic newborn care¹³, and they make referrals to health facilities, especially for people who need immediate care.¹⁴ The VHT program is guided by three principles: (1) community ownership – the community is responsible for selection, supervision and support of the VHTs, and VHTs are fully accountable to their communities; (2) equity and access – VHT services are meant to benefit all members of the community, especially those in rural peripheral areas and in marginalized communities; and (3) community support—VHTs are supported by their own communities, local health facilities and local political structures to perform their roles and responsibilities.²

Scope of work

VHTs act as an important link between the communities they serve and the local health facilities. VHT members conduct home visits and deliver health education and promotion services, such as those related to environmental sanitation. VHT members also promote the use of safe water; the utilization of maternal, child health and family planning services; and good nutritional practices. Furthermore, VHT members provide first aid and treatment of childhood malaria, pneumonia and diarrhea as well as support mass drug administration activities such as for bilharzia in endemic areas. VHT members also participate in community mobilization for health interventions, and they contribute to disease surveillance within communities through data collection and reporting.

Selection and training

VHT members are selected by community members and local leaders within their community. Community members identify the people who are interested in the role and agree to work on a voluntary basis. The MOH guidelines specify that a person selected to be a VHT member should be respected and trustworthy, a good listener, dependable and approachable, preferably have previous experience in volunteering, as well as interested in community development.² Among other qualities, a VHT member must be above 18 years of age, resident of the village, able to read and write and speak the local language, be known to the community, and be a good community mobilizer and communicator.²

As per the MOH national VHT strategy, four VHT members are selected per village, with the approximately population of a village being 600. Two of them participate in iCCM in addition to other roles. The geographical location of the two VHTs is usually considered during their selection so as to ease the community's access to them. In practice, the number of VHTs per village could be more or less than four depending on the level of support from implementation partners as well as whether any team members have dropped out and not yet been replaced. After VHT candidates have been selected, they are supposed to receive a standardized initial training, which covers basic health promotion, referral and service delivery at community level, and conforms to agreed norms, standards, content, duration and ratios of VHTs to

facilitators. This basic health training normally takes five days, and additional training is provided for VHT members who would be providing iCCM. The standard training in iCCM comprises six days of modular classroom-based sessions, discussions, role plays and practical sessions at health facilities. In this iCCM training, VHT trainees learn to assess and treat sick children. The training is usually offered with the support of implementation partners operating within a district, and the content may differ according to the focus of the program. Any new VHTs who join after the initial training has been conducted may not attend the full training but be oriented through on job training. All trained VHTs are supposed to receive a certificate at the end of the training.²

Support and supervision

The work of VHTs is supported and supervised by health workers, usually based at the closest lower-level health center, who are supposed to visit the VHTs in the community. In addition, implementation partners working in the district may also support the VHTs. VHTs are often also supported by the VHT Parish Coordinator, who provides a link between all VHTs in a parish and the health facility. The District Health Educator is mandated to provide the overall supervision of all VHTs in the district. However, this role in practice is played by other cadres in some districts such as Health Inspectors.⁶ During supervision, VHT registers and reports are checked, and on-the-job training and supervision are carried out. VHTs are also supposed to attend quarterly supervisory meetings, but these rarely take place due to lack of funds unless there is support from an implementing partner. In addition, VHTs are meant to receive supportive supervision within their communities at least once a year. In reality, supervision of VHTs throughout the country is irregular and inconsistent, with lack of funding being a major challenge identified.⁶

Incentives and remuneration

VHT members are community volunteers and hence receive no regular financial support. During the start of the VHT program, the MOH with the support of implementing partners (particularly non-governmental organizations (NGOs)) provided training; awarded certificates; organized commissioning ceremonies; provided badges, T-shirts, bags, and job aids; and provided information, education and communication (IEC) materials and registers as initial incentives for VHTs.² This notwithstanding, some VHT members receive financial incentives from implementing partners especially when working on specific (implementation-partner-funded) health programs within communities. Such incentives include compensation for transport fares to attend meetings, and non-financial incentives in the form of T-shirts, gumboots, solar panels, raincoats, umbrellas, bicycles, bags and badges. The type of incentives provided is dependent on the program being implemented or the implementation partners involved in the particular activity. These incentives are not standardized nationally or even at district level.⁶ Other incentives that are supposed to be standard throughout the VHT program include task-specific allowances, recognition by local leaders and the community, and mentorship from supervisors. It was suggested that a minimum monthly allowance of 10,000 Uganda shillings (US\$ 3) be provided to VHT members during their quarterly review and planning meetings.¹⁵ However, forms of monetary and non-monetary incentives given to VHT members have been inconsistent, causing demotivation and attrition as high as 30% per year.⁶

Community role

The community participates in the selection process of VHT members. Once selected, VHT members have to fulfill their responsibilities to the community and be accountable to them. VHTs engage the community in identification of their health needs and outcomes, and mobilize them for health programs such as immunization and distribution of mosquito nets. As their main role, VHTs link the communities they serve with health providers including health facilities and implementing partners such as NGOs. Some of the other roles of VHTs include collecting information and maintaining records of household members to be used for planning, following up of patients, conducting referrals, providing basic health messages for behavior change, as well as distributing drugs and other health supplies such as condoms and mosquito nets. However, community support and involvement in the VHT program has been limited in many settings, thereby negatively affecting the performance of VHTs.⁶

Linkages with the formal health system

VHTs are part of the health system and are regarded as a Health Center I, bridging the gap between the communities they serve and other health care services. Over the years, VHTs have become a trusted part of the health system, both by communities as well as by health workers. They are the first link between communities and higher-level health care providers, hence a crucial component of the health system—particularly in rural areas where there is limited access to health services. VHTs also refer patients that need health care to health facilities where they can be treated and as such increase utilization of health services. Furthermore, VHTs support health facilities in follow-up of patients and retaining them in the ongoing process of care.

Program scale-up

The VHT program has been scaled-up countrywide. In 2015 it was estimated that 179,000 VHT members had been trained and were operating in the country's 112 districts.⁶ To boost the VHT program in Uganda, the MOH recommended an increase in the number of trainings provided to all VHT members. These trainings are meant to not only motivate VHTs but also to increase their expertise in fulfilling their duties. However, such trainings are irregular and many times spearheaded by NGOs rather than the MOH.

Monitoring and data use

Although a formal paper-based reporting MOH system exists, many implementing partners have over the years introduced parallel and duplicative platforms for VHTs to collect data specific to their programs. Recently, some implementation partners have introduced collection of data electronically, with VHTs at times provided mobile phones for reporting. Due to delayed information sharing, especially between distant health facilities and the rest of the health system, the MOH and UNICEF introduced an SMS^a-based program for VHTs called mTRAC (in short for mobile tracking) to use in order to facilitate quick reporting of disease outbreaks and other health issues in communities.¹⁶ By using mTRAC, VHTs complete and submit a simple weekly reporting form. The exchange of this information is managed by the District Health Information System. Through the use of mTRAC, response time to disease outbreaks has been halved, and there has been reduction in drug stockouts resulting in a reduction in mortality due to communicable diseases.¹⁷ The cost-effectiveness of mTRAC has also enhanced the quality and exchange of health data, and these data are being used to improve the health outcomes in communities. However, paper-based reporting is still used primarily in most districts across the country, and many paper-based VHT reports are not entered into the national reporting system.⁶

Financing

The Ugandan health care system is primarily financed by the government, with major support from donors including implementing partners within the health sector. However, financial support from the MOH for the VHT program in recent years has been minimal, with funds for trainings and any incentives received provided mainly by implementing partners. Inadequate funding as well as poor planning have been cited as a major challenge affecting the national VHT program.⁶

Impact

The VHT program has contributed to increasing the access to and the utilization of health services as well as to improving health outcomes in communities where it has been effectively implemented. However, VHT services are often implemented alongside other programs, hence making it difficult to fully attribute the benefits to them. The decrease in preventable diseases has been largely attributed to VHTs because of their support in mobilizing and educating communities. Their contribution has been seen especially in maternal and child health programs, where they have contributed to increased utilization of maternal health services and reduction in childhood

^a SMS refers to Short Message Service, the most widely used type of text messaging which enables one to send a message of up to 160 characters to a mobile device such as a cell phone.

mortality. In addition, the VHT program has contributed to improved health outcomes, particularly for childhood malaria, pneumonia and diarrhea as a result of implementing iCCM.^{6, 18–20} Furthermore, VHTs have contributed to raising health awareness within communities through health education. There has also been a reduction in the number of children obtaining care at health facilities since the VHTs have been able to provide home-based treatment for many childhood illnesses.

Challenges

The VHT program has faced challenges during its almost two decades of implementation. These challenges span several areas including training, transportation, remuneration, motivation and retention.^{21–24} The training process of VHTs is often inadequate. In addition, VHTs lack the transport needed to effectively cover their villages during their day-to-day activities as many of the bicycles received initially are no longer functional.⁷ Another major challenge faced by VHTs is a lack of standardized incentives. This creates a challenge, particularly when VHT members have to balance between performing their roles and pursuing income-generating work.

Some of the other challenges faced include the lack of personal protective gear, drug stockouts, community members demanding services that VHTs cannot offer (such as treating persons older than five years of age), lack of routine supervision, and conflicts with local leaders within the communities.⁶ Unfortunately, because of minimal MOH support, the responsibility has fallen to implementing partners to make up for deficiencies in planning, funding and supervision of the VHT program.⁶ This situation has resulted in many VHT members feeling mainly accountable to the partner organization rather than the MOH. Furthermore, lack of full government ownership has resulted in substantial disparities among VHTs in the monetary and non-monetary incentives they receive—within villages, sub-counties and districts. This situation has led to a decrease in motivation and commitment amongst VHTs.⁶

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photographs on the cover page are as follows: Left: A VHT member takes a blood sample of a child suspected of having malaria during diagnosis. Photo credit: Henry Bugembe. Right: VHT members taking part in a health education campaign in a rural community in Uganda. Photo credit: Henry Bugembe.

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Zambia's Community Health Assistant Program



**Nikhil Wilmink¹, Emily Measures², Hilda Shakwelele³,
Katharine D. Shelley⁴, and Yekoyesew Worku⁵**



¹ Technical Advisor, Clinton Health Access Initiative, Lusaka, Zambia

² Senior Program Manager, Clinton Health Access Initiative, Lusaka, Zambia

³ Country Director, Clinton Health Access Initiative, Lusaka, Zambia

⁴ Senior Evaluation Officer, PATH, Seattle, USA

⁵ Senior Manager of Reproductive, Maternal, Newborn, Child, Adolescent Health & Nutrition Continuum of Care Health Systems Strengthening, Systems for Better Health, Lusaka, Zambia

One-page summary

Background

In Zambia, a public sector cadre of salaried Community Health Assistants (CHAs) was created in 2010 through the Ministry of Health (MOH) National Community Health Worker Strategy. This cadre aims to bring primary health care (PHC) as close to the family as possible, and contribute to the improved management of malaria, maternal and child health and common preventable health conditions.

Implementation

CHAs are expected to split their time between the health post (20%) and community (80%) for household visits, community education, and health promotion activities. Each CHA is responsible for a catchment size of 1,750 people. The first cohort of 307 CHAs was trained during 2011–2012 and deployed in late 2012, and since then the MOH has trained a total of 2,502 CHAs and deployed 1,337 CHAs in 105 of Zambia's 110 districts. An additional 932 CHAs have been deployed with support from cooperating partners, bringing the total number of CHAs deployed to 2,269.

Roles/responsibilities

The main responsibilities of the CHAs are health promotion and disease prevention. CHAs are also trained in basic curative services that they can provide at the health post and in the community. In addition, they are responsible for identifying patients who need referral. Although CHAs sometimes work alongside other trained staff (typically nurses or environmental health technologists) at the health post and at some PHC centers, they often work alone there because of Zambia's human resource constraints, and they may receive infrequent supervision. Ideally, CHAs are supposed to be at the health post that is closest to the communities they serve, but due to logistical challenges they can also be found at a PHC center which is a level higher than a health post.

Training

CHAs attend one year of formalized pre-service training based on 11 training modules covering prevention, health promotion, and curative care through theoretical and practical training components. Zambia has two national Community Health Assistant Training Schools with an average certification capacity of 500 CHAs across both schools per year. CHA Training School tutors hold degrees in nursing and environmental health.

Supervision

CHAs are supervised by a skilled health worker who is the officer in-charge at the health facility to which they are linked. Supervision is supposed to be conducted at the health facility and the community level on a monthly basis using standardized supervisory checklists but is often not carried out because of the pressing clinical demands of the supervisors.

Incentives and remuneration

CHAs received a salary of 3,735 Zambian Kwacha per month (equivalent to US\$ 250 per month) inclusive of all applicable civil servant benefits. They are also provided with a bicycle, all-weather work boots, a backpack, and a uniform—all of which are property of the Government of the Republic of Zambia.

Impact

Evidence from multiple evaluations shows that CHAs have been successfully scaled up into a nationwide cadre, firmly established in the Zambian health system, and recognized for their wide-ranging benefits to PHC.

Historical context

Zambia is a landlocked country in southern Africa with a population of 16.6 million, 58% of whom live in rural areas.¹ Access to health care in remote areas is a challenge, in part due to the long distances between communities and health facilities. It is estimated that only half of the rural population lives within five kilometers of a health facility.²

Zambia has a severe shortage of health workers, with currently just 1.2 clinical staff per 1,000 people.³ Put another way, Zambia has less than half the health workforce needed to deliver basic health care services to the population, with an estimated 40% of positions in rural facilities that are currently vacant.⁴ This shortage can be attributed to limited capacity to train the required health workers, mismatch between supply and demand, inadequate funds to pay for the number of health workers needed, and weak systems for planning, deploying, managing, and retaining health workers.⁵

Responding to and addressing the health workforce challenges in the country is a key priority for the Ministry of Health (MOH).³ The National Community Health Worker Strategy (NCHWS), which was launched by the MOH in 2010, was an attempt to take health services as “close to the family as possible.”⁶ Zambia framed much of its CHA program around the experience of the Health Extension Worker cadre in Ethiopia, with a participatory and multi-stakeholder driven policy process underpinning the development of the NCHWS. A central aim of the strategy was to formalize the role of the volunteer community health workforce to ensure the quality of training and services being provided. The key difference between CHAs and Community-Based Volunteers (CBVs), also known as Community Health Volunteers (CHVs) in some MOH policy documents, is the level of training and degree of accountability to the formal health system. CHAs undergo one year of standardized training, receive standard remuneration, and are regulated by the Health Professions Council of Zambia. CBV training duration is variable, generally three days to one month, depending on the type of CBV program and the non-governmental organization supporting the volunteers.⁷

In 2019, the MOH launched its Community Health Strategy for the period 2019 to 2021, which sets out the MOH’s vision for strengthening community health structures with the overall goal of improving access to health services at the community level.⁸ The new strategy includes a dedicated Community Health Governance Unit at the MOH, Focal Point Persons with defined roles and responsibilities at all levels of the MOH, stakeholder coordination mechanisms and platforms, as well as community involvement in planning and social accountability. The strategy recognizes the role that CHAs can play in coordinating CBV and calls for streamlining of CBV training, incentives, and supervision.⁹

Health needs

Similar to many other southern African countries, communicable diseases (most notably HIV/AIDS, TB, and malaria) contribute greatly to the overall disease burden in Zambia. Zambia has the seventh highest prevalence of HIV infection in the world, with 11.3% of people living with HIV among adults 15–49 years.^{10,11} Zambia has among the highest incidences of TB and malaria in the world.¹² The prevalence of bacteriologically confirmed TB is 638 (502–774) cases per 100,000 populations (NHSP 2017–2021) and more than 16 million people are at risk of malaria in Zambia.¹³ In addition to the communicable disease burden, in the last decade the prevalence of non-communicable diseases has increased.¹⁴

Zambia also faces severe maternal, neonatal, and child health challenges. The most recent (2018) demographic and health survey (DHS) shows some progress in these areas. Over the last decade, comparing the 2007 and 2018 DHS, the maternal mortality ratio (MMR) declined from 591 to 252 deaths per 100,000 live births; the infant mortality rate declined from 45 to 27 deaths per 1,000 live births; and the under-five mortality rate declined from 75 to 61 deaths per 1,000 live births.¹⁵ Mortality during the first month (neonatal mortality), is higher than post-neonatal mortality (27 deaths per 1,000 births versus 14 deaths per 1,000 births) and accounts for 64% of the overall infant mortality. Zambia did not reach its Millennium Development Goal (MDG) 4 (for child health) or MDG 5 (for maternal health) and is still far from reaching the 2030 Sustainable Development Goal for maternal health, whose goal is a MMR of less than 70.¹⁵

Health system structure

There are 10 provinces and 110 districts in Zambia. The Zambian health system consists of six tiers: (1) Outreach Services; (2) Health Posts (307 altogether); (3) PHC Centers (1,131 rural and 409 urban); (4) First-level District Hospitals (84 altogether); (5) Second-level Provincial Hospitals (19 altogether); and (6) Third-level Referral Hospitals (six altogether). Of the 1,956 health facilities in Zambia, 81% are government owned, 13% are private, and 6% are faith based.¹⁶

During the 1980s, health sector reforms led to the establishment of semi-autonomous hospital management within each hospital in Zambia.² This was followed by further decentralization in the early 1990s, leading to the creation of District Health Boards with increased responsibility for decision-making at the district level.¹⁷ In 1995 the National Health Service Act established the Central Board of Health to govern “the executive functions of service provision: commissioning health services in the health sector, performance support, monitoring and evaluation, national human resource development, and national health facilities planning,” while the actual management of service delivery was carried out by the District Health Boards.¹⁷ After the dissolution of the Central Board of Health in the mid-2000s, the MOH reassumed full authority. In 2013, the Zambian health system underwent another reorganization and created the Ministry for Community Development and Mother and Child Health which was responsible for implementing health activities at the district level and below. In 2016 all responsibility was transferred back to the MOH as the sole ministry in charge of health in Zambia.

CHW program features

In 2009, MOH carried out a situation analysis to understand the roles, scope, and challenges of current CHWs in Zambia. This analysis revealed that CHWs were selected from within communities and worked for pay or as volunteers in the local health care system. Furthermore, it was noted that CHWs had many titles such as health promoters, community health advisors, lay health advocates, community health representatives, and peer health educators.⁶ Duplication of efforts was also observed given that partners trained CHWs in their program areas, even though CHWs had already received similar training from other stakeholders. Training duration was variable, documented from two days to six weeks. The number of work hours and type of incentives offered were also considerably variable by partner. Non-monetary incentives included training certificates and transportation (i.e. a bicycle), whereas monetary incentives included meal allowances. These volunteers’ contribution to primary health care (PHC) is significant but their effort has been difficult to measure and coordinate in the absence of a national community health system. For this reason, the MOH decided to formalize a paid community health worker cadre—Community Health Assistants—to receive formal training with a clear scope of work and standardized incentives.

Various types of CBVs (estimates range from 23,000⁶ to 100,000¹⁸) support provision of community health in Zambia, for example through sensitizing on health promotion topics, assisting community-based malaria agents with the diagnosis and treatment of malaria at the community level, and assisting community-based distributors of family planning by providing counseling. CBVs also accompany the CHAs during household visits; however, Zambia’s previous National Health Strategic Plans (2011-2016) cited only 19% of CBVs as currently active and available to support CHAs. In addition, CHAs should coordinate CBV interventions, but standard guidelines do not clearly outline *how* to manage the coordination. Given the high variability in CBV programming, effective coordination and utilization of CBVs is viewed by the MOH as an important way to deliver on their health mandate and strengthen existing community structures. Reducing the current fragmentation of community health service delivery through stronger coordination and harmonization of CHA and CBV is a major emphasis of Zambia’s updated Community Health Strategy 2019-2021.⁸

Scope of work

CHAs are recognized as a formal health cadre by the government of Zambia. Since the inception of the program, significant government and donor support has been committed to the scale-up of the CHA program.¹⁹ CHAs are mandated to work side by side and in collaboration with other formally trained health staff at the health posts (who are typically nurses and environmental health technologists), and with

community development assistants as well as social welfare volunteers at the community level who work on issues related to gender, environmental health, education, personal finance, and home economics.

CHAs also receive training to play a role in coordinating with CBVs and community-level neighborhood health committees (NHCs) to create monthly work plans. CHAs are certified to provide basic curative care at the community level and refer patients to the facility for further treatment. They document their work and referrals in community health registers, which are then submitted monthly via health facilities to the district level where they are entered in the health management information system known as District Health Information System Version 2.0 (DHIS2). In many cases, task-shifting from higher-level health care workers to the CHAs relieves time pressures so much so that the health care staff who are based at health posts have requested that CHAs work at the health post (rather than in the community) more than two days per week.²⁰

Upon deployment, CHAs are required to conduct a basic assessment of their communities before engaging in service provision. This includes a community diagnosis (baseline health status of the community through available primary or secondary data sources) and mapping of the catchment area and resources. These initial activities help CHAs determine the priority health-related issues and support the development of a community action plan. Following action planning, CHAs begin service provision both at the health post and at the community/household level with guidance to spend 20% of their time at the health post for basic curative and referral services and the remaining 80% for house-to-house visits (during which they can perform basic curative and referral services) and community educational health talks about disease prevention and control.

The scope of work for CHAs covers a broad array of services within disease control and prevention and family health packages. The key tasks of the CHAs are listed in Box 1 by programmatic area. CHAs are instructed to refer patients with severe illness or with diseases outside their scope of training to the nearest PHC center.

Box 1. Key tasks within the Community Health Assistant's scope of work

Disease prevention and control

- Identify and immediately inform health authorities of outbreaks and notifiable diseases in the community
- Collect, compile, and report monthly data on health-related activity in the community and at the health post

Behavioral health

- Identify at-risk persons and refer them
- Provide basic mental health counseling

Environmental health

- Promote handwashing and advise on principles of good housing and proper sanitation
- Inspect construction of latrines and promote good management of latrines
- Conduct health education talks on food hygiene and safety
- Distribute insecticide-treated bed nets and provide information, education, and counseling (IEC) on insect control
- Provide IEC on the importance of clean water and water purification techniques
- Participate in community-led total sanitation efforts

Reproductive health/safe motherhood

- Provide pregnancy testing and HIV testing and counseling for pregnant women
- Promote at least four antenatal care visits; follow up to ensure timely visits
- Promote prevention of mother-to-child transmission (PMTCT) treatment for pregnant women who are HIV-positive and follow up with PMTCT clients
- Refill prescriptions for folic acid and vitamins
- Provide IEC on breastfeeding, tetanus toxoid vaccine, diet, self-care, and substance abuse
- Attend emergency deliveries if they occur at home or before the pregnant woman reaches a facility
- Manage postpartum hemorrhage with misoprostol
- Provide the Essential Newborn Care package, including “Helping Babies Breathe” in cases of asphyxia during delivery
- Promote a postnatal visit to a health facility for newly delivered mothers and their newborn; visit the mother–baby pair at home 48 hours after delivery if they cannot go to a health facility
- Detect postpartum (puerperal) sepsis in mothers and neonatal sepsis in the newborn and refer cases detected
- Counsel and provide oral contraceptives
- Promote and provide long-term hormonal contraception (e.g., Depo-Provera injections)

Child health

- Refer clients to the PHC center for immunizations; organize outreach sessions in the community for immunization days
- Identify and refer cases of neonatal sepsis
- Provide oral rehydration salts and zinc to children with diarrhea
- Utilize the Integrated Community Case Management (iCCM) approach for sick child aged 2–<60 months
- Recognize signs of and refer cases of malaria, pneumonia, diarrhea with dehydration, measles, cancer, meningitis, mumps, tetanus, and leprosy
- Administer deworming medication
- Promote appropriate complementary feeding for babies
- Administer vitamin and/or iron supplementation
- Provide immunizations for children

Medical and surgical conditions

- Carry out rapid diagnostic testing for and treatment of malaria
- Distribute condoms, provide HIV testing, promote adherence to antiretroviral therapy (for HIV), provide IEC to reduce HIV stigma
- Provide IEC and behavior change communication regarding the spread of TB, recognition of symptoms, and case management
- Collect and transport sputum for TB diagnosis
- Administer amoxicillin for non-severe childhood pneumonia
- Administer praziquantel to persons infected with schistosomiasis
- Provide IEC for common chronic diseases; measure blood pressure to identify hypertension and perform urine glucose testing to identify diabetes

General

- Take a history and perform a physical examination for sick patients
- Measure vital signs, height, and weight
- Provide basic first aid
- Provide palliative care

Selection and training

The MOH alerts provinces and respective district health office staff on how many recruits to send from their district to the CHA training school. The district works with the NHCs and local schools to distribute recruitment flyers in catchment areas that need CHAs. Each recruit is screened by a panel of NHC members,

PHC center staff, and a district representative—and this panel is responsible for making the final selection of CHA candidates.

CHA recruits must meet the following criteria in order to be selected for training:⁶

- Have completed minimum grade 12 and three “O” levels (one should be in English)—the MOH is currently in the process of officially increasing the requirement to five “O” level passes, minimum.
- Be 18–38 years of age
- Be a *Zambian* citizen who has been living in the recruitment catchment area for at least six months
- Be endorsed by the NHC and traditional leaders
- Have passed a personal interview with a panel of NHC members, health center staff, and a member of the district health office
- Have previous experience with community health work

Recruitment preference is given to women who meet the criteria listed above, particularly if they have previously served as a CBV. In the first and second classes of CHAs recruited in 2011 and 2012, approximately half of the trainees were female, whereas the current recruitment trend is about 40% female. Recruiting CHAs from their home communities, to which they will return following their training, is considered a key strength of the program for retention of CHAs and accountability to their local communities.

CHA recruits attend one year of formal pre-service training on a curriculum focusing on preventive, promotive, and basic curative care. The 11 curriculum modules include: (1) health care systems; (2) communicating and promoting health; (3) behavioral health sciences; (4) disease prevention, control and PHC; (5) environmental health; (6) introduction to human body; (7) diagnostic procedures; (8) basic health care procedures, medical and surgical conditions; (9) introduction to reproductive and maternal health; (10) introduction to child health; and (11) medicines and commodities management. A team of tutors and clinical instructors teach the CHA recruits in rotating modules with both theoretical and practical components. The practical component involves rotating recruits to local clinics near the training schools.

Currently, CHAs are trained at one of two training schools in the country, with construction of the second CHA training school completed in 2014. However, in 2017, the MOH launched the National Human Resources for Health Planning and Development Strategy Framework. Under this policy, the MOH plans to decentralize CHA training to districts. Under this model, CHAs will spend 70% of their training time on-site at their health posts and in their communities, learning practical, hands-on skills. The remaining 30% will be spent at formal training hubs where CHAs will learn through didactic, classroom-based sessions.

Support and supervision

CHA supervisors and district CHA coordinators attend a five-day training at the district level for orientation on the CHA program and their key supervisory duties at various points during the scale-up of the cadre. Supervisors are equipped with a supervision manual and monthly supervision tools to facilitate routine supervision. Each CHA is supervised by the officer in-charge at the nearest “parent” health facility. In facilities where CHAs work alongside additional qualified staff, the supervisor is co-located on-site. Otherwise, the supervisor is generally based at the nearest health center.⁹ Supervision is designed to be conducted at the health post and in the community. In practice, supervision out in the community, which is supposed to occur on a monthly basis, rarely happens due to competing work priorities on the part of the supervisor. Among the first cohort of CHA deployed, nearly a quarter (23%) reported working alone in facilities and without adequate supervision by a skilled health worker.⁹ Strengthening mentorship and supervision of CHA is a key area of focus in the recently updated Community Health Strategy 2019-2021.⁸

Community role

CHAs are tasked with conducting health promotion, disease prevention and control work in the community, where they are recommended to spend 80% of their time. In practice, CHAs are challenged with maintaining the recommended 80/20 split between community and health-post work due to facility-level workload, particularly in health posts without additional skilled staff working alongside the CHA. In addition to disease prevention and health promotion, CHAs conduct minor curative work in the community and identify cases which need to be referred to the health facility.

Incentives and compensation

CHAs receive a salary of 3,735 Zambian Kwacha per month (equivalent to approximately US\$ 250 per month) inclusive of civil servant benefits. They are also provided with a bicycle, all-weather boots, a backpack, and a uniform—all of which are property of the Government of the Republic of Zambia.

Linkages with the formal health system

Per the national strategy, CHAs are an officially recognized government cadre of salaried health workers that are integrated into the formal health system. At the central MOH level, a community health unit has been created and a national CHA coordinator employed. In addition, provincial and district community coordinators have been appointed. The majority of CHAs are based at health posts, which comprise the lowest level of health facility-based care in Zambia, followed by health centers, zonal health centers, district hospitals, provincial hospitals and national level referral hospitals. Community data collected by CHA link to the national Health Management Information System online platform known as District Health Information System Version 2.0 (DHIS2). CHA program data reported via the DHIS2 system should be accessible to all relevant persons at the Ministry of Health. Partners outside of the MOH and the government will receive access upon approval by the MOH (National Community Health Strategy 2019-2021).⁸

Program scale-up

Per the 2010 NCHWS, the government set a target of training 5,200 CHAs by 2020 after fully scaled up. The first cohort of 307 CHAs was trained during 2011–2012 and deployed in late 2012, and since then the MOH has trained a total of 2,502 CHAs and deployed 1,337 CHAs in 105 of Zambia's 110 districts.⁸ The five districts which do not contain CHAs are metropolitan districts around cities or large towns. An additional 932 CHAs have been deployed with support from cooperating partners, bringing the total number of CHAs deployed to 2,269. The MOH has yet to finalize a strategy for reaching the CHA training scale up target of 5,200, however, a decentralized training approach (described above in “Selection and training”) is under consideration.

Monitoring and data use

There is a monitoring and evaluation component of the national CHA program, with specific indicators and registers developed by the MOH and partners for tracking community level health. CHAs are trained on the data collection tools and document their work and referrals in community registers, which are then submitted monthly via health facilities to the district level where they are entered in the online DHIS2 system. Each health post with CHAs receives copies of registers to support monthly data summarization and reporting. CHAs are responsible for submitting monthly aggregated data via paper reports to their supervisors. Community data reported by CHAs is used by supervisors for supervision and mentorship purposes, but usage at the national level is restricted by low data usage by health managers and Focal Point Persons at district levels.

Financing

Financing for the CHA program has been through a multi-stakeholder collaborative process. The UK Government's Department for International Development (DFID) played a catalytic role in providing

flexible seed funding supporting the MOH in program development, training, infrastructure, and scale-up from 2010 through to 2018 with technical support from the Clinton Health Access Initiative. USAID financed the Zambia Integrated Systems Strengthening Program and Systems for Better Health to provide support for training of CHA supervisors and for the salaries of CHA trainers and is currently providing salaries for some of the CHAs. UNICEF and the Global Fund provided support for some of the CHA training costs. Donor funding has been contingent on the MOH's commitment to assume the cost for the CHA cadre over time. This has been achieved with a 2017 financial analysis undertaken by the Financing Alliance for Health estimating that 81% of the CHA program costs are now provided for by the Government of Zambia.²¹

Impact

Over the last nine years of implementation, a tremendous amount of evidence has been generated about establishing and institutionalizing a new government-paid cadre that seeks to bridge the gap between the formal health system and rural communities. A 2013 task-shifting study examined the relationship between CHA deployment and outpatient visits, finding deployment of a pair of CHAs to a health post on average led to an uptake of 11.6 adult visits, 172 child visits, and 5.2 antenatal visits per month.²²

To evaluate how to recruit motivated CHA candidates, a randomized controlled trial was conducted in 2012 to test two strategies during the pilot class deployment in 2012. The first strategy was a community-service poster outlining the opportunity to help communities through health education and services. The second was a career-orientated poster, highlighting the opportunity to have a career in Zambia's health system. The career-orientated recruitment strategy not only generated more highly qualified candidates, but these candidates also completed 30% more household visits when deployed after their training.²³ As a result, this evidence-based recruitment strategy was scaled up nationwide by the MOH. In addition, the study found that career-oriented CHAs had a significant positive impact on health outcomes in their communities:

- 31% more institutional deliveries
- 24% more outpatient child visits at health posts
- 22% more child growth monitoring visits at health posts
- 20% increase in polio vaccination among children younger than one year of age
- An increase in breastfeeding by 5 percentage points
- 16% increase in deworming
- 25% decrease in the prevalence of underweight children

Evidence from these evaluations clearly shows that CHAs have been successfully scaled up into a nationwide cadre, firmly established in the Zambia health system, and recognized for their wide-ranging benefits to PHC.

Challenges

Process evaluations of the scale-up of the CHA program have been routinely conducted (2013, 2015, and 2017) to guide ongoing program implementation and adaptation. The evaluations identified several challenges, including (1) lack of regular supervision visits, partially due to transportation challenges; (2) limited government fiscal space to absorb all of the trained CHA; (3) inadequate drug supply stocks and/or unwillingness of facility staff to release drugs for community and household level use; (4) large catchment areas (more than the originally estimated catchment size of 3,500 persons) and long travel time between villages; (5) communication challenges between the national and district levels; (6) lack of a clear role differentiation between CHAs and CBVs²⁴; (7) ineffective mobile reporting systems; and (8) CHAs working outside of their scope of work.²⁰

Acknowledgements

The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>).

The photograph on the left side of the cover page shows two CHAs (in the blue coats) and one community-based volunteer (a malaria agent) at a health post in western Zambia. (Photo credit: Katharine Shelley). The photograph on the right side of the cover page shows a CHA having a discussion with a community member during a household visit in central Zambia (Photo credit: Clinton Health Access Initiative).

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Zimbabwe's Village Health Worker Program



Dadirai Fundira¹ and Katharine D. Shelley²



¹ Researcher, Mathematica Policy Research, Washington, DC, USA
² Senior Evaluation Officer, PATH/Seattle, USA

One-page summary

Background

The village health worker (VHW) program in Zimbabwe was first adopted in 1981 when the country transitioned to primary health care (PHC). VHWs are the first point of contact with the health system and they focus on disease prevention by providing community care at the primary level in rural and peri-urban wards.

Implementation

VHWs work with and among community groups, families, and individuals. They also work with community-based volunteers and extension workers where they take the lead role. Approximately 60% of villages have access to a VHW.

Roles/responsibilities

VHWs provide a comprehensive set of services, from health promotion to the provision of services to referral to the next level of care at the local clinic or health center. They also are trained to diagnose and treat common conditions such as diarrhea and malaria.

Training

The Ministry of Health and Child Care (MOHCC) conducts the training of VHWs. VHWs are trained for a total of five months, including an initial eight-week classroom-based training followed by an eight-week practicum in the field and then another four-week in-class training at the end of the field training. Refresher trainings are conducted twice a year or as needed and when funds are available.

Supervision

VHWs are directly supervised by the nurse-in-charge at the nearest health center within their ward. They report monthly and quarterly to their local health center. They are also broadly supervised and supported by community leaders and the Ward Health Team.

Incentives and remuneration

VHWs receive a quarterly allowance of US\$ 42. However, payment is often irregular. They are also provided with a uniform, bicycle, and a medical supply kit.

Impact

There has been no formal impact evaluation of the VHW program itself, but the VHW program does provide a major portion of PHC services and is becoming recognized as an important contributor to the improvement of several health indicators in the country. Evaluations of health projects in Zimbabwe have shown consistently strong evidence of the contribution that VHWs have made to improving accessibility to health care as well as a high level of appreciation from community members for the services provided by VHWs.

Historical context

Zimbabwe's village health worker (VHW) program started in 1981 when the country adopted a strong focus on primary health care (PHC).^{1,4} Following independence in 1980, the country aimed to provide basic health services for a majority of the population, most of whom were living in rural areas. Zimbabwe moved from a “curative, urban-based and minority-focused health care system to one which emphasized health promotion and prevention and provided some acceptable level of health care to the majority rural population.”² The initial goal was to train 15,000 VHWs and extend health care coverage to people who would otherwise have no access.³ The program was influenced by a VHW program introduced in 1980 by the Bondolfi Mission in Masvingo, a southern province of Zimbabwe, where over the course of six months, 293 VHWs were selected and trained.³ In 1982 the government began training 1,000 VHWs annually, and by 1987 there were 7,000 VHWs.^{3,4} The VHWs were not considered to be a formal extension of the government health service but rather were envisioned to be informal “stewards” of the community's commitment to health promotion.³ In 1984, the VHW program was transferred to the Ministry of Women's Affairs, Gender, and Community Development.³ At this point the VHWs were named Village Community Workers and their focus included a stronger emphasis on community development and income-generation activities.¹

In 2008, Zimbabwe made a recommitment to PHC as part of the 2008 Ouagadougou Declaration on Primary Health Care and Health Systems in Africa.⁵ An assessment of the VHW program in 2009 showed that approximately 50% of the households did not have contact with or knowledge of a VHW in their area and that VHWs lacked basic medicines.⁶ With its recommitment to PHC and the international focus on health systems strengthening, the Ministry of Health and Child Care (MOHCC) decided to revitalize the VHW program.¹ The VHW program was envisioned as a way to improve efforts to promote health awareness among people and build capacity to change behavior, adopt healthy lifestyles, and take ownership of their health. The VHW program was seen as a key to improve these efforts at the community level, especially in rural Zimbabwe. As such, the VHW program was moved back to the MOHCC at the recommendation of a Review Commission of the Health Sector and was reinstated under the Nursing Directorate of the MOHCC.^{1,2} Since 2009, efforts have been underway to revitalize the VHW program, partially through support from the Global Fund to Fight AIDS, Tuberculosis and Malaria. Other partner organizations supported the Health Transition Fund (HTF), a multi-donor fund whose goal was to support the efforts to revitalize the health sector and to increase access to care. Between 2010 and 2015 the HTF Fund supported efforts to train VHWs and provide them with necessary resources.⁷

The national health strategy for Zimbabwe 2009-2013⁸ and the more recent health strategy for 2016-2020⁹ emphasized the strengthening of the VHW program. VHWs are expected to be key players in improving key health indicators, including the reduction of child mortality; improvement of maternal health; combating HIV/AIDS, malaria and other communicable diseases; and the control of non-communicable diseases. VHWs provide health services to individuals, families, and communities and encourage their participation and involvement in taking responsibility for their own health.

Health needs

Zimbabwe has faced significant health challenges as a result of AIDS, poverty and economic decline, social inequalities, and political discord since early 1990.¹⁰ These challenges led to a near collapse of the health system. Zimbabwe has had one of the lowest life expectancies in the world, falling from 62 years in 1990 to 44 years in 2008,¹⁰ and more recently recovering to 61 years.¹¹ The HIV prevalence in the country is also high at around 14% according to the most recent Zimbabwe Demographic Health Survey (ZDHS).¹² According to the UN Interagency Group for Child Mortality, infant mortality rates in Zimbabwe have been decreasing in the last decade. In 2010, the infant mortality rate was 86 deaths per 100,000 live births whereas in 2018 it had dropped to 46 deaths per 100,000 live births.¹³ While there have been improvements in most of these health indicators, Zimbabwe is still classified as a high-burden country for key health indicators according to WHO criteria.¹⁴ Nearly a quarter (24%) of children younger than five years of age are stunted, 3% are wasted; 10% are underweight.¹⁵

The collapse in the Zimbabwean economic system has also led to increased levels of poverty, with most of the country living below the poverty level and the poorest (the majority of whom are in rural areas) estimated to be living on less than US\$ 1.99 per day.¹⁶ This, combined with the collapse of the health system, limits access to health care making the role of VHWs even more important. VHWs can provide basic health services to poor and inaccessible communities at very low cost.

Health system structure

The government health system operates in all 10 provinces in the country. The health system is decentralized, and care is provided at four levels: primary, secondary, tertiary, and quaternary.¹⁷ The primary level is the first contact into the health system and consists of VHWs, other community health volunteers, and rural health centers/clinics, all of which offer basic preventive and curative services with a focus on maternal and child health. The secondary level includes facilities that receive patients who need hospitalization. These facilities also provide primary care services for those living in the immediate area surrounding the facility. The tertiary level has facilities with specialist staff to attend to referrals from the lower levels. The most advanced level of care is the quaternary level, which includes six central hospitals that have the equipment, staff, and pharmaceuticals for patients requiring highly specialized care.¹⁷

CHW program features

The MOHCC implements the VHW program with the overall broad goal “to improve the quality of life in communities through the strengthening of the capacity of communities to prevent and respond to public health problems effectively and efficiently.”²¹ The number of VHWs who have been trained and deployed is unknown; however, the program had an initial target of 15,000 VHWs and, according to Zimbabwe’s National Health Strategy 2016–2020,⁹ 60% of villages in the country have access to a VHW. VHWs are classified as volunteers and are expected to work for four hours a day for 2–3 days a week. Each VHW covers approximately 100 households.

Scope of Work

The VHW links the community with the formal health system. VHWs provide a comprehensive set of services, from health promotion, to the provision of basic preventive and curative services, to referral to the next level of care. They are trained to diagnose and treat common conditions such as diarrhea and malaria. They also coordinate other community-based health workers, including traditional healers, traditional birth assistants, and community-based distributors of family planning, as shown in Box 1.¹

Box 1. Specific job responsibilities of Village Health Workers¹

Identify and refer clients that need treatment at health facilities
Collect community-based health information to share with the rural health center for inclusion in the national health information system
Provide general health education and health promotion about water and sanitation, diseases of public health importance, pregnancy and maternal health, and family planning
Provide salt and sugar solution or oral rehydration salts (ORS) during cholera outbreaks
Provide prophylaxis for malaria
Conduct growth monitoring and give guidance on breastfeeding and infant nutrition
Follow up with HIV-exposed infants and their mothers
Promote immunization
Participate in Integrated Management of Childhood Illness (IMCI) campaigns
Promote HIV voluntary counseling and testing
Supervise TB patients on directly observed therapy (DOT)
Care for patients with chronic conditions (e.g., hypertension, diabetes, stroke, epilepsy)
Conduct outreach events for nutritional monitoring and provision of health services for school children
Treat minor ailments
Promote oral and mental health
Collaborate with community stakeholders and other community-based workers

VHWs are provided with a kit that contains various drugs and medical supplies to carry out their multiple roles (Box 2).

Box 2. Village Health Worker supply kit¹

Drugs and medical supplies	Other supplies
Paracetamol tablets	Condoms (male and female)
Antimalarial drugs	Uniform, sunhat, badge, raincoat
Alcohol (for cleansing)	Tennis shoes
Betadine solution	Canvas bag for carrying supplies
ORS sachets	Plastic apron
Tetracycline eye ointment	Teaspoon and tablespoon for dispensing liquid medications
Bandages (crepe, gauze, triangular)	Pen, register book, and referral slips
Scissors	Bicycle, with a repair kit
Latex gloves	Flashlight and batteries
Salter weighing scale, weighing bag	Timer (for counting respiratory rate)
Mid-upper arm circumference measuring tape	
Tape measure	
Soap	
Aqua tabs	
Thermometer	
Cord clamps or ligatures	

Selection and training

As VHWs are the first contact or bridge between the community and the formal health system, the community must trust and have confidence in them; hence, the community is involved in the selection of VHWs.¹ Each of the clinics or health sectors determines the need for a VHW in a given community and communicates with the community leaders who will then take the lead in selecting the appropriate candidate. The community forms the first level of support and supervision for the VHWs. Aside from not receiving a salary, the VHWs differ from auxiliary health workers in that the VHWs answer to the community, while the auxiliary workers answer to the formal health system.⁴ The criteria below are used to guide the selection:

- Aged 25 years or older
- Mature, married resident of the village
- Able to read and write
- Possessing strong communication skills
- Respected in the community
- Interested in health and development issues
- Willing to work on a volunteer basis
- Able to maintain confidentiality of health information¹⁸

The MOHCC has designated VHW training schools, usually at district hospitals. VHW trainees receive five months of training, including an initial eight-week classroom-based training followed by an eight-week practicum in the field and then another four-week in-class training. Box 3 contains a list of the topics covered during the training. The trainings are conducted by experienced PHC providers or registered general nurses in the districts. Each district has designated VHW trainers who go through an extensive training period which covers counseling skills and other adult education techniques to better equip them for training VHWs. On paper, refresher trainings are supposed to be conducted twice a year. However, in practice these additional trainings are not routinely held due to lack of funding. Partner non-governmental organizations (NGOs) usually conduct these refresher trainings to address specific needs in given areas.

Box 3 contains a list of the topics covered during the training.

Box 3. Topics covered during trainings of Village Health Workers¹

Counseling and communication skills	HIV/AIDS, including voluntary HIV counseling and testing and prevention of mother-to-child transmission of HIV
Roles and responsibilities of VHWs in the community	Treatment of minor ailments
Primary health care	First aid and wound care
Reporting responsibilities of VHWs	Mental health (stress, burnout, child abuse, use of hazardous substances)
The community as the client	Community-based rehabilitation
Communicable and non-communicable diseases	Emergency preparedness and response
Advocacy	Collaboration and coordination
Social, and community mobilization	Contents of the VHW kit
Environmental health	Health promotion and education
Water supplies, sanitation, hand washing and cholera	Teaching methods
Malaria	Communication network and technology system
Personal hygiene	Monitoring, evaluation and data management
Zoonotic diseases	Dental health promotion and hygiene
Integrated Management of Childhood Illness	
Nutrition and infant feeding	

Support and supervision

Within the MOHCC, the VHW program is supervised directly by the Director of Nursing Services. Responsibilities are further delegated to the Provincial Nursing Officers, District Nursing Officer, and finally to clinic staff. VHWs are directly supervised by the nurse-in-charge at the nearest health center within their ward. The community leaders, particularly the Ward Health Team, are the first line of support and supervision in the community. The VHWs are expected to keep several registers that track key indicators. At the end of every month VHWs complete a monthly return form that summarizes the key indicators in their catchment area and a record of all visits conducted. This is presented to the nurse-in-charge at the nearest health center every month, where they go over the registers together, discuss visits conducted and propose tasks for the following month.

Incentives and remuneration

VHWs are classified as volunteers within the MOHCC and hence they do not receive a salary from the government. They however do receive a few financial incentives including a US\$ 14 monthly allowance paid quarterly (US\$ 42) from the MOHCC. They also receive transportation allowances, per diem payments and/or lunch vouchers during training and monthly meetings. There also non-financial incentives including bicycles (provided primarily by the Global Fund), uniforms and sometimes T-shirts. This helps to keep CHWs engaged and to promote awareness of CHW services in the community.

Community role

The VHW is a community-based cadre and the VHW program gives the community a central role in the selection as well as in the support and supervision of the VHWs. VHWs are accountable to the community for their work output.¹ Community leaders — qualified health care workers, teachers, traditional and religious leaders, women leaders, and youth leaders — support the VHWs in a variety of ways, including (1) mobilizing the community around health issues; (2) supporting planning, implementation, and monitoring of VHW activities; (3) mobilizing resources to support VHW activities; and (4) advising the VHWs.¹

Linkages with the formal health system

VHWs are a formal part of the first (primary) level of the health system in Zimbabwe and serve as the point of initial contact with the health system. They are expected to report to their nearest health center every month to provide updates on key indicators including monitoring and reporting suspected epidemics.

Program scale-up

The VHW program is nationwide, with the goal of having one VHW for every 100 households. It is unclear if this has been achieved since some evaluations have shown that VHWs currently cover only 77% of the country.¹⁹ The health strategy for 2016-2020⁹ continues to emphasize the strengthening of the VHW program, with recommendations to include results-based incentives to further motivate VHWs and improve performance. There are no known plans at present for scale-up.

Monitoring and data use

Monitoring the VHW program is done through the local health center using monthly reports submitted by VHWs. At the beginning of the VHW program there were no standard forms for reporting, and VHWs were encouraged to use notebooks. In 2010 an addendum to the original VHW training manual was developed to include registers to keep track of community-level monitoring and evaluation indicators.

VHWs are expected to keep registers and reporting forms for their catchment area, through which they collect and track data on several key indicators (Box 4). At the end of each month, the nurse-in-charge at the rural health center uses this information to create an aggregated report for the health facility. These reports are supposed to be forwarded to the district office. VHW registers are meant to provide the primary information on community indicators. However, in many locations these registers are not checked by supervisors, not completed or not returned regularly. This interrupts longitudinal reporting and introduces bias in monitoring time trends in communities.

Impact

There has been no formal evaluation of the VHW program, but it provides a major portion of PHC services and is becoming recognized as an important contributor to the improvement of several health indicators in the country. Some of the successes and achievements where VHWs are recognized as contributors include:

- Reduction of preventable and communicable diseases
- Increased knowledge on health and prevention of disease
- Increased immunization coverage
- Increased number of protected wells and Blair VIP^a latrines
- Reduction in infant and maternal mortality rate through the increased access to health services
- Increased antenatal care utilization and institutional deliveries
- Increased participation of communities in health matters
- Sending valuable information to the national health information system

^a The Blair VIP is a ventilated pit toilet where the slab is made with two openings, one for the squat hole and one for the ventilation pipe which is fitted with a corrosion-resistant fly screen. The vent pipe sucks out air from the pit and fresh air is drawn down through the squat hole.

Challenges

The VHW program faces many challenges. The lack of funding has affected the training of the VHWs, and many districts have not been able to train the number of VHWs that they require. Remuneration is inadequate and irregular, which also affects VHWs' motivation and, hence, their output. There are also shortages of drugs within the health system and VHWs often do not receive a complete supply kit for their work.

Box 4. Key monitoring and evaluation indicators for the VHW program¹⁸

VHW monitoring indicators	Evaluation indicators
<ul style="list-style-type: none"> • Treatment and monitoring of acute and chronic conditions <ul style="list-style-type: none"> ○ Number of patients with chronic conditions followed up and monitored ○ Number of patients with minor ailments treated • Child health <ul style="list-style-type: none"> ○ Number of children neonates weighed ○ Number of under-fives fully immunized ○ Number of premature babies delivered in the community ○ Number of infants exposed to HIV identified, followed up and referred ○ Number of neonatal deaths reported ○ Number of infants exclusively breastfed • Maternal health <ul style="list-style-type: none"> ○ Number of WCBA ○ Number of WCBA referred for family planning ○ Number of WCBA fully immunized ○ Number of pregnancies ○ Number of teenage pregnancies ○ Number of deliveries at a facility and at home ○ Number of women referred to waiting mothers' shelters ○ Number of maternal deaths ○ Number of mothers referred with breastfeeding problems ○ Number of PMTCT mothers identified and followed up ○ Number of mothers followed up for IPT and ITN • Health promotion <ul style="list-style-type: none"> ○ Number of health education sessions conducted ○ Number of home visits conducted • Rehabilitation issues <ul style="list-style-type: none"> ○ Number of clients identified ○ Number of home visits conducted • Oral health <ul style="list-style-type: none"> ○ Number of clients with oral health conditions identified ○ Number of health education sessions on oral health conducted • Nutrition issues <ul style="list-style-type: none"> ○ Number of infants referred with malnutrition ○ Number of clients referred for therapeutic feeding ○ Number of under-fives who are underweight 	<ul style="list-style-type: none"> • Reduction in home deliveries • Number of chronic patients adhering to treatment • Increased number of minor ailments treated • Reduction in community neonatal deaths • VHW report submission completeness • Increase in number of high-risk mothers referred to rural health centers • Increased number of babies born protected against neonatal tetanus • Increased number of HIV-exposed infants identified and followed up • Reduction in reported cases of waterborne diseases <p>VHW program monitoring tools</p> <ul style="list-style-type: none"> • VHW register • Master cards • VHW data collection forms • Patient records • Referral letters to rural health centers • Meeting minute book

Note: WCBA: women of childbearing age; PMTCT: prevention of maternal-to-child transmission (of HIV); IPT: intermittent prevention and treatment (of malaria); ITN: insecticide-treated bed net

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The map on the cover page was downloaded from the public domain (<https://www.arcgis.com/home/webmap/viewer.html?layers=b9b1b422198944fbbd5250b3241691b6>). The photographs on the cover page are from the SHINE Study/Zvitambo Project in Zimbabwe. Picture 1 (on the left) is from the National AIDS Day commemoration and picture 2 (on the right) is a VHW on a bicycle during a community visit.

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Observations, Trends, and the Way Forward



Henry B. Perry¹



¹ Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

One-page summary

Introduction

The 29 case studies in this compendium report 8.4 million community health workers (CHWs) for the country programs they document. Even this is a significant underestimate since it does not include CHWs working with NGOs throughout the world nor the many CHWs who are working solely with vertical highly selective programs such as those for HIV, malaria, TB, immunizations, and family planning. The catchment area for each CHW is generally in the range of 1,000–2,000 people but can be as low as 20–50 people in Ethiopia, 40–80 people in Thailand and 200 people in Rwanda. Roles and tasks are diverse, but still mostly focus on maternal and child health.

Commonly shared challenges

Among the commonly shared challenges are weak political support and funding, unreliable supply of medicines and other program commodities, lack of career advancement opportunities, threats to motivation, and unsafe work conditions.

Notable trends and achievements

Over time, many programs have gradually shifted to a more comprehensive package of services, including, increasingly, family planning and curative services such as treatment of serious childhood illnesses. National CHW programs in many countries receive widespread credit for the contributions they have made in improving population health, particularly reducing child mortality. Female CHWs are also an important force for socioeconomic development more broadly and for women's empowerment.

The push and pull of CHW program strengthening and expansion

In spite of many sources of resistance, there is a growing appreciation of the importance of stronger CHW programs for achieving national and global health goals.

New frontiers

The Joint United Nations Programme on HIV/AIDS (UNAIDS) is proposing a vast expansion of CHWs in Africa to help end the HIV/AIDS epidemic. CHWs have the potential for playing an important role in the control of non-communicable diseases and in the provision of essential health care services in urban slum settings in low-income countries.

Making the case for strengthening and expanding CHW programs

Well-functioning national CHW programs can help achieve by 2030 Universal Health Coverage and the health-related Sustainable Development Goals (one of which is ending preventable child and maternal mortality). They can also make important contributions toward eventually reaching “Health for All.”

Conclusions and the way forward

Now is the time to build on the experience and evidence so far with national CHW programs and to provide the political support, technical leadership, and long-term financing needed to enable these programs to reach their full potential for improving the health of underserved populations throughout the world.

Introduction

Including only the programs documented in this compendium, there are 8.4 million community health workers (CHWs). This is undoubtedly an underestimate, as not all national or large-scale programs are included and there are many non-governmental organizations (NGOs) managing their own smaller CHW programs. Nonetheless, this compendium of national CHW programs offers the opportunity to understand, compare, and contrast major national CHW programs and their contributions to the achievement of Universal Health Coverage^a, the health-related Sustainable Development Goals (one of which is ending preventable child and maternal mortality), and “Health for All” sooner rather than later—all key global health goals endorsed by the world through the United Nations system. This concluding chapter highlights some of the common themes emerging from this review and offers some reflections on where the world now stands with regard to most fully benefiting from CHWs, particularly for the most vulnerable among us.

Notable features of the CHW programs included in the compendium

Let us look, in brief, at when these programs began, their program size, the extent of the catchment areas served by CHWs, their roles and tasks, selection criteria and duration of their initial training, their supervision and career progression, the material and other incentives they receive, terms of service and working conditions, as well as the financing and organization of these programs.

Programs old and new

There are four countries in our compendium with CHW programs launched in the 1980s or earlier that are still functioning today:

- Bangladesh (whose Health Assistant program began as an outgrowth of the smallpox and malaria programs in the 1960s, and whose Family Welfare Assistant program began as a family planning program in 1976)
- India (whose Auxiliary Nurse Midwife program began in the 1960s and whose Anganwadi Worker program began in the 1970s)
- Indonesia (whose Family Welfare Movement began in the 1970s and expanded into the *Posyandu*, or the integrated service delivery program, in the 1980s)
- Brazil (whose Community Health Assistant program began in the early 1980s in the northeast region of the country and then began to expand nationally in 1994)
- Nepal (whose Community Health Volunteer program began in the early 1980s and transformed into the Female Community Health Volunteer program in 1989)

Newer programs established since 2010 and still functioning include:

- Bangladesh’s Community Health Care Providers program
- Liberia’s Community Health Assistant program
- Mozambique’s *Agents Polivalentes Elementares* (APE) program (after having been dormant since 1989)
- Sierra Leone’s community health worker program

^a Basic health services, including essential medicines, without exposure to financial hardship and with special emphasis on the poor, vulnerable and marginalized segments of the population

- South Africa’s program of community health workers (as part of Ward-based Primary Health Care Outreach Teams)
- Sierra Leone’s community health workers
- Zambia’s community health assistants.

Some longer-standing programs have taken notable twists and turns over the past four decades. India’s Village Health Guides program, which began in 1977 and quickly expanded to 500,000 CHWs, soon thereafter began to slowly and gradually lose momentum before being formally terminated in 1992. However, a new cadre, the Accredited Social Health Activist (ASHA), emerged in 2005 and benefitted from lessons learned from the experience of the Village Health Guides program. Mozambique’s CHW program of *Agents Polivalentes Elementares* began in 1978 but collapsed in 1989 during the country’s civil war and was not reconstituted until 2010.

Nepal’s CHW program began in the early 1980s with the training of mainly male Community Health Volunteers but this program was unsuccessful and reached only one-fourth of the districts in the country and was abandoned in the mid-1980s. The Female Community Health Volunteer (FCHV) program was launched in 1989 and reached nationwide within two years. Through the mid-1990s various other key elements of the peripheral level of the primary health care (PHC) system were put in place and by the mid-1990s, new content-focused programs were progressively introduced, notably vitamin A supplement distribution for which they became world famous for the high level of coverage achieved nationwide.¹ By the late 1990s it was increasingly evident to the Ministry of Health as well as to external development partners that this was an important program and support from other vertical programs made it possible for them to engage in immunizations (including as providers of polio immunization during National Immunization Days and as promoters and aides for routine immunization outreach activities), distribution of iron and folate to pregnant women, use of oral rehydration and zinc for treatment of childhood diarrhea, community case management of pneumonia, and distribution of chlorhexidine for application to the umbilical cord of newborns born at home. Equally if not more important, the introduction of these interventions affirmed the value of FCHVs to their fellow community members. Thus, there was a decade-long process of progressive expansion of tasks and responsibilities during which time the value of the program became increasingly evident. (Steve Hodgins, personal communication, 2020).

In 1997, Guatemala introduced a national CHW cadre, *Promotores*, as supporters for mobile primary health teams tasked with serving rural populations. However, the government terminated the program in 2013 in response to a political crisis.

In 2016, just before a national election, the president of Ghana announced the creation of a new CHW/ youth program, supplementing the long-standing cadres of Community Health Officers and Community Volunteers. The initiative collapsed only a few months after the election.

Program size

Some CHW programs are massive in size. Ethiopia has the largest total number, with three million Women’s Development Army Volunteers (one for every 5-10 households) along with 40,000 full-time, salaried Health Extension Workers. India has the second largest number, 2.5 million (1.3 million Anganwadi Workers, almost one million ASHA workers, and 219,000 Auxiliary Nurse Midwives). Thailand has one million Village Health Volunteers (one for every 10-20 households). Other programs of substantial magnitude include Indonesia’s *Kaders* (500,000), Brazil’s Community Health Agents (236,000), and Bangladesh’s combination of government and NGO CHW programs (on the government side: 20,000 Family Welfare Assistants, 15,000 Health Assistants, 12,000 Community Health Care Providers; on the NGO side: notably BRAC’s 43,000 *Shasthya Shebikas* and 4,300 *Shasthya Kormis*). For further detail, see Table 1, below.

Table 1. Number of community health workers by country for programs included in this compendium

Country	Number of community health workers*	Name of CHW cadre
Afghanistan	27,000	Community Health Workers
Bangladesh	20,000	Government Family Welfare Assistants
	15,000	Government Health Assistants
	47,000	BRAC <i>Shasthya Shebikas</i> and <i>Shasthya Kormis</i>
Brazil	265,000	Community Health Agents
Ethiopia	40,000	Health Extension Workers
	3,000,000	Women's Development Army Volunteers
Ghana	3,000	Community Health Officers
	19,000	Community Health Volunteers
Guatemala	0	Program inactive at present
India	219,000	Auxiliary Nurse Midwives/Multipurpose Health Workers
	971,000	Accredited Social Health Activists (ASHAs)
	1,300,000	Anganwadi Workers
	0	Village Health Guides (program closed)
Indonesia	500,000	<i>Kaders</i>
Iran	61,000	<i>Behvarzs</i> and their urban equivalents, <i>Moraghebe-salamats</i>
Kenya	86,000	Community Health Volunteers
	2,000	Community Health Extension Workers
Liberia	3,800	Community Health Assistants and Community Health Service Supervisors
Madagascar	20,000	<i>Agents Communautaires</i>
	20,000	<i>Agents Communautaires de Nutrition</i>
Malawi	17,000	Health Surveillance Assistants and Senior Health Surveillance Assistants
Mozambique	5,000	<i>Agents Polivalentes Elementares</i>
Myanmar	24,000	Auxiliary Midwives
	15,000	Community Health Workers
	15,000	Malaria Volunteers
	6,000	TB Volunteers
Nepal	52,000	Female Community Health Volunteers
Niger	2,000	<i>Agents de Santé Communautaire</i>
	5,000	<i>Relais</i> Volunteers
Nigeria	43,000	Community Health Extension Workers
	75,000	Volunteer Village Health Workers
Pakistan	100,000	Lady Health Workers
Rwanda	45,000	<i>Binômes</i> and <i>Animatrices de Santé Maternelle</i>
Sierra Leone	14,000	Community Health Workers and Peer Supervisors
South Africa	33,000	Community Health Workers
	70,000	NGO-supported CHWs (mostly for AIDS work)
Tanzania	12,000	Community Health Workers
	41,000	Volunteer Community Health Workers
Thailand	1,000,000	Village Health Volunteers
Uganda	179,000	Village Health Team Members
Zambia	2,000	Community Health Assistants
Zimbabwe	10,000	Village Health Workers
Total	8,383,800	

*Rounded to the nearest thousand

Catchment areas

The size of a CHW's catchment area (in terms of number of people served) is only one of a number of important features of a CHW's responsibilities, but it can be readily calculated – though of course the calculation itself does not provide any assurance that there is uniformity in the size of the catchment area throughout the country. And, moreover, the dispersion of households, terrain, number of hours the CHW is expected to work, number of tasks to be performed, sub-groups in the catchment population to be served all need to be considered when considering a CHW's workload. In most programs, the catchment areas are 2,000-3,000 people. Table 2 provides the catchment areas sizes for some of the CHW programs included in the compendium.

Table 2. Catchment areas of selected CHW cadres

Country (name of CHW cadre)	Approximate number of people in catchment area
Ethiopia (Women's Health Development Army Volunteers)	20–50
Thailand (Village Health Volunteers)	40–80
Rwanda (Binômes and Animatrices de Santé Maternelle)	200
Uganda (Village Health Team members)	240–450
Liberia (Community Health Assistants, residing >5 km from a health facility)	350
Nepal (Female Community Health Volunteers)	550
Ethiopia (Health Extension Workers)	2,500
Niger (Agents de Santé Communautaire and Relais Volunteers)	3,000

Roles and tasks

The diversity of roles and tasks described in the compendium is remarkable. The most commonly reported content includes:

- Maternal and child health activities
- Nutrition-related education and promotion
- Hygiene and other healthy household practices
- Family planning
- Promoting/supporting utilization of basic health care services (antenatal and postnatal care, facility delivery, immunizations, and family planning)
- Counseling/health education on warning signs for which pregnant women and sick children should seek a trained health care provider

In addition to health education/health promotion and encouraging or facilitating referral to services offered in health facilities, in many programs CHWs are, themselves, engaged in direct provision of services. This can include dispensing program commodities either on an ongoing basis as *depot holders* (e.g., oral contraceptive pills and condoms, sachets of oral rehydration salts) or during periodic mass outreach activities (e.g., Child Health Days, supplementary immunization campaigns, mass drug distribution related to disease-control activities such as those targeting onchocerciasis with ivermectin, which needs to be provided annually). In some programs, CHWs provide injectable contraception, and (in the case of Ethiopia) paid Health Extension Workers are inserting long-acting contraceptives subcutaneously.

Historically, there have been numerous vertical national family planning programs using community-level workers that have operated separately from other CHW programs. Many of these workers still function but are now being incorporated into integrated CHW programs (as are CHW activities that were previously limited to vertical disease-control programs such as those for malaria, HIV, TB, pneumonia, diarrhea, and immunizations).

Other important services CHWs are now providing, generally under the rubric of Integrated Community Case Management (iCCM) of Childhood Illness, include treatment of uncomplicated childhood pneumonia, diarrhea, and malaria. Such programs have been introduced in Afghanistan, Bangladesh, Ethiopia, Ghana, Liberia, Malawi, Mozambique, Nepal, Niger, Rwanda, Sierra Leone, Tanzania, Uganda, and Zambia. Other notable maternal-neonatal health interventions now provided by CHWs include:

- Dispensing misoprostol tablets to pregnant women in their third trimester who plan to give birth at home to take immediately after birth in order to reduce risk of post-partum hemorrhage (in Afghanistan and Nepal), chlorhexidine antiseptic to be applied to the newborn umbilical cord stump to reduce risk of neonatal sepsis (in Nepal)
- Counseling and health education to women during pregnancy and the early postnatal period on home-based neonatal care (immediate and exclusive breastfeeding, prevention of hypothermia, recognition of signs of potentially serious infection)
- Assessment for potentially severe newborn infections, and initial provision of antibiotic treatment (in India and in parts of Ethiopia).

Increasingly, CHW programs (in Afghanistan, Bangladesh, Brazil, Ethiopia, Rwanda, and South Africa, for example) support identification of persons with symptoms suggestive of TB, facilitation of collection of sputum in the home for laboratory testing, and support for daily treatment at home for those who test positive, including direct observation of pill taking. Similarly, there is growing involvement of CHWs in HIV programming (in Ethiopia, Malawi, South Africa, among others), not only in promotion of safe sex or encouragement of HIV testing but also in actually carrying out voluntary testing and counseling in the home as well as providing adherence support for those on anti-retroviral medication. In many countries now (Ethiopia and Rwanda, among others), CHWs have been trained to diagnose and treat malaria (including use of rapid diagnostic kits) not only in children but also in those older than five years of age.

In virtually all CHW programs, CHWs promote the uptake of infant immunizations. Their roles vary; in some programs they help to mobilize the community so that when a government vaccinator comes to the community, those who need a vaccination will be there to receive it (as happens in Bangladesh, Nepal and India). In some programs, CHWs themselves perform the vaccination (e.g., Health Surveillance Assistants in Malawi and Health Extension Workers in Ethiopia).

A growing number of large-scale CHW programs (e.g., in Bangladesh, Brazil, Ethiopia, India, Iran, South Africa, and Thailand) are beginning to address non-communicable diseases (hypertension, diabetes, and chronic pulmonary disease) and their risk factors (smoking, obesity, lack of physical activity, and indoor exposure to smoke). In India, Auxiliary Nurse Midwives have now been renamed Multipurpose Health Workers, reflecting new responsibilities for non-communicable diseases and care for the elderly. Other tasks included in a significant number of programs (e.g., in Ethiopia and Liberia) include routine visitation of all households, mapping and registration of all households, registration of vital events, and surveillance for infectious diseases such as acute flaccid paralysis for potential cases of polio, measles, neonatal tetanus, TB and Ebola.

The location of work of CHWs varies from country to country and from cadre to cadre within the same country. In Bangladesh, for instance, the new government cadre of Community Health Care Providers, is based almost exclusively at a peripheral health post, as are the *Agents Polivalentes Elementares* (APEs) in Mozambique and the *Agents de Santé Communautaire* in Niger. Others, such as the Health Extension Workers (HEWs) in Ethiopia, divide their time between their health post and the community. In the case of Ethiopia, there are two HEWs

assigned to a health post, so that if one is in the community away from the health post the other one should be there to attend to patients who come for services. The Community Health Extension Workers (CHEWs) in Nigeria represent an interesting situation since, even though they were trained to work out in the community, the lack of more highly trained workers at peripheral facilities has led to a situation in which they are actually the only staff at these facilities even though they should have more highly trained workers.

Selection criteria and duration of initial training

The level of education required for CHWs is highly dependent, of course, on the level of education in the society. In the poorest countries, it has been necessary to allow illiterate persons to become CHWs, although increasingly functional literacy has become a basic requirement. At the other extreme is Iran, where CHWs have to be high school graduates, but because of the high level of education in the country most in fact are college graduates.

For programs that rely on volunteers, most provide no more than two weeks of initial training (Women Development Army Volunteers in Ethiopia, *Kaders* in Indonesia, CHWs in Madagascar, Malaria Volunteers in Myanmar, Village Health Volunteers in Thailand, and Village Health Teams in Uganda). The CHWs described in our compendium with the longest training are the Community Health Extension Workers (CHEWs) of Nigeria, who receive three years of formal training. India's Auxiliary Nurse Midwives receive two years of training, as do Ghana's Community Health Officers and Iran's *Behvarzs*. Most of the programs covered in this compendium provide six weeks to three months of initial training.

Most programs have some type of ongoing continuing education. However, this is often sporadic and frequently is funded by external donors on disease-specific topics.

Supervision

In the case studies in this compendium, supervision is a commonly mentioned challenge. Because these programs tend to be underfunded, supervisory responsibilities are often "tacked on" to staff of the nearest health facility who themselves may be overloaded with clinical and other responsibilities. As a consequence, supervision may be irregular and inadequate. Of the programs included here, such problems were noted for CHWs in Brazil, Madagascar, Mozambique, Niger, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia and Zimbabwe. However, there are examples where such a supervisory arrangement works reasonably well, such as in Nepal with its full-time Maternal Child Health Workers, who have other duties, also supervising the FCHVs.

Some CHW programs documented here have full-time supervisors without other duties, notably Bangladesh's Family Welfare Assistants and Health Assistants, Pakistan's Lady Health Worker, and Liberia's Community Health Workers. And, as we have noted, there are also a number of programs that have created a new cadre of supervisors recruited from among previously high-performing CHWs. The supervisory positions in Rwanda and Sierra Leone were explicitly created to address deficiencies in supervision due to inability of the health facility in-charge to adequately support the CHWs for which they were responsible. One disadvantage of this arrangement (in contrast to having supervisors who also have clinical responsibilities at a health facility) is that it could lead to a weaker linkage between the CHWs and health facility.

A commonly cited weakness in supervisory systems is too infrequent visits by supervisors to the field to accompany CHWs in their work. Time pressures on supervisors and lack of transport are the most common constraints cited. However, there are countries that appear to have been able to overcome these constraints. One example is Ethiopia where HEWs had received an average of three supervisory visits from PHC center staff over a nine-month period,² 78% had received a supervisory visit in the previous six months, and 47% had even received a supervisory visit from a staff member at the *woreda* (district) health office in the previous six months.³ However, the importance of field visits as a necessary precondition for effective supervision is not clearly established.

Brazil's Community Health Assistants (CHAs) are in near-daily contact with the rest of the PHC team with whom they work and can readily call on the team to visit a household if they encounter a problem they cannot handle on their own. This facilitates a close and supportive supervisory relationship. Still, formal supervision is often limited because the CHAs' supervisors are higher-level PHC workers (mostly nurses) with many other responsibilities, including patient care.

As discussed further below, so-called dual-cadre CHW systems are growing, with a salaried and relatively more professionalized CHW working with a group of volunteer CHWs responsible for a smaller catchment area and—typically—a more limited range of functions. These arrangements also involve the higher-level CHWs functioning in a supervisory capacity for lower-level CHWs while also working together as a team to perform their respective duties. Examples of this arrangement include:

- Bangladesh's *Shasthya Shebikas* working with and supervised by a *Shasthya Shebika*
- Ethiopia's Women's Development Army Volunteers working with Health Extension Workers
- Ghana's Community Health Volunteers working with its Community Health Officers
- Kenya's Community Health Volunteers working with Community Health Extension Workers
- Niger's *Relais* Volunteers working with *Agents de Santé Communautaire*
- Nepal's FCHVs working with Auxiliary Nurse-Midwives and Auxiliary Health Workers
- Zambia's Community Volunteers working with Community Health Agents

The supervisory system emerging in South African with its ward-based PHC Outreach Teams is interesting in that a team of 6-10 CHWs is led by a nurse. At this point, however, there is a shortage of nurses and the program has yet to ramp up due to the lack of funding. Still, it represents an interesting emerging approach to supervision and close teamwork.

Certainly, monitoring and health information systems constitute an important element in CHW supervision, as described in the case studies. However, little mention is made in the case studies of the role of communities in the supervisory process nor of the role of CHWs helping other CHWs as peers. Learning from fellow CHWs who are facing the same challenges and have found helpful strategies to deal with them could contribute to the supervisory process. After all, the goal of supervision is not only to check on supervisees to make sure that they are doing their job, but also to help CHWs do the best possible job under the circumstances. Creating conditions that favor mutual learning among CHWs can be expected to improve motivation and program performance.

The international non-governmental organization BRAC^b is renowned for its capacity to scale up while maintaining strong supervision in all of its programs. There is much that other programs can learn from how BRAC applies these principles to its CHW programs.

Career progression

Opportunities for CHWs to advance to higher-level positions are still limited among the programs reviewed here, although the situation is changing in some cases. The World Health Organization guidelines recommend that, where feasible, countries provide opportunities for a career ladder for practicing CHWs.^{4,5} In many settings in which the level of literacy is low, career progression is not realistic when CHWs are illiterate or are barely literate. However, there are increasing numbers of CHW programs that select outstanding CHWs and move them into supervisory positions (e.g., in Malawi, Rwanda and Sierra Leone). This is helpful because such peer supervisors fully understand the challenges faced by those they are

^b BRAC is an acronym that stands for Building Resources Across Communities. It originally stood for Bangladesh Rural Advancement Committee.

supervising. Historically, supervision has often been carried out by other cadres of health worker, e.g., in Bangladesh where female Family Welfare Assistants are supervised by male Family Planning Inspectors.

From the beginning of its Health Extension Program, Ethiopia has offered additional training opportunities for HEWs who have served for at least five years with outstanding performance, enabling them to move to a higher grade of HEW with a higher salary. One-half of HEWs initially recruited have benefited from this provision. In theory, outstanding HEWs are supposed to be able to apply to training programs, including nursing and medicine, but no data are available on what proportion of HEWs have actually entered such training programs. A new opportunity has opened up for existing HEWs, with the creation of the cadre of *Family Health Professional* for outstanding HEWs who obtain additional 30 months of training at one of eight universities in Ethiopia. Following completion of this training, these Family Health Professionals will receive a university degree and return to work at their health post doing similar work as before, at a health center to work as a clinician, or in a district or regional office to assume a management position (Zufan Abera, personal communication, 2020). Career progression for the Women's Health Development Army Volunteers, however, is not possible in general since very few of them have the minimum 10 years of schooling required to become an HEW.

In Brazil, it is not uncommon for Community Health Agents to leave their positions and enter training for a higher-level health position even though it is not a career progression opportunity formally built into the CHA program. It appears that similar career progressions are occurring in many countries.

Incentives and remuneration

Incentives and remuneration vary considerably. Many programs utilize volunteers and provide no salary (Afghanistan, Ethiopia, Indonesia, Kenya, Nepal), but these volunteers usually receive other incentives, from per diem payments to social recognition and in-kind benefits. Thailand is remarkable because of its commitment and capacity to pay such a large number (one million) of Village Health Volunteers (that is, one for every 40-80 people) a regular stipend of US\$ 20 per month along with other non-financial incentives. Most of the programs documented in this compendium provide payments to full-time CHWs, typically in the range of US\$ 100-300 per month. The most highly paid CHWs in our review are Nigeria's Community Health Extension Workers (CHEWs) who receive US\$ 281 per month and Iran's *Behvarzs* who receive US\$ 350 per month.^c

Many programs provide their CHWs with a monthly payment but call this an "incentive" rather than a salary that a regularly employed person would receive. As such, this income lacks the associated benefits that government employees normally receive. Ethiopia, Ghana, Malawi and Nigeria are notable exceptions since their higher-level CHWs are all in formal civil service positions.

The BRAC CHW program is an interesting outlier in several respects, including payment. It has the largest non-governmental cadres of CHWs in the world.^d BRAC has a dual-cadre CHW system in which the lower level of CHWs, called *Shasthya Shebikas*, make a commission on sales of health-related products. These CHWs are also members of women's savings and loan groups called Voluntary Organizations, whose other members engage in a variety of income-generating activities such as raising chickens, producing milk, and making handicrafts. This approach has made it possible for the CHW program to grow without dependence on external funding.

In Rwanda, CHW cooperatives have been established. These cooperatives receive funds directly from the government for the services of its members, and the members work together using these funds as seed money for other income-generating activities. In Nepal the government has established local endowment

^c These dollar figures are only a very rough guide of the value of the income and need to be interpreted in terms of local salary scales.

^d The Catholic NGO Pastoral da Criança (Pastorate of the Child) has a network of 260,000 volunteer CHWs in Brazil who promote child survival through low-technology interventions such as the administration of oral rehydration solution for childhood diarrhea. Unfortunately, we do not have a case study for this program.

funds from which Female Community Health Volunteers are able to draw loans to pursue income-generating activities.

Performance-based financing has now entered the realm of payments to CHWs in a number of countries. India's ASHAs receive performance-based bonuses for referring women to deliver at a facility. Iran's *Behvarzs* receive performance-based incentives. Payments to Rwanda's CHWs are partly based on performance related to indicators for nutrition, antenatal care, facility deliveries, family planning services, and engagement with HIV and TB control. Thirty percent of the payment goes to individual CHWs, and the remaining 70% to the cooperative. Among other things, this approach encourages teamwork as well as high individual performance.

It is important to note that the recently-released WHO guidelines for CHW programs^{4,5} specifically recommend *against* paying CHWs exclusively or predominantly using performance-based incentives. The unintended consequence of relying too heavily on performance-based incentives is that CHWs focus too much on the activities that contribute to the measurement of the performance indicator at the expense of other important activities.

Common themes across our case studies are (1) a feeling among CHWs that they are underpaid and that their remuneration inadequately reflects the time and effort they contribute, (2) their pay arrives irregularly and is sometimes delayed by months, and (3) expenses they incur are not appropriately reimbursed. Increasingly, CHWs are taking collective actions to demonstrate their frustrations and to present their demands before legislative bodies and ministries of health. This has happened in Bangladesh, India, South Africa, and Pakistan.

Terms of service and working conditions

Related to payment are issues concerning the contractual obligations CHW programs have to their paid staff. The recently released WHO guidelines for CHW programs^{4,5} specifically recommend that paid CHWs be provided with a written agreement which articulates their role and responsibilities, the working conditions, expected remuneration, and their rights as workers. The safety of particularly female CHWs in a number of countries, most notably India and Pakistan, has become a concern as a result of well-publicized harmful incidents that have taken place.

Financing

The long-standing, stable programs in Brazil, India, Indonesia, Iran and Thailand all rely on central government funding. In some cases, such as Brazil, local governments also provide support. In Kenya, with recent decentralization of many government functions to the county (district) level, many counties are beginning to pay CHWs salaries in the range of US\$ 20-60 per month.

Other programs addressed in this compendium rely heavily on donor funding (e.g., in Liberia, Mozambique, Rwanda, Sierra Leone, Tanzania, Uganda and Zambia). Even the long-established Afghanistan CHW program (operating since 2003), remains heavily dependent on external donor support. At present, Sierra Leone's program is 100% donor-dependent, and Rwanda's is 76% donor-dependent.

There are efforts underway, headed by a newly formed entity called the Financing Alliance for Health⁶, to assist low-income countries with new CHW programs to find sources of financial support from private sources (social capital) to cover until governments are able to fully absorb these costs. There are also situations where funding is available but not used. The poorest states of India, notably Bihar and Uttar Pradesh, have national/federal funding available for their CHW programs but do not have the absorptive capacity to utilize the funds, so they go unspent.

Structure and organization

The structure and organization of CHW programs vary by country. There is, however, a growing awareness that programs should be better integrated into the national PHC system rather than as a stand-alone, vertical

program. In fact, the new WHO guidelines highlight this need.^{4,5} A structural feature mentioned earlier is the dual-cadre CHW system in which several or a group of lower-level volunteer CHWs work in tandem with a salaried, full-time CHW or health auxiliary (often having a year or more initial training). Dual-cadre CHW systems are described in a number of our case studies. In the previous section on supervision, we mentioned the dual-cadre systems in Bangladesh, Ethiopia, Ghana, Kenya, Niger, Nepal and Zambia. Tanzania also has a dual cadre system (with its paid CHWs providing support to Volunteer CHWs who are mostly connected to vertical disease programs) as does Zambia (with its paid Community Health Assistants working with Community Health Volunteers).

There are cases in which the government has contracted with NGOs for support in implementing their CHW program. In Afghanistan, the government has been contracting with local and regional NGOs to train CHWs and to manage the delivery of the Basic Package of Health Services (BPHS), including facility-based services, at the provincial level. In Madagascar, the government has engaged local NGOs to hire, train and supervise *Agents Communautaires de Nutrition* (ACNs, or Community Nutrition Agents). BRAC's CHW program in Bangladesh is administered separate from the public sector but has many supportive mutual relationships with the government health systems. One of these has been long-standing support of BRAC CHWs for promotion of family planning, national health campaigns for immunizations, polio eradication, vitamin A distribution and so forth, and for day-to-day collaboration in the detection and treatment of patients with TB.

The degree to which CHW programs are integrated into the health system is an important issue. In many countries, communities are quite far from existing health facilities, so the CHWs who serve them are not readily integrated into the health system, and supervision of and logistical support for CHWs is a major management challenge. Brazil has developed one of the best integrated programs, in which their Community Health Agents (CHAs) work as part of Family Health Teams that meet regularly. In most cases, the health center, in which the higher-level staff of the Health Team is based, is within easy walking distance for the CHAs, so they are able to interact with the rest of team on a daily basis. Other national CHW programs that are well integrated into the national PHC system include those in Afghanistan, Bangladesh, Ethiopia, Ghana, India, Iran, and Nepal.

Another complex element in the structure and organization of CHW programs is where CHWs perform their work and the role that a health facility may or may not play in the CHW's work. There are many programs in which CHWs exercise their role entirely outside of any facility and carry out all of their work in the community in households or in small ad hoc meetings in the open air or at facilities built for other purposes (such as schools). Examples include:

- Bangladesh's Family Welfare Assistants and Health Assistants as well as its *Shasthya Shebikas* of BRAC
- Brazil's Community Health Agents
- Ethiopia's Women's Development Army Volunteers
- Ghana's Community Health Volunteers
- India's ASHA Workers
- Nepal's Female Community Health Volunteers
- Kenya's Community Health Volunteers
- Liberia's Community Health Assistants
- Myanmar's Community-Based Health Workers
- Niger's *Relais* Volunteers
- Nigeria's Volunteer Village Health Workers

- Pakistan's Lady Health Workers
- CHWs in Rwanda, Sierra Leone, Tanzania, Thailand, Uganda, Zambia and Zimbabwe

Alternatively, there are CHW programs in which CHWs spend virtually all of their time within a health post or dispensary, often built exclusively or partly by the community, where no other higher-level workers are based. Examples include the Community Health Care Providers in Bangladesh and the *Agents de Santé Communautaire* in Niger. Further, there are countries such as Nigeria in which their Community Health Extension Workers spend all of their time in health centers with other higher-level workers because of staff shortages there.

Programs in which a CHW works partly at a health post and also spends a substantial portion of time in the community are not uncommon. Examples of these programs are in Afghanistan, Ethiopia, Ghana, Madagascar, Malawi, and Mozambique. However, this arrangement appear to result in CHWs spending more time at the health post for curative care and less time in the community for promotional and preventive care.

Commonly shared challenges

The case studies described in this compendium have many common challenges as well as many interesting and important exceptions and innovations. Here are some of the issues and common challenges that national CHW programs face.

Lack of political support and funding

Lack of strong, long-term political support for CHW programming is a common issue though not frequently discussed. Political support, or lack thereof, for CHW programs is directly impacted by the lack of strong political support and funding for PHC overall.⁷ In addition, opposition from medical and political elites as well as from professional organizations of doctors and nurses that lobby for additional funds for salary increases and improvements in health facilities has affected the availability of funding for CHW programs. These dynamics have resulted in many examples of notable cutbacks for CHW programs as well as to a lack of funds needed for starting, strengthening or expanding CHW programs.

At the other extreme, however, there have been two interesting examples of rapidly bringing in funding for CHW programming associated with short-term political gain that later proved to be counter-productive. Due to poor planning, the Village Health Guides program (introduced in India in 1977) performed poorly, eventually leading to the demise of the program. As described earlier, the introduction of a new paid CHW cadre in Ghana, was announced with fanfare in the run-up to an election, with the appeal being the promise of addressing youth unemployment. But within less than a year of the election, after fumbling efforts to integrate the program with the existing and long-standing CHW program in Ghana, the government abruptly shut down the program.

Funding challenges for CHW programs are quite common: difficulties in transitioning from external donor support to long-term internal funding including gaps arising associated with withdrawal of external funding, fiscal constraints resulting from economic downturns, and chronic government shortfalls of funds. A common challenge is the irregularity or delay in providing monthly salaries or other payments to CHWs. Often decision-makers have failed to appreciate at the outset how expensive strong community health services actually are.

South Africa and Nigeria are important examples of countries that have passed legislation to strengthen community health programming but then failed to provide the funding needed to implement these programs. There are also many examples in which funding for community health programming has been cut back or eliminated as governments faced a political or financial crisis, or when funding a different health priority took precedence.

Irregularities and shortages of essential components of the program

Stockouts of supplies and medicines are frequently cited. In systems in which the supply chain is tenuous, the peripheral health facility staff can be reluctant to provide CHWs with the supplies and medicines they need for fear that the facility itself would not have them for its own day-to-day requirements. Since CHWs are at the end of the supply chain in these often-dysfunctional systems, the impact is greatest on the CHWs. The lack of medicines has an especially profound effect on the quality and effectiveness of the CHW program. It directly affects the CHWs' motivation and can often result in lower esteem shown by their fellow villagers. CHW programs described in this compendium that have been especially affected by such problems include those in Uganda and Zimbabwe, but these problems persist in many other programs.

BRAC, by contrast, has been able to provide effective logistical and supervisory support. BRAC is globally known for its capacity to scale up effective training, logistical support, and supervision for its large-scale CHW programs and other non-health programs it operates—not only in Bangladesh but now in 11 other countries in Asia and Africa. Learning about BRAC's policies, systems and procedures could be beneficial for CHW programs throughout the world.

Long-term career retention and motivation

The lack of attractive remuneration along with poor supervisory and logistical support can be quite demotivating. Attrition, in turn, affects quality of programming. There is a need for better understanding of the perspectives of CHWs in order to strengthen CHW programs. Building career paths is one example of attempts to improve motivation and retention.⁸

Negotiating gender dynamics

CHW programs have to navigate the treacherous shoals of gender dynamics: the gender discrimination that women face and the many cultural sensitivities associated with gender. In many societies, there are cultural proscriptions against a woman leaving her home and going out into the community. Male CHWs visiting the home of women can be considered inappropriate. For men to promote, discuss and provide family planning services to women can be problematic, especially when provided in the woman's home. Even the act of a male health worker touching a woman for any reason is culturally taboo in many societies.

CHW programs have tried to address these issues in various ways. Many CHW programs (e.g., BRAC's CHWs in Bangladesh; India's Auxiliary Nurse Midwives, Anganwadi Workers, and ASHAs; Indonesia's *Kaders*; Nepal's Female Community Health Volunteers; and Pakistan's Lady Health Workers) utilize only women as CHWs, reflecting a program emphasis on maternal-child health and family planning and respecting cultural norms in these settings. Two countries, Afghanistan and Rwanda, have established male-female pairs of CHWs who work in the same village and coordinate their complementary roles. In Bangladesh there is a separate male cadre (the Health Assistant) who carries out duties acceptable for a man in this setting, while the Family Welfare Assistant cadre is entirely female and handles reproductive and maternal health issues. In other countries, where social norms permit, programs incorporate both male and female CHWs to carry out the same duties (e.g., Brazil's Community Health Assistants and Ghana's Community Health Officers and Community Health Volunteers).

In some cases, even where there are no cultural proscriptions against women assuming such a role, most of the CHWs are men because fewer women meet the selection criteria (e.g., an educational cut-off). Examples include Liberia's Community Health Assistants and Madagascar's *Agents Communautaires de Nutrition* (ACNs) and *Agents Communautaires* (ACs). Some programs such as Mozambique's and Zambia's accept CHWs of both genders but give priority to women. Others have no gender requirement but in practice are almost entirely women (Indonesia's *Kaders*, for instance).

Safety

Personal safety of CHWs is becoming an increasingly important issue, especially for women. Sexual assault of Auxiliary Nurse Midwives in India has become a more widely acknowledged problem; there have been cases of ANMs called to homes in the night for this specific reason. As a result, some ANMs refuse to go out at night. Lady Health Workers in Pakistan have suffered abductions and beatings in response to their participation in polio campaigns and other immunization services as a result of the politicization of these activities. CHWs of both genders (along with other health workers, of course) face considerable risks while carrying out their duties in the midst of epidemics such as Ebola and coronavirus.

Processes and dynamics of scaling up

Planning for and coordinating the training of CHWs to meet the needs of a program as it begins and scales up is a critical issue. The processes for and dynamics of scaling up national CHW programs have varied from country to country and are not well documented. Ethiopia was able to scale up its Health Extension Worker cadre over a period of only five years, training 38,000 CHWs for one year each. In some countries, such as Brazil, the process was relatively slow and evolutionary, occurring over several decades. Bangladesh took a careful and measured approach over more than a decade by scaling up purposefully but in stages, evaluating the program at each new level of operation and making adjustments before moving to the next stage, using independent technical support provided by the International Institute for Diarrhoeal Disease Research, Bangladesh (now icddr).⁹ The failed Village Health Guides program in India is a helpful reminder of the perils of scaling up too quickly without careful planning and without taking timely corrective actions along the way.

Ghana first replicated its original model that was first tested in 1994 in Navrongo in other districts in the same (Upper Volta) region, then in several other pilot districts before moving to national scale-up. However, scale up has progressed slowly until the last few years. Although there was a national commitment to scaling up, there was a lack of Community Health Officers. In addition, there was a lack of central funding and subsequently each region had to cover much of the scale-up costs with its own funds.

Monitoring and evaluation

While collecting data from CHWs about their activities and entering these data into district, regional and national health information systems is becoming commonplace, there do not appear to be many examples in which this information is used productively to improve the CHW program. Furthermore, robustly-conducted evaluations of CHW programs, either by the program implementers themselves or by independent evaluators, are not common and, when carried out, the results are not often made publicly available.

Notable trends

There are four notable trends in national CHW programs, although more could be mentioned:

- The consolidation of vertical programs into more integrated and comprehensive programs
- Expansion of the role and tasks of CHWs, with new responsibilities added for clinical management of illness (especially for infants and young children) and for other service delivery roles
- Reduction of the CHW role by dropping certain functions as higher-level providers and facilities become more widely available
- Lack of uptake of certain evidence-based interventions

The second and third trends are in some sense contradictory, but the second trend is occurring where peripheral health care services are woefully inadequate, and the third trend is occurring where peripheral

facility-based services are becoming more accessible. The fourth trend is perhaps not exactly a trend but rather a trend that would have been expected but has not yet appeared.

Consolidation of vertical programs into more integrated and comprehensive CHW programs

Through the 1960s and 1970s, few countries had well-established integrated health services at the community level. More common were large-scale, vertical disease control programs (e.g., for addressing malaria, cholera, smallpox eradication and immunizations, and TB), all of which had community agents. Under the influence of Alma-Ata, more polyvalent CHW cadres were created and community agents previously working in vertical programs were repurposed to fill these new positions.

In more recent decades, other vertical programs have appeared, in some cases developing their own single-purpose community cadres, such as family planning programs, HIV/AIDS programs, safe motherhood programs, and neglected tropical disease programs (for example, for onchocerciasis and guinea worm disease). More recent variations of this approach include Child Health Days, where nationwide mobilization occurs using temporary local CHWs to assist with childhood immunization, vitamin A distribution, and sometimes administration of de-worming medication or distribution of insecticide-treated bed nets. In a number of countries, community-based workers have been assigned to implement multiple interventions. At the local level, in some countries vertical programs have worked outside of Ministry of Health structures at the local level, engaging NGOs to contract with and train local people to work as minimally trained CHWs (classified in the introductory chapter as Level 1 CHWs).

In a number of countries, there have been efforts to incorporate these workers into a more harmonized and integrated approach by continuing the original activities and tasks but expanding the scope as well. In Ethiopia, the government has been a leader in consolidating its vertical programs for HIV, TB, malaria, immunizations and family planning into its integrated PHC platform, whose foundation is Health Extension Workers (HEWs) and the Women's Development Army. The government converted all of the CHWs previously linked to vertical programs to either Women's Development Army Volunteers or Health Extension Workers. Ethiopia's success in expanding family planning services has been widely heralded as an exemplary case of implementing an effective family planning program through a PHC platform; HEWs are now the country's main providers of family planning services. Ethiopia's success in controlling HIV, TB and malaria have all been achieved through the same platform. Myanmar's CHWs are still heavily concentrated in vertical, disease-specific programs, although a process of consolidation is now beginning.

Examples of CHW programs in other countries that have gone through similar consolidations are Liberia, Sierra Leone, and South Africa. Until 2016, Liberia had a highly fragmented, disease-focused, vertically driven system of CHWs. The new cadre of salaried Community Health Assistants (who work 20 hours per week) is now working alongside these workers, and many CHAs had previous experience working in one of these programs. Sierra Leone has had a similar experience of recently developing a more integrated cadre of paid CHWs working half-time alongside those working in vertical, disease-specific programs. In South Africa, numerous, mostly NGO-run vertical programs for HIV services are now being consolidated into a program in which these workers will have a much broader scope of activities.

In some countries CHWs previously working for NGOs are transitioning to direct employment in the public sector, as happened in Ethiopia and is now happening in South Africa.

BRAC's Shasthya Shebika program has had from the beginning an interesting combination of engagement in top-down vertical programming (with supervision and logistical support coming through the government's as well as BRAC's own specialists in these areas)—for immunizations, TB and malaria control, and family planning—while at the same time carrying out a broad and integrated set of services for maternal and child health and now expanding into non-communicable diseases.

Expansion of the CHW role to manage illnesses and provide other clinical services

Partly as a result of technological advances and partly as a result of rigorous testing of interventions and piloting of delivery approaches, in some countries the scope of practice of CHWs with limited formal training has been expanding. This includes responsibility for treatment of certain potentially serious illnesses, prevention of life-threatening conditions, and serving as an “extra pair of hands” to extend provision of health care beyond the health facility to the community and the household.

Of particular note is community case management of childhood pneumonia, diarrhea, and malaria using standard algorithms that have been validated in many studies and recommended by the World Health Organization and UNICEF. Such services are now most often provided as a package called Integrated Community Case Management (iCCM) with CHWs introduced to such a role through a 5-6-day training course. iCCM was adapted from a package of services developed for higher-level workers in facilities called Integrated Management of Childhood Illness, or IMCI. iCCM is now being offered by CHWs in many countries, including:

- Health Extension Workers in Ethiopia
- Community Health Assistants in Liberia
- Health Surveillance Assistants in Malawi
- *Agents Polivalentes Elementares* in Mozambique
- *Agents de Santé Communautaire* in Niger
- *Binômes* in Rwanda
- CHWs in Sierra Leone
- Village Health Team members in Uganda
- CHWs in Tanzania
- Community Health Assistants in Zambia

Studies now demonstrate that CHWs can manage equally well more serious cases of childhood pneumonia that the iCCM protocol requires to be referred to higher levels of care.^{10,11}

Increasingly, CHWs are being trained and supported to use a rapid diagnostic test (RDT) for malaria and to treat not only young children but also older children and adults. An example is the *Agents Polivalentes Elementares* in Mozambique. CHWs are now increasingly performing HIV counseling and testing using rapid diagnostic tests in the field, often in the privacy of the client’s home, to identify HIV-positive individuals, link them to a treatment system, and supervise daily treatment with anti-retroviral medication if warranted. An example is the Health Surveillance Assistants of Malawi.

CHWs are increasingly engaged in collecting sputum specimens from symptomatic patients and linking them for further testing at a health facility and then coordinating and observing treatment for those who test positive. BRAC’s Shasthya Shebikas in Bangladesh and Ethiopia’s Health Extension Workers have this capacity, as do Health Surveillance Assistants in Malawi and *Binômes* in Rwanda. In Bangladesh, this system is now in place nationwide not only with BRAC’s CHWs but also with those of many other NGOs as well.¹²

The quality of family planning services provided by CHWs has been demonstrated for some time, and these functions are gradually being included in the work of generalist CHWs, not just CHWs working in vertically

funded family planning programs. One of the best examples of these, as mentioned previously, is the provision of injectable contraceptives by CHWs and more recently the placement of contraceptive subcutaneous implants by Health Extension Workers in Ethiopia.

As mentioned previously, CHWs are beginning to provide other maternal and child health services that have been piloted and evaluated. These include the distribution of misoprostol for women to take immediately after delivery, home-based neonatal care, promotion of immediate and exclusive breastfeeding, intermittent preventive treatment of malaria in pregnant women and in children, distribution of iron and folate to pregnant women, and distribution of iron and zinc to children.

There are a growing number of studies demonstrating that when CHWs are properly trained and adequately supervised and supported, the quality of maternal, neonatal and child health services traditionally reserved for more highly trained workers has been of an equivalent quality and has had a measurable impact on health outcomes.¹³ On the horizon, but not yet widely implemented, are interventions related to non-communicable diseases (detection and treatment of hypertension and diabetes under supervision).¹⁴ Again, Ethiopia's Health Extension Workers are at the forefront among CHW programs in this trend.

Reduction of CHW scope of clinical care as higher-level providers and facilities become more widely accessible

As health systems mature and build capacity, it is not surprising that situations arise in which clinical services provided by CHWs shift to higher-level workers. In Brazil, Community Health Agents previously had been authorized to diagnose and treat childhood pneumonia but with more qualified health professionals now available, this role has been dropped. Similarly, Nepal's Female Community Health Volunteers did have delegated authority to assess for possible childhood pneumonia and treat using antibiotics. But now that more highly qualified health workers are generally widely accessible this function has been dropped, except in specific remote areas.

Slow uptake of strategies and interventions that show strong evidence of effectiveness

Proof-of-concept trials and assessments of smaller-scale projects have been published showing that suitably trained and supported CHWs are capable of competently delivering a range of strategies and interventions that have not been widely taken up and implemented at scale in national CHW programs. Here we mention only a few of these: home-based neonatal care (except, to some degree, in India), Care Groups¹⁵ (for reducing under-five mortality), and Participatory Learning and Action (PLA) Groups¹⁶ (for reducing maternal and neonatal mortality). Although CHWs have been used for HIV and TB programming, their use has not been widespread and has been limited mostly to CHWs working exclusively with vertical, disease-control programs rather than integrated into national CHW programs.

Achievements related to national CHW programs

As many of the case studies mentioned in their Impact sections, CHW programs have contributed to notable improvements in population health, especially to declines in the mortality of children younger than five years of age. Examples include CHW programs in Bangladesh, Ethiopia, Nepal and Niger, along with many others. The family planning success of Ethiopia's Health Extension Workers in expanding contraceptive prevalence and reducing fertility has been widely noted.¹⁷ BRAC's deployment of a short-term cadre of female CHWs to visit almost every home in Bangladesh (12.5 million in total) in the late 1980s and early 1990s to teach mothers how to prevent childhood diarrhea and treat it with home-based oral rehydration therapy is one of the great triumphs of modern public health since at that time diarrhea was the leading cause of under-five mortality in that country (and responsible for more than 20% of these deaths). Over the past 25 years Bangladesh has had the highest use of oral rehydration therapy for childhood diarrhea in the world, and only 6% of under-five deaths at present are attributed to diarrhea.¹⁸ This experience laid the foundation for BRAC'S scaling up its national CHW program.

There is now a growing recognition that, aside from the health impact that CHW programs can achieve, in many instances they can contribute to empowerment of women and socioeconomic development, particularly when women receive payment to work as a CHW. There are now perhaps thousands of examples in which CHWs, particularly female CHWs, have discovered the power of agency they did not realize they had, enabling them to move to positions of leadership in their community and beyond, even to national legislatures. The socioeconomic benefits of poor mothers having their own income for the first time that they can use for their own benefit and the benefit of their children is now widely recognized and is one of the rationales for investing in CHW programs.¹⁹

Observations on progress in implementing recommendations of the 2010 Bhutta report

The introductory chapter reviewed recommendations that Bhutta et al. made in 2010 in their systematic review of the CHW literature and their case studies of national CHW programs.²⁰ At this point, a decade later, based on the case studies in our compendium, it is useful to assess where we are on implementing their recommendations.

The strongest recommendation was that CHW programs should be integrated into national health systems and into national planning of the country's human resources for health. In broad terms, we have evidence for modest progress on this. There are more than seven countries in our compendium that are establishing, strengthening and expanding their CHW programs. And these countries are striving to integrate their CHW program into the national health system through stronger supervision, better logistical support, and better documentation of services in national health information management systems that CHWs are providing.

The Bhutta report also called for strong community engagement, including a role for the community in selecting CHWs and fashioning CHW programs around community-defined needs. All but a few countries give the community some role in selection of their CHW. However, the process for involving the community in fashioning the work of the CHW to respond to locally defined needs does not appear to be widespread except to the extent that the desire for curative care at the community level is widespread. In many countries CHWs are now being trained to provide some curative care whereas previously their role had been focused on promotive and preventive services.

The development of training curricula for CHWs and roles that reflect scientific knowledge about preventive and basic medical care has occurred to some extent. However, the pushback against enabling CHWs to perform a strong role in curative services is notable.

The 2010 Bhutta review also called for a transparent selection and deployment process. By and large this has happened. The selection of candidates with a bona fide motivation for compassionate service rather than just income or social status seems to be occurring, though most certainly there are exceptions to this.

The recommendation of adequate support for equipment, supplies and medications is an area where much improvement is still needed. There are still quite a few programs in which this support is not adequate.

Adequate and sustained funding, as the review recommended, still seems to be quite a challenge. Too often governments leave primary-level health care and public education underfunded. Within the health care sector, CHW programs are often an “underfunded afterthought,” as El-Saharty et al. termed it²¹, attended to only after the priority needs of hospitals, health centers, doctors and nurses are met.

A movement toward giving CHWs a salary does appear to be occurring, though this is not uniform. Afghanistan, Nepal and Uganda are examples of countries that still rely on volunteer CHWs. In most cases, however, lower-level part-time volunteers receive some form of incentive either in the form of cash payments or in-kind benefits.

The 2010 Bhutta report called for stronger referral protocols that recognize the important role that CHWs can play in the identification of patients in need of referral as well as in their ongoing care. The case studies provided here do not give a clear sense of the degree to which this is being accomplished at present.

The 2010 Bhutta report called for the creation of national plans of action to build stronger national CHW programs. A common theme that is mentioned in current discussions about CHW programs is that there is a strong and growing interest in how CHW programs can help countries achieve Universal Health Coverage, achieve the Sustainable Development Goals for health, and End Preventable Child and Maternal Deaths throughout the world. Unfortunately, there is not the political will within most low-income countries or the focused and sustained external donor support required for these programs to reach their full potential.

Three other recommendations from the 2010 Bhutta report that we have already discussed were the need for (1) regular and continuous supervision, (2) strong monitoring systems, and (3) career mobility for CHWs. Some recently implemented programs such as in Liberia and Sierra Leone have designed strong supervisory systems. Although the capacity for data collection is improving with the advent of electronic data capturing systems and mHealth, it is not yet clear that these are improving the monitoring of CHW programs in a way that is strengthening programs.²² As mentioned earlier, Ethiopia appears to be at the forefront in creating a pathway of career mobility for CHWs, and the WHO guidelines emphasize the importance of such pathways. Nonetheless, progress on implementing this recommendation is slow.

Finally, the 2010 Bhutta lamented the lack of research about and evaluation of national CHW programs that had taken place. Unfortunately, there has not been much progress in this respect either. Areas of great need include research on what is required for effectiveness of large-scale programs and on the best practical ways for strengthening them. More research is also needed on the perspectives of the CHWs themselves and how they think their CHW program might be improved. One area of research particularly needed is on the relative benefits of investing in CHW programming compared to investing in hospitals and higher-level PHC facilities. While there has been substantial work on the degree to which community-based PHC interventions provided by CHWs can improve population health, research on the benefits for population health by investing in hospitals and higher-level PHC facilities is almost non-existent. Finally, monitoring how much is being spent in these domains will be important for guiding policy, budgets and programs. The regular tabulation of how much governments spend on PHC relative to hospital care is only now beginning and, so far, no regular tabulation is being made of how much of the PHC funding goes for community-based outreach services. Based on the evidence, there should be policies in place to ensure that the funding for CHW programs grows at a faster pace than funding for services provided by hospitals and PHC centers until the funding for community-based outreach services is adequate.

The push and pull of CHW program strengthening and expansion

The persistent unmet need for essential health care throughout the world, the continued burden of disease from readily preventable and treatable conditions, and the tragic inequities in health and health care provide a moral imperative to get services out to those who need them using whatever means available. Experience and scientific evidence provide an unquestionable rationale for an urgent “push” to implement, expand, and strengthen large-scale CHW programs. Unfortunately, there have also been “pulls” of notable force that have hindered the CHW movement. CHW programs have often faced criticism as not being legitimate, credible or relevant compared to services provided by more professionalized health workers.²³ However, the challenges and limitations of expanding health service coverage and quality with this latter approach have not been fully acknowledged in these debates. The following should be considered:

- The relative costs of both training and ongoing recurrent expenditures
- The requirement for more highly skilled workers to be based in facilities and the cost of building, equipping, and sustaining these facilities

- The challenges of identifying people in underserved areas who are qualified to enter into higher-level training programs along with the challenges of assigning more highly skilled workers to go to underserved areas to work.

When CHW programs have been well integrated into national health systems rather than functioning as stand-alone programs, issues of credibility and opposition from other health workers have been minimal.²³ Brazil's Community Health Assistant is an excellent example of a CHW program that is well integrated into its PHC system.²⁴

Closely connected with the challenge of legitimacy, credibility and relevance has been the challenge of securing sustained political support for national CHW programs. Politicians as well as political and medical elites in many countries have supported giving funding priority to expensive referral hospitals based on ill-informed beliefs that this will provide a greater benefit to the population. Countries where the political leadership has given priority to improving the coverage and quality of basic health services have been able to overcome these challenges. Ethiopia, with its remarkable recent advances in population health attributable in no small measure to its Health Extension Program, centered on Health Extension Workers and the Women's Development Army, provides an excellent example of how strong political leadership can make such advances possible.²⁵ It is encouraging to note that one of the persons most responsible for providing strong political leadership in Ethiopia, Dr. Tedros Adhanom Gebreyesus, is now Director General of the World Health Organization.

The term "hospital centrism" is not widely used, but it was introduced in the World Health Organization's 1978 report on PHC.²⁶ Around the world, hospital centrism has been one of the pushes against the development of PHC services, systems and programs and, by extension, national CHW programs. The hospital-centric model of medical care that has emerged in many countries has led to a self-reinforcing process in which the center of gravity (and focus of funding) has been hospitals and physicians. This has been associated with an urban bias (in countries where the majority of the population remains rural) and a relative neglect of funding for the PHC needs of disadvantaged (and mostly rural) populations. There are instances where the political power of physicians and their national organizations makes it possible to shut down national health care delivery systems in developing countries by going on strike, demanding higher salaries (as recently occurred in Kenya), leads to ministries of health giving priority to funding hospitals and PHC facilities staffed by doctors over community-level PHC, including CHW programs. China today offers a compelling example of how hospital centrism has led to the stifling of PHC (and, by extension, CHW programming).²⁷

Ministries of health have often viewed national CHW programs with fear for many reasons, not least of which has been concern over the financial implications of more adequately funding these programs in the face of chronic under-funding and the continuing needs of other ongoing programs. In some cases, the potential emergence of integrated CHW programs is seen as a threat by those leading disease-control programs within ministries of health. The relative under-funding received by many ministries of health and their lack of influence on national budgets are well-documented. Member governments of the Africa Union who signed the Abuja Declaration pledged in 2001 to expand their allocation to the health sector to at least 15% of the government's annual budget. However, over the subsequent 10 years, only one of 47 countries had achieved that goal and only 26 of the 47 had made *any* increase over baseline in its allocation.²⁸

Opposition to CHW programs from doctors and nurses and their professional associations has been all too common. One reason given has been opposition to delegating authority to prescribe medications (supposedly from fear of worsening the global problem of antibiotic resistance); similarly concerns have been voiced about the possibility of CHWs becoming independently-practicing "mini-doctors." But underneath these expressed reasons also lie issues of status and prestige – how is it possible to grant to these minimally trained community workers functions that nurses and doctors have spent years of training to be able to do?

Finally, an important source of resistance to the development of national CHW programs has been a lack of evidence of their effectiveness. Given the complexity of these programs, their many moving parts, and the

other drivers of population health, it is generally impossible to determine to what extent national CHW programs may have contributed (or not) to improving population health. There has been a notable lack of funding for research on the effectiveness of national CHW programs and approaches to improving program effectiveness. As many of the case studies in this volume conclude, there exists, nonetheless, widespread agreement that many national CHW programs have made important contributions to improvements in population health. Perhaps just as important, though, is the lack of research on the degree to which local communities value the role played by CHWs. The little evidence that exists indicates a high level of satisfaction providing CHWs what they need to serve their communities (e.g., requisite medicines and other program commodities).

In a rigorously controlled trial, a CHW program in Tanzania demonstrated a reduction in the mortality of children 1–59 months of age when the program had a logistic and supply support system well-managed by an independent entity.^{29,30} But that mortality impact reversed when the ministry of health took over that function and allowed stockouts to become common.^{29,30} This is a not new finding. As noted in the introductory chapter, reliably ensuring provision of key program commodities at point of use is one key requirement for effective national CHW programs, as highlighted in 1987 by Berman³¹ and in 1992 by Frankel and colleagues.³²

Many national CHW programs have emphasized maternal and child health; there is, however, rapidly growing recognition of the potential of these programs to address other major global health problems, including care for the elderly, control of non-communicable diseases, detection and control of disease outbreaks, and registration of vital events, not to mention ending the HIV/AIDS epidemic along with better control of TB and malaria, as demonstrated by many of the case studies in this compendium.

New frontiers

As we look to the future, the potential for CHW programs appears to be bright in spite of the chronic pushback these programs have faced. Finding new sources for financing, particularly at local levels, will be important for building stronger programs. Building career paths for CHWs and building more professionalized CHWs with better and longer training, better supervision and logistical support will help to strengthen programs and improve CHW morale and long-term retention. Giving CHWs as well as communities a voice and listening to them with a commitment to acting on what they are communicating can provide new insights and new approaches to program strengthening.³³

The unmet health needs of populations in low-income countries are enormous, even in countries with strong CHW programs. As noted in the introductory chapter, the United Nations General Assembly declared in 2019 that one-half of the world's population still lacks access to essential health care.³⁴ It is well-known that with the epidemiologic transition occurring in most low-income countries, the burden of chronic non-communicable diseases increasingly exceeds burden of disease among mothers and children. So, how to effectively expand CHW services without overburdening CHWs is a major issue. The respective roles of specialist versus generalist CHWs will gradually have to be worked out as well country by country.

The potential contribution of CHWs toward control of non-communicable diseases

Undiagnosed and inadequately treated high blood pressure now represents one of the greatest public health challenges in the world.³⁵ There is great potential for CHWs to screen for hypertension and, with appropriate guidelines and supervision, to initiate and monitor first-line treatment with medication.^{14,36} Similar protocols could be developed for detection, evaluation and treatment of diabetes and even mental health conditions. Evidence about the effectiveness of CHWs in educating families about these conditions and in reducing risk factors is emerging.³⁷ A number of national CHW programs are now engaged in this work.

The potential contribution of CHWs toward ending the HIV/AIDS epidemic

In 2017, the Joint United Nations Programme on HIV/AIDS (UNAIDS) called for two million CHWs in Africa to end AIDS and ensure sustainable “Health for All” in Africa.³⁸ According to UNAIDS, to achieve the 90-90-90 target (identifying 90% of people who have HIV infections, putting 90% of them on anti-retroviral therapy, and maintaining adequate viral suppression for 90% of these) funding for community-based programming will need to increase four-fold.³⁸ It is noteworthy that UNAIDS is not calling for a specialized workforce of HIV-focused CHWs but rather for an expansion of the general CHW workforce to carry out a broad set of functions including HIV programming. Having polyvalent rather than specialized CHWs in such a role depends on population prevalence. In very high prevalence settings, it makes sense that at least certain of these functions be included in the scope of work of polyvalent CHWs, although there may also be a need for specialized CHWs working exclusively on this activity. However, in lower-prevalence settings, necessarily this will need to be more targeted and specialized.

CHW programming in urban settings

At present, one half of the world’s population resides in urban settings. This proportion is expected to grow. Even more importantly, the absolute number of people living in low-income settings—and particularly in urban slums—will continue to grow rapidly in the coming decades.³⁹ Although urban areas have benefitted for decades now from government investments in hospitals that serve mostly the more well-to-do inhabitants, the provision of CHW services to urban populations, especially to urban slum populations, has been neglected and problematic. In many countries, the ministry of health has limited or no jurisdiction over health services in urban areas since other government agencies and municipal governments have this responsibility. Hence, national CHW programs often do not include urban settings. Indeed, in many countries health services in urban settings (particularly outpatient care) are provided largely by the private sector.

The realities of urban settings differ quite starkly from rural areas in many aspects that are of vital importance for CHW programs. In urban areas, neighbors (and CHWs) are not necessarily known to each other, and families are often reluctant to admit persons into their home whom they do not know. Furthermore, in many urban households both parents are routinely away during regular working hours because of employment elsewhere. Ethiopia, for instance, is in the process of strengthening its separate cadre of Urban Health Extension Workers with more formal training and different roles from the HEWs that serve rural populations. Brazil now has a long and rich experience with CHWs providing useful services to urban lower-income populations, as members of interdisciplinary PHC teams. BRAC’s CHW program reaches more than seven million people in the urban slums of Bangladesh and has become a model for CHW programming in such settings.^{40,41} In 2013 the Government of India created the National Urban Health Mission to strengthen PHC services, including services provided by Auxiliary Nurse Midwives (one for every 10,000 population) and ASHA workers (one for every 200-500 households).⁴²

A recent review concludes that there is remarkably little evidence published specifically about CHW programs in urban settings; most such cases were focused on HIV, TB, and maternal-child health while few of the studies addressed the performance of CHW programs in the areas of non-communicable diseases.⁴³ Among the case studies in the compendium, notable examples of programs that have tailored their activities to address health needs of urban populations include Iran’s cadre of urban CHWs called *Moraghebe-Salamats*, Ethiopia’s emerging Urban Health Extension Program, and India’s Urban Health Mission.

mHealth and digital data systems

There is now almost universal access to mobile phones, including in low-income countries, and numerous mobile phone apps have been developed for CHWs to communicate with their clients and supervisors as well as to submit reports that can be easily uploaded into national health information systems.^{44,45} Several countries, including Ethiopia, are now in the process of providing all Health Extension Workers with tablets and digitizing all health information that they record. These developments hold great promise for improving the quality of services CHWs can provide as well as improving supervision and strengthening CHW integration within the broader health system.

CHW programming in fragile states, humanitarian disasters, and epidemics

It is now widely recognized that the proportion of the world's population living in fragile states is increasing; in many such states capacity for costly facility-based health care is sorely limited. We are also living at a time when humanitarian disasters related to political turmoil with resultant mass migration, and climate change are increasing, and there have always been major disruptions from time to time related to earthquakes and storms. We now seem to be entering an era of more global pandemics of viral respiratory illnesses, from the Sudden Acute Respiratory Syndrome (SARS) pandemic of 2002 to the Avian flu (H1N1) pandemic of 2009 to the COVID-19 (Coronavirus-19) pandemic of 2020 as well as other rapidly spreading infections of global significance such as Ebola and Middle Eastern Respiratory Syndrome (MERS).

In all these cases, CHWs represent a first line of defense. The role of CHWs in mitigating and controlling the Ebola outbreaks not only in Liberia, Sierra Leone and Guinea (where the epidemic occurred) but also in nearby Senegal and Nigeria (where the epidemic spread but was quickly contained) was significant. Early identification of cases by CHWs led to early control of the outbreak in these latter two countries.⁴⁶

In Nepal, Female Community Health Volunteers and members of local Red Cross volunteer chapters were critical responders immediately after the devastating earthquake in 2015. They helped to identify areas where outside help was most urgently needed.

In the face of these challenging circumstances, normal functioning of health facilities is often nearly impossible, so working through grassroots workers is often the most effective way to initiate essential health care services. It is quite likely that CHWs around the world will play an important role in the early detection and control of the COVID-19 pandemic.

Developing new institutions to facilitate national CHW program strengthening

Innovative and creative approaches are needed to foster sharing information about large-scale CHW programs and how to improve as well as expand them. Sharing within and between countries is essential—not only for political leaders, policy makers, program managers and field staff but also for CHWs themselves. Monitoring, evaluation and research need to expand by an order of magnitude as well. This requires new institutions that can provide world-class leadership for these activities. One emerging example is the International Institute for Primary Health Care—Ethiopia⁴⁷, established by the Ministry of Health of the Federal Government of Ethiopia in collaboration with the Johns Hopkins Bloomberg School of Public Health and support from the Bill & Melinda Gates Foundation, to share Ethiopia's best practices with visitors from other countries, to promote research on PHC, to share information about PHC, and to advocate for strong PHC programs with national CHW programs as their foundation throughout Africa and beyond.

Making the case for strengthening and expanding CHW programs

A strong case can be made that one important reason why so many countries failed to reach Millennium Development Goal 4 (reducing the mortality of children younger than five years of age by two-thirds between 1990 and 2015) was the lack of investment in implementing, strengthening and expanding CHW programs that provide evidence-based interventions for improving child survival. Among the 35 of the 75 priority countries that did reach the MDG 4 goal⁴⁸, a significant number (including Bangladesh, Ethiopia, Nepal, Niger, and Rwanda) had strong national CHW programs and had made substantial improvements in the population coverage of interventions that improve child survival. Case studies of these programs are included in the compendium.

In 2012, the world committed itself to ending preventable child and maternal mortality by 2030.⁴⁹ This goal was rolled into the United Nation's Sustainable Development Goals for Health.⁵⁰ Its achievement will require doubling the annual rate of decline of mortality among under-five children.⁵¹ Based on current evidence, it is

clear that strengthening the community platform for reducing maternal, neonatal and child mortality (including CHWs, community outreach services, and services provided at the health post/dispensary level) would prevent more deaths than would strengthening the platforms for PHC center services or hospital services alone.⁵² Figure 1 consolidates findings from a vast number of studies. It shows that if the complete package of current evidence-based interventions for reducing maternal, neonatal and child mortality reached 90% of those who need them, 2.3 million deaths would be averted through the community platform compared to 0.8 million through the PHC center platform, and 0.9 million through the hospital platform. Given this, the under-funding of the community platform can no longer be justified.

Geographic distance and its corollary, time and effort involved, is a major predictor of health facility utilization. The utilization of health facilities diminishes exponentially for those living more than an hour away.⁵³ In Kenya and Ethiopia, more than two-thirds of the population lives more than one hour away from a PHC center. In Liberia, 60% of the population lives more than five kilometers from a health facility, with most only able to reach their nearest health facility by foot. Therefore, the achievement of Universal Health Coverage requires, at least in part, making essential services more readily available to those who cannot easily access a health facility, who also generally are those who are the poorest and least educated in a health facility's catchment area.

Socioeconomic barriers also affect health facility utilization even when geography is not a barrier. These barriers include costs of money and time as well as fear of being treated disrespectfully. These barriers disproportionately affect the poorest and least educated as well. For these reasons, utilization of health facilities is inequitable, meaning that those who are worse off socioeconomically are less likely to obtain services.⁵⁴⁻⁵⁶ The available evidence, at least for maternal and child health services, indicates that CHW programs and community-based delivery of services very substantially increases equitable access to services for the poor. Many studies have shown these services to be "pro-equitable," meaning that the more disadvantaged segments of the population benefit to a greater degree than the less disadvantaged.⁵⁷ Thus, CHWs provide a vital link between families, households, and communities most in need on the one hand and the health system on the other.

Over the past several decades, many have developed an entrenched mind-set that views CHW programs as a second-class, stop-gap response to the needs of mothers and children in resource-constrained settings. However, in the United States there is a rapidly growing CHW movement along with growing evidence of what CHWs can contribute there to the control of non-communicable diseases, to surveillance, and to addressing health disparities which persist.⁵⁸⁻⁶⁰ The idea is beginning to take hold that CHW programs will be an essential component of any health system anywhere that is striving to reach its full potential in improving the health of the population it is serving. Now, within view of the Johns Hopkins Hospital in Baltimore, there are numerous CHWs at work addressing the unmet health needs of poor families. And such programs are being established in other major urban areas as well as in isolated rural areas throughout the United States.

Figure 1. Number of deaths of mothers and their offspring that could be averted each year by full implementation of evidence-based interventions in the community (by CHWs), in PHC centers, and in hospitals

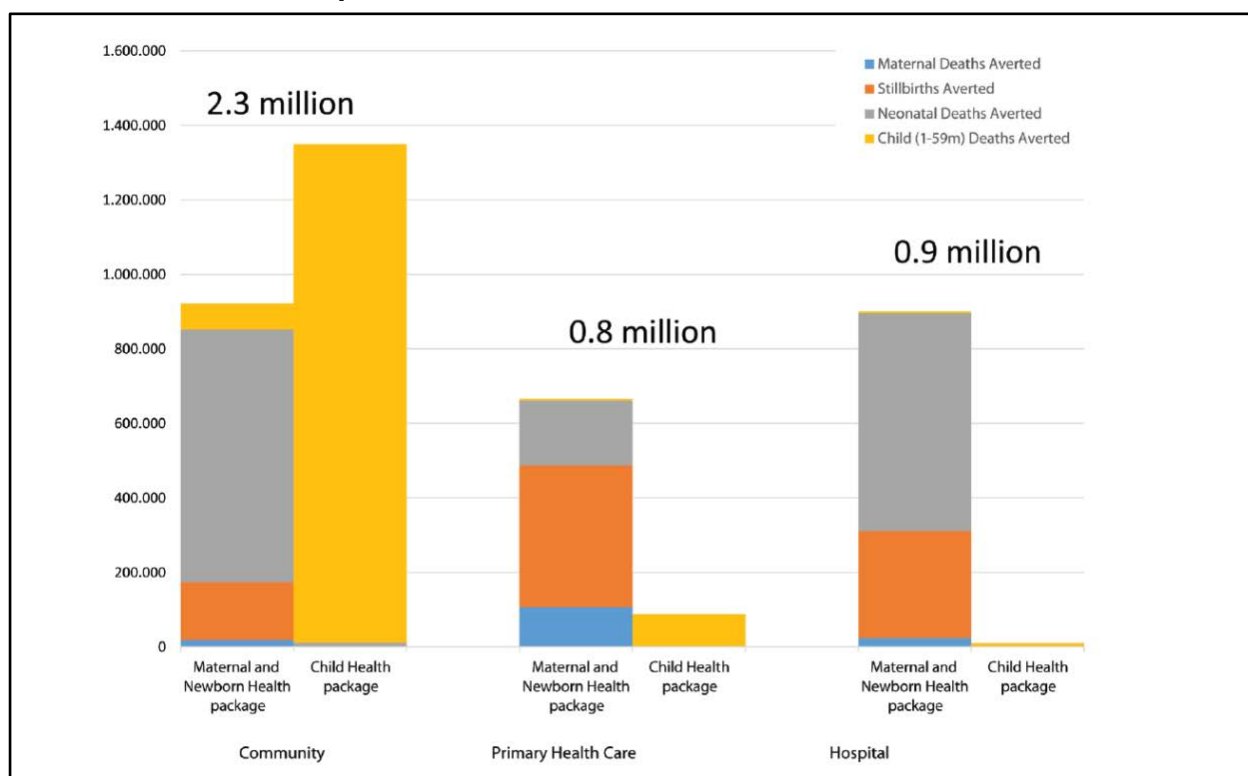


Figure 1. Maternal, perinatal, neonatal and child deaths that can be averted by health-care packages through three service platforms [22]. The numbers above the columns were not in the original figure. The services assumed to be provided in each platform are as follows. **The community platform:** all interventions that can be delivered by a community-based health worker with appropriate training and support or by outreach services, such as child health days, immunizations, vitamin A, and other interventions. **The primary health center (PHC) platform:** a facility with a doctor or a nurse midwife (or both), nurses and support staff, as well as both diagnostic and treatment capabilities. The PHC provides facility-based contraceptive services, including long-acting reversible contraceptives (implants, intrauterine devices); surgical sterilization (vasectomy, tubal ligation); care during pregnancy and delivery for uncomplicated pregnancies; provision of medical care for adults and children, such as injectable antibiotics, that cannot be done in the community; and training and supervision of community-based workers. **The hospital platform:** consisting of both first-level and referral hospitals, includes more advanced services for management of labor and delivery in high-risk women or those with complications, including operative delivery, full supportive care for preterm newborns, and care of children with severe infection or severe acute malnutrition with infection [22].

Source: ⁵² (reproduced under Creative Commons Attribution 4.0)

The world is increasingly embracing CHWs as an essential link between households and health facilities, particularly (but not only) in areas where health resources are limited and health facilities are distant, where the burden of disease is high, and where there are vulnerable populations. While these programs are not inexpensive, they are by far cheaper than the next best alternative—building more health facilities and training more higher-level health workers—and much more quickly implemented. Of course, this is not an either/or policy option. There is a need for strengthening health facilities of all types, but investment in them should not be out of proportion to their value for improving the health of the population, particularly when compared to the value for population health that can be achieved by investing in CHW programs.

The British physician NRE Fendall wrote in 1972:

If I were asked to compose an epitaph on medicine throughout the 20th century, it would read: ‘Brilliant in its scientific discoveries, superb in its technological breakthroughs, but woefully inept in its application to those most in need.’⁶¹

Learning how to effectively apply the benefits of medicine’s technological breakthroughs in the 20th and 21st century to those who need them via national CHW programs represents one of the best opportunities for the world to ensure that Fendall’s epitaph will not have to be repeated at the end of the 21st century.

Perhaps it is an understatement to say that people throughout the world value their health. The United States spent 18% of its gross domestic product on health care in 2017, amounting to US\$ 11,172 per person.⁶² Other countries will most certainly follow this path as well. As economic development proceeds in almost every country throughout the world, the percentage of the country’s national gross domestic product spent on health care will also increase, meaning that health care expenditures will rise notably in countries whose economies are also expanding.⁶³ We can anticipate that the money available for health programs and services in resource-constrained settings will grow, so at least in theory funds should be available to strengthen national CHW programs. We need to continue to build evidence of their effectiveness and of the relative benefits of investing further in these programs.

Since national CHW programs are essential for achieving global health goals, it is also essential that they receive the full political, technical and financial support needed in order for them to achieve their full potential.

Conclusion and the way forward

FH Abed, who guided the development of the world’s largest NGO (BRAC), was fond of saying, “small is beautiful but big is necessary.”⁶⁴ Frankel, in the overview chapter for his seminal review of national CHW programs published in 1992⁶⁵, stated:

It is unrealistic to expect widespread and immediate gains from a process as complex and diffuse as mobilization of CHWs. There may be short-term and readily measurable benefits in regions which have until now been deprived of basic health services. But the wider process of change, of which CHWs are a key component, must be approached in terms of a much longer time-scale. That is why it is important to stand back from time to time and gather together overviews of a number of key national CHW programmes.... [p. 61]

As the evidence continues to grow regarding the contributions that national CHW programs can make to improving population health, these programs will certainly continue to gain prominence in addressing health problems. The critical question is how quickly these programs will be able to reach their full potential.

As we have “stood back” and reflected on overviews of key national CHW programs, it is clear that now is the time for the global health community to work with countries by stepping up and providing leadership along with financial and technical support for establishing, strengthening, and expanding national CHW programs. A recently published review reported that only 2.5% of global health donor assistance between 2007 and 2017 was devoted to CHW programs, and two-thirds of this was reserved for vertical programming for HIV/AIDS, malaria, and TB control or reproductive health care and family planning.⁶⁶ Similar findings have been reported independently by others, who also estimate that CHW programs need an additional US\$ 2 billion annually in order to strengthen the community health system, and substantial opportunities exist for more effective use of funds through integration of vertical CHW programs with more comprehensive CHW programs.⁶⁷ Unfortunately, CHW programs are often left out altogether in the discourse on health systems strengthening. One recent review of 15 frameworks for health systems strengthening notes the lack of attention given to the role of community members (including CHWs) and community organizations.⁶⁸ There is an urgent need for stronger political, technical and financial leadership from the global health community in support of integrated national CHW programs.

A 2019 analysis has concluded that low- and middle-income countries will need to at least double their current spending on PHC to strengthen their systems and universally provide essential PHC services.⁶⁹ Also, in 2019 the World Health Organization called on the governments of all countries to invest an additional 1% of their gross domestic product for PHC in order to achieve Universal Health Coverage by 2030.⁷⁰ CHW programs should receive priority as funding available for PHC expands.

At a global health conference in 1988, Muktabai Pol, a CHW from Jamkhed, India, shared her experience providing PHC in a remote village. She concluded her speech by lighting a small wick lamp and saying:

I am like this lamp, lighting the lamp of better health. Workers like me can light another and another and thus encircle the whole earth. This is “Health for All.”⁷¹[p. 1]

CHWs and villagers have lit a lamp that is burning ever brighter, guiding the way toward how “Health for All” can be achieved through PHC.

James Grant, UNICEF’s Executive Director from 1980 to 1995 and champion of community-based approaches that saved millions of lives of children, continually reminded us that “Morality must march with capacity.”⁷² Now is the time for the world to come together to build strong CHW programs because it is the right thing to do. We hope that this volume of case studies will provide some encouragement and inspiration to others, helping them learn from the successes and challenges encountered in the implementation of national CHW programs, and helping the world to do its part in bringing about a much-needed transformation of health systems.

Acknowledgements

The map on the cover page was obtained from: <https://geology.com/world/cia-world-map.pdf>.

The photographs on the cover page are: Left: a Village Health Team member in Uganda counts the breaths of a child with respiratory symptoms to decide if the child has pneumonia. Source: Dahn B, Tamire Woldamariam A, Perry H, et al. Strengthening Primary Health Care through Community Health Workers: Investment Case and Financing Recommendations. Office of the Special Envoy for Financing the Health MDGs and Malaria Control, 2015 (<http://www.mdghealthenvoy.org/wp-content/uploads/2015/07/CHW-Financing-FINAL-July-15-2015.pdf>).

Right: A BRAC *Shashya Kormi* (paid, full-time professional CHW) conducts a prenatal care visit in the home while the *Shashya Shebika* (part-time, lower-level CHW) looks on. Source: https://www.frontlinehealthworkers.org/sites/fhw/files/styles/top_content/public/home-images/brac.jpg?itok=xZxcS9qm,

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