**Session 4 - Identifying Medicines Use Problems**

If you plan to make medicines use rational, you will need to be skilled in identifying medicines use problems in your health care facility or district. This second session of this Rational Medicines Use (RMU) Module introduces you to various methods of doing just that - identifying medicines use problems in your health care facilities or district. They include the ABC, VEN and DDD methods. The ABC analysis, for example, can be used to evaluate the pharmaceutical distribution system and this enables you to discover medicines use problems that affect the functioning of the health system, which in turn may have a significant impact on patient care.

During this session, you will watch a presentation and undertake readings and activities to improve your understanding of the topic.

**Session Contents**

Session 2 will cover the following topics:

1. Introducing the context
2. Role and sources of aggregate data
3. Anatomical Therapeutic Chemical (ATC) classification system
4. Identifying medicines use with Defined Daily Dose method (DDD)
5. ABC analysis method of identifying medicines use
6. VEN analysis method of identifying medicines use
7. Therapeutic Category (TC) analysis
8. Session summary
9. References and further reading

|  |
| --- |
| **Learning Outcomes**  By the end of this session, you should be able to:   * Identify and know where to retrieve aggregate data sources. * Discuss the role of aggregate data in analysing medicines use. * Describe the principles of ATC. * Discuss the application and use of TC systems. * Define, calculate and apply DDD. * Perform an ABC analysis and explain how it can be used to evaluate medicines use problems, reduce cost, and improve efficiency in the supply system. * Apply the VEN method and discuss how it can be used to assist in medicines selection, and monitoring. |

**Readings**

Management Sciences for Health (2012) *MDS-3: Managing Access to Medicines and Health Technologies*. Sterling, Va: Kumarian Press. Chapter 40.

<https://www.msh.org/sites/msh.org/files/mds3-jan2014.pdf>

WHO Collaborating Centre for Drug Statistics Methodology. (2014). ATC/DDD index. [Web:] <http://www.whocc.no/atc_ddd_index/>

WHO (2015) Essential Medicines List <http://www.who.int/medicines/publications/essentialmedicines/en/>

**1 INTRODUCING THE CONTEXT**

The assessment methods (ABC, DDD, VEN) introduced in this session, play a similar role in the health system to a household budget in your everyday life.

***Activity 1 – Think about a household budget scenario***

*You are a family of 2 adults and one toddler. Your monthly income is R17 000-00 per month. Your expenditure is shown below.*

**Table 1: Monthly expenditure for a family of three.**

|  |  |
| --- | --- |
| **Item** | **Amount (Rands)** |
| Home |  |
| Mortgage/Rent | 4000 |
| Sub-total | **4000** |
| Utilities |  |
| Phone | 500 |
| Internet | 200 |
| Electricity | 500 |
| Water/ Trash /Sewage | 200 |
| Fuel | 1000 |
| Sub-total | **2400** |
| Living and Health |  |
| Groceries | 800 |
| Salon/Spa | 1000 |
| Toiletries/Make up | 1000 |
| Clothing | 1000 |
| Restaurants/Entertainment | 2000 |
| Health Insurance | 200 |
| Day Care/Baby sitter | 500 |
| Sub-total | **6500** |
| Debts |  |
| Car Loan | 2500 |
| Short Loans | 1000 |
| Sub-total | **3500** |
| **TOTAL** | **16400** |

*After you have reviewed the expenditure, answer the following questions:*

* *Do you think this income is spent wisely?*
* *What item is taking up most of the budget?*
* *Are you spending your income on items for good health or leisure?*
* *How do you regard the R2000 spent on restaurants/entertainment?*
* *Is this good use of income when compared to items that improve health and sustain your well-being, e.g. health insurance?*

**Feedback**

By comparing what portion of your income spent on different items, you can assess whether you are spending your money wisely. Your household budget is a method or tool for projecting and monitoring expenditure, and the line items serve as data for monitoring rational income use.

The methods used to analyse medicines use in pharmaceutical systems apply similar principles. They have been developed to allow managers of pharmaceutical systems to analyse cost, losses and opportunities for savings, thereby providing the basis for a systematic approach to budgeting. In pharmaceutical systems, ABC, VEN and DDD are very useful methods which can be used to monitor rational medicines use. We will study each of these in this session.

**2 ROLE AND SOURCES OF AGGREGATE DATA**

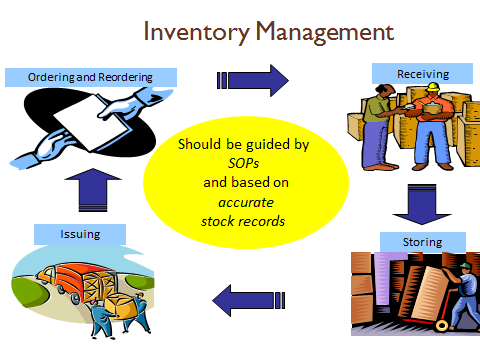
Many medicine use problems are difficult to detect on a day-to-day basis unless they are obvious. Various methods can be used by health care facilities to identify medicines use problems and in order to perform an investigation data need to be sourced. Aggregate data will be primarily used to identify medicines use problems at a population level, for example a clinic, hospital or country.

In data management, an aggregate value is one which is achieved by adding up the full range of data and dividing it by the number of values combined to form a single value of more significant meaning.

**2.1 The importance of aggregate data**

As in the household budget scenario discussed at the beginning of this session, the basis for monitoring medicines use is data, specifically aggregate data. For purposes of identifying medicines use problems, we will use aggregate data which is collected in pharmaceutical systems on medicines consumption, cost and utilization. These measurements are used to compare patterns of medicines use within a facility, between facilities and even between countries. It is therefore imperative for pharmacy managers and personnel to maintain good records of all purchased and dispensed items, as this will provide the aggregate data that can be used for analyses. Institutions must promptly analyse any identified problems discovered in reviewing these data and institute a strategy to remedy each problem.

Figure 1 shows a diagrammatic representation of how pharmaceutical items (inventory) can be managed in a pharmacy store.



**Figure 1: Inventory management flow diagram**

[\*SOPs: Standard Operating Procedures]

**2.2 Sources of aggregate data**

Data on medicines use is available from a number of different sources, and these data can be collected at any level (i.e. facility, regional and central/national medical stores). Your facility probably already uses the information obtained from analysing aggregate data for planning or forecasting how much medicine to order. This helps to ensure that your facility never runs out of stock. However, this data is also very important in analysing medicines consumption, in order to identify medicines use problems. You would do so by asking the following questions:

* Which items are cost-drivers?
* Which items move fast?

Aggregate data can be collected from various sources in your facility. Depending on the purpose of your investigation you will decide where the data needs to be collected. Generally aggregate date can be collected from (1) procurement records; (2) warehouse medicine records and (3) pharmacy stock and dispensing records, amongst others.

**Table 2: Sources of aggregate data to be collected for analysis.**

|  |  |
| --- | --- |
| **Aggregate data can be collected from the following sources:** | **Data that you can retrieve from these sources include:** |
| Procurement records | Medicine consumption  Medicine availability  Medicine cost  Frequency of use  Per capita use of specific product |
| Warehouse medicine records | Medicine consumption  Medicine availability  Medicine cost  Frequency of use  Per capita use of specific product |
| Pharmacy stock and dispensing records | Medicine consumption  Medicine availability  Medicine cost  Frequency of use |
| Adverse drug reaction and medication error reports | Prevalence of medication errors |
| Patient medical records | Prevalence of adverse drug reactions (ADRs) |

Below is an example of a stock control card, used at a facility to receive stock from suppliers, which can also be used to dispatch from the pharmacy store to the dispensary.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Date** | **Requisition No** | **Quantity**  **Ordered** | **Voucher No** | **To/**  **From** | **Quantity**  **Received** | **Quantity**  **Issued** | **Stock**  **Balance** | **Unit Price** | **Remarks** |
| 15/2/11 | ---------------- | --------------- | --------------- | --------- | --------------- | ------------- | 123 |  | Stock receipt |

Aggregate data can be analysed by using one of the following methods:

* DDD
* ABC analysis
* VEN analysis
* Therapeutic Category analysis

As an introduction to these methods we will first start by giving you an overview of the Anatomical Therapeutic Chemical Classification System and how it is used in the above mentioned methods.

**3 ANATOMICAL THERAPEUTIC CHEMICAL (ATC) CLASSIFICATION**

**SYSTEMS**

**3.1 The Anatomical Therapeutic Chemical Classification System (ATC)**

The World Health Organization (WHO) suggests many ways in which medicines can be classified into categories. Among these classification systems is the Anatomical Therapeutic Chemical (ATC) classification system which categorizes medicines into groups, and codes them according to the organ or physiological system on which they have pharmacological, chemical, and therapeutic effects. This means that one drug can have more than one code: [acetylsalicylic acid](http://en.wikipedia.org/wiki/Acetylsalicylic_acid) (aspirin), for example, is coded as [*A01*](http://en.wikipedia.org/wiki/ATC_code_A01)[*AD05*](http://www.whocc.no/atc_ddd_index/?code=A01AD05) (a drug for local [oral](http://en.wikipedia.org/wiki/Mouth) treatment), [*B01*](http://en.wikipedia.org/wiki/ATC_code_B01)[*AC06*](http://www.whocc.no/atc_ddd_index/?code=B01AC06) (a [platelet inhibitor](http://en.wikipedia.org/wiki/Platelet_inhibitor)), and [*N02*](http://en.wikipedia.org/wiki/ATC_code_N02)[*BA01*](http://www.whocc.no/atc_ddd_index/?code=N02BA01) (an [analgesic](http://en.wikipedia.org/wiki/Analgesic) and [antipyretic](http://en.wikipedia.org/wiki/Antipyretic)). On the other hand, several different brands share the same code if they have the same active substance and indications e.g. Painamol and Panado both have paracetamol as their active ingredient and so share the same ATC code, *N02BE01*.

The complete classification of furosemide illustrates the structure of the code:

|  |  |
| --- | --- |
| **Classification of Furosemide** | |
| **First level** | The first level of the code indicates the anatomical main group and consists of one letter.  *Example:* **C** Cardiovascular system |
| **Second level** | The second level of the code indicates the therapeutic main group and consists of two digits.  *Example*: [C**03**](http://en.wikipedia.org/wiki/ATC_code_C03) [Diuretics](http://en.wikipedia.org/wiki/Diuretic) |
| **Third level** | The third level of the code indicates the therapeutic/pharmacological subgroup and consists of one letter.  *Example*: C03**C** High-ceiling diuretics |
| **Fourth level** | The fourth level of the code indicates the chemical/ therapeutic/ pharmacological subgroup and consists of one letter.  *Example*: C03C**A** [Sulfonamides](http://en.wikipedia.org/wiki/Sulfonamide_(medicine)" \o "Sulfonamide (medicine)) |
| **Fifth level** | The fifth level of the code indicates the chemical substance and consists of two digits.  *Example*: C03CA**01** [Furosemide](http://en.wikipedia.org/wiki/Furosemide) |

|  |
| --- |
| **Reading**  To get a better understanding of the ATC system, look at the following publication by the WHO Collaborating Centre for Drug Statistics Methodology:  WHO Collaborating Centre for Drug Statistics Methodology. (2015). ATC/DDD index. [Web:] <http://www.whocc.no/atc_ddd_index/>  This publication is a searchable version of the complete ATC index with Defined Daily Dosages (DDD) which is available online. This search engine enables you to find ATC codes and DDD’s for substances’ names and/or ATC levels. This will be a useful resource for future analyses of medicines. |

**4 IDENTIFYING MEDICINES USE WITH DEFINED DAILY DOSE**

**METHOD (DDD)**

The first quantitative method we introduce is the defined daily dose (DDD) which WHO defines as:

*The assumed average per day maintenance dose that is used for a specific medicine’s main indication in adult patients*.

However, it is important to note that the DDD does not indicate the daily dose prescribed for individual patients. In simple terms, the DDD is an arbitrary value that was decided upon by the WHO Collaborating Centre for Drug Statistics Methodology. It gives the assumed average daily dose (in milligrams) of a particular medicine being dispensed per day, but it also takes into consideration the medicine’s pharmacokinetics (that is, the absorption, distribution, metabolism and excretion of the medicine) and individual patient characteristics such as weight and age.

The DDD is used in medicine evaluation studies to ensure a standard way of conducting such studies throughout the world (i.e. comparing apples with apples). The data on consumption of a particular medicine using the DDD therefore does not reflect the actual amount of that medicine prescribed to an individual patient, nor the medicine’s formulation or price.

Note: The DDD merely provides a unit of measurement that investigators of medicines consumption can use, to assess patterns and trends of consumption.

Without this standard unit value (DDD), different countries would report DDD in different units, e.g. grams, milligrams, kilograms, etc.

|  |
| --- |
| **Reading**  Have a look again at the WHO ATC/DDD Index 2015. You can search for different medicines which interest you, to develop a better idea of the DDD values.  <http://www.whocc.no/atc_ddd_index/> |

Below you find an example of how to calculate the DDD of captopril tablets.

|  |
| --- |
| **Example 1: Calculating consumption of Captopril tablets using DDD**  This example is taken from the World Health Organization**.**  2003. *Drug and Therapeutics Committee: A Practical Guide*.  In a district of a country, the district hospital and clinics used 22.5 million tablets of Captopril 25 mg and 3 million tablets of Captopril 50 mg in 2014. This medicine usage was for a population of 2.7 million people. What is the DDD for Captopril in 2014 (i.e. one year)?  *Answer:*  This is how you would go about calculating the DDD:   1. Quantity of medicine used in 1 year multiplied by the strength of the product.   (22.5 million × 25mg) + (3.0 million × 50mg) = 712.5 million mg (total quantity consumed)   1. Divide total quantity consumed by the assigned DDD for that medicine. For Captopril, the WHO stipulated   DDD is 50mg - see http://www.whocc.no/atc\_ddd\_index/)  (712.5 million mg / 50mg = 14.25 million DDD)   1. Divide total DDD quantity by 2.7 million people   (14.25 mil/2.7 mil people) X 1000 inhabitants = 5.278 DDD per 1000 inhabitants per year  *Why multiply by 1,000? This is the population denominator for this method to obtain the DDD / 1000 inhabitants per year.*   1. Divide DDD per 1000 inhabitants per year by 365 to obtain DDD/1,000 inhabitants/day   5.278 DDD per 1,000 inhabitants per year/365 = 14.46 DDD/1,000 inhabitants/day |

The DDD or calculated dose could then be used to compare consumption of this medicine with consumption in other hospitals, regions or countries. This technique can combine different medicine strengths and doses to provide an average unit of consumption for each medicine; this may, however, be a dose that could never be prescribed to individual patients. Information obtained using DDD allows consumption trends to be compared between hospitals, health systems, regions, population groups, and countries. The DDD analysis method also gives information on medicines consumption over extended time periods.

**5 ABC ANALYSIS METHOD OF IDENTIFYING MEDICINES USE**

**5.1 Introduction to ABC**

We will now introduce you to ABC analysis as a method to investigate medicine usage. This method is used for determining and comparing costs within a health care system, e.g. a hospital. It is based on the 80/20 “Pareto Principle” which was derived from Pareto’s Law (1987), which is mainly used in Economics (Bookstein, 1990). Pareto tried to describe the unequal distribution of wealth in his country, observing that twenty percent of the people owned eighty percent of the wealth, and came up with his principle. Pareto’s principle is “also known as ‘separating the vital few from the trivial many’ because for any group of things that contribute to a common effect, a relatively few contributors account for a majority of the effect”.

This principle can be applied in analysing medicines use, to identify those items which use up most of the budget; to do so, you classify medicines into three categories – A, B and C (A being those with highest use, and C lowest use). Table 1 below illustrates how medicines can be classified according to the ABC system.

**Table 3: Classifying Medicines into A, B, or C Categories**

|  |  |  |  |
| --- | --- | --- | --- |
| **Category** | **A Medicines** | **B Medicines** | **C Medicines** |
| **Percentage of budget** | 70-80% | 15-20% | 5-10% |
| **Percentage of medicines used** | 10-20% | 10-20% | 60-80% |
|  | *A Medicines*:  For medicines classified A, a high percentage of funds are spent on large-volume or high-cost items. From these medicines, one can easily identify expensive medicines that are used irrationally, hence there is a great potential for saving. | *B Medicines*:  Medicines in this category are important; they are bought in moderate numbers, and usually have a moderate cost. | *C Medicines*:  Medicines in this category make up the majority of the inventory; however a low percentage of the budget is allocated to buying them. |

**5.2 Application of the ABC analysis method**

The ABC analysis can be used to measure the degree to which actual consumption reflects public health needs. The method reduces the number of inventory levels and costs by, for example, clustering more frequent purchase or delivery of smaller quantities as Class A items. This system seeks to effect major cost reductions by finding lower prices on Class A items, while reducing the use of items that have limited use in the system, but cost large amounts of money. The ABC way of analyzing medicines use also provides information for choosing the most cost-effective alternatives, and finding opportunities for therapeutic substitution. Ultimately, it gathers information for pharmaco-economic analysis.

Below are the steps that would be followed in undertaking an ABC analysis:

|  |
| --- |
| Step 1: List all items purchased and enter the unit cost.  Step 2: Enter consumption quantities for each item.  Step 3: Calculate the value of consumption for each item.  Step 4: Sort the list in descending order by total value.  Step 5: Calculate the percentage of total value represented by each item.  Step 6: Calculate the cumulative percentage of total value for each item.  Step 7: Choose cutoff points for A, B and C. |

**5.3 An example of ABC analysis**

Performing an ABC analysis is facilitated by the use of a spreadsheet that will perform the necessary calculations. For example, data from electronic procurement records for a particular hospital can be exported to a spreadsheet for analysis.

Below is a spreadsheet of antimicrobial usage at district hospital. We will use it to demonstrate how ABC analysis is done. The analysis could also be done manually, although that is rather time-consuming if you have a large number of items.

To get a better understanding of how to perform an ABC analysis use the Excel document in the Course Resources and follow the indications on how to perform an ABC analysis in Excel – Click on: ABC Analysis Steps

***Activity 2: Perform an ABC analysis***

*A few medicine items account for the majority of funds used, and many other medicine items will account for a smaller fraction of funds used. Remember that an ABC analysis is a simple but powerful technique that can be used to critically review how medicines are used and how funds are spent in a pharmaceutical system.*

*In this activity, you will conduct an ABC analysis in a stepwise approach using consumption data from a district hospital. Analysis of the data will be valuable to the facility because they will show how certain medicines are using larger percentages of the budget and where there may be a need for closer evaluation.*

*Review the steps for conducting an ABC analysis and then complete the analysis by using the data sheet provided. Click on: ABC Activity: Medicines Usage*

*Answer the following questions:*

*1. How many “A” items are there? “B” items? “C” items?*

*2. What percentage of all items do “A” items represent? “B” items? “C” items?*

*3. What particular medicine item(s) may need to be reviewed more closely by the hospital because of their consumption?*

*This activity gives you practice in performing an ABC analysis, which will be part of Assignment 1.*

*After you have completed the ABC analysis and answered the questions you are required to send your completed ABC analysis with your answers to the session convener. You will then be given feedback on your analysis and conclusions.*

**6 VEN ANALYSIS**

**6.1 Introducing VEN analysis**

We will now introduce you to the third technique for identifying medicines use, called the VEN analysis. VEN is an acronym for:

|  |  |
| --- | --- |
| V | Vital |
| E | Essential |
| N | Non-essential |

Do you remember our first scenario of the household budget? What items would you regard as vital, essential and non-essential? Would you regard “mortgage” as vital compared to “clothing”? Take some time to go through the list in Activity 1 again and indicate which items you see as vital, essential or non-essential.

The VEN technique classifies medicines according to their public health value or impact. It is used to prioritize medicines which will assist in setting health care priorities.

1. *Vital Medicines*: these medicines are potentially lifesaving and are crucial to providing basic health care services. If patients who are on these medicines do not get them, they suffer significant consequences or withdrawal symptoms.
2. *Essential Medicines*: medicines classified under this category are effective against less severe but significant illness; however they are not vital.
3. *Non-essential Medicines*: these are used for minor illnesses. They usually are very costly but of low therapeutic advantage.

Assigning an item to the non-essential category does not mean it should be removed from the formulary. Medicines for minor illnesses are included on the Essential Medicines List (EML), but may be considered lower priority for procurement than other medicines. For example, vitamin C tablets will be categorized as non-essential in a primary health care clinic, but would not be removed from the formulary or EML.

|  |
| --- |
| **Reading**  Have a look at the following WHO website, which gives you access to latest EML’s: <http://www.who.int/medicines/publications/essentialmedicines/en/> |

VEN analysis is used to assign priorities for medicines selection, procurement, and use in a supply system, as well as guiding inventory management activities and determining appropriate medicine prices.

The VEN analysis should be done on a regular basis by a dedicated team responsible for formulary management. VEN categories should be reviewed when public health priorities change, or even when the national medicines list is changed, meaning that medicines may be added or deleted.

Table 4 below provides guidance on how items can be classified according to the VEN method.

**Table 4:VEN Analysis**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Characteristics of medicines** | **Vital** | **Essential** | **Non-Essential** |
| **Occurrence of target condition** | Persons affected (% of population) | Over 5 | 1 - 5 | ˂1 |
| Persons treated (number per day) | Over 5 | 1 - 5 | ˂1 |
| **Severity of target condition** | Life-threatening | Yes | Occasionally | Rarely |
| Disabling | Yes | Occasionally | Rarely |
| **Therapeutic effect of medicine** | Prevents serious disease | Yes | No | No |
| Cures serious disease | Yes | Yes | No |
| Treats minor, self-limited symptoms | No | Possibly | Yes |
| Has proven efficacy | Always | Usually | May or may not |
| Has unproven efficacy | Never | Rarely | May or may not |

Source: Table 40-2. MSH. (2012): page 40.1

**6.2 An example of VEN analysis**

The example of a VEN analysis below was conducted in Malawi in 1995 (Management Sciences for Health. 2012*. MDS-3: Managing Access to Medicines and Health Technologies).*  Please note that this is not an all-inclusive list of items generally found in health facilities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **VITAL** | | **ESSENTIAL** | | **NON-ESSENTIAL** | |
| (1) Potentially life-saving (2) Significant withdrawal side-effects (3) Major public health importance | | Effective against less severe but significant forms of illness | | (1) Used for minor or self-limited illnesses (2) Questionable efficacy (3) High cost for marginal therapeutic advantage | |
| **Health centre** | | | | | |
| Phenobarbitone tab. | 30mg | Lignocaine 25ml injection | 1% | Lignocaine + Adrenaline inj. | 1% + 1/ 200,000 |
| Phenoxymethyl penicillin tab. | 250mg | Praziquantel | 600mg | Aspirin paediatric tab. | 75mg |
| Cotrimoxazole | 480mg | Gentian violet paint 500ml | 0.5% | Suramin sodium injection PFR | 1gm |
| Nystatin pessaries | 100,000 I.U. | Benzyl benzoate 100 ml. | 25% | Nystatin tab. | 500,000 I.U. |
| Pyrimethamine + sulfadioxine tab | 25mg+500mg | Magnesium trisilicate tab. |  | Amodiaquine tab. | 200mg Base |
| Ferrous sulfate + folic acid tab | 200mg+0.5mg | Chlorpromazine tab. | 25mg | Ergotamine tab. |  |
| Adrenaline 1 ml injection | 1:1,000 | Aminophylline tab. | 100mg | Ferrous sulfate tab. | 200mg |
| Oral rehydration salts powder | For 1 litre | Vitamin B Complex tab. |  | Propranolol tab. | 10mg |
| Gentamicin 2 ml injection | 40 mg/ml | Aluminium acetate ear drops | 13% | Magenta paint | 20ml |
| Condoms with spermicide |  | Zinc oxide ointment | 15% | Anti-snakebite venom injection | 10ml |
| Measles vaccine (live) 10 dose vial | 5 ml | Mebendazole tab. | 200mg | Ergometrine maleate tab. | 500mcg |
| Ergometrine maleate1 ml. inj. | 500mcg/ml | Ferrous sulfate paediatric mixture | 60mg/5ml | Multi-Vitamins paediatric drops |  |
| Salbutamol sulfate | 4mg | Chlorpheniramine maleate tab. | 4mg. | Thymol mouthwash |  |
| Vitamin A cap. | 200,000 I.U. | Lidocaine dental cartridge + Adrenaline | 2% + 1/ 80,000 |  |  |
| **District hospital** | | | | | |
| Diazepam 2 ml. Injection | 5 mg/ml | Diazepam tab. | 5mg |  |  |
| Atropine sulfate 1ml. Injection | 600mcg/ml | Paracetamol tab. | 500mg |  |  |
| Nalidixic acid tab. | 500mg | Codeine phosphate tab. | 15mg |  |  |
| Isoniazid and | 300mg | Amoxycillin elixir | 125mg/5ml |  |  |
| Thiacetazone tab. | 150mg |  |  |  |  |
| Digoxin tab. | 250mcg | Erythromycin suspension | 125mg/5ml |  |  |

Below are the steps in conducting a VEN analysis:

|  |
| --- |
| Step 1: Classify all medicine on the list as V, E, or N.  Step 2: Analyze the “N” items. Where possible, reduce quantities to purchase or eliminate them.  Step 3: Identify and limit therapeutic duplications.  Step 4: Reconsider proposed purchase quantities.  Step 5: Find additional funds if needed or possible. |

|  |
| --- |
| **Reading** Go to the MSH (2012)document to find out more about how to perform a VEN analysis. In the same reading, you can read more on how VEN analysis was used by a country’s Ministry of Health, to prioritize medicines on their Essential Medicines List, for procurement for the public sector:  Management Sciences for Health. (2012). *MDS-3: Managing Access to Medicines and Health Technologies*. Chapter 40.  <https://www.msh.org/sites/msh.org/files/mds3-jan2014.pdf> |

***Activity 3: Perform a VEN analysis***

*Imagine you are a member of the institutional Pharmacy and Therapeutics Committee of a Community Health Care Centre. Part of your responsibility as a committee is to classify medicines according to the VEN system in order to assist the pharmacy with selection and procurement of medicines. The VEN analysis requires that you be able to assign the medicines in inventory to a category of vital, essential, or nonessential.*

*Apply the VEN system to the medicines listed by discussing the following data sheet with more than one person in your facility, if possible. Find the medicines inventory for the Community Health Care Centre at the following link: VEN Analysis: Medicines Inventory*

*Answer the following questions in doing your analysis:*

*1. Which items would you give a lower priority? Provide possible reasons.*

*2. Which items would you remove from the formulary, if any at all?*

*3. Would you reconsider any change in quantities ordered? Provide possible reasons.*

*After you have completed the VEN analysis, send it to the session convener, who will give you feedback on your analysis and conclusions.*

**7 THERAPEUTIC CATEGORY ANALYSIS**

The Therapeutic Category (TC) analysis process reviews volume of use and the monetary value of various therapeutic categories and subcategories of medicines. This method follows on ABC analysis which was discussed in section 5. Once the ABC analysis has been done, the ABC list is sorted into Therapeutic Categories. On completion of the TC analysis, you should be able to tell which therapeutic class of medicines is using up the largest portion of your budget.

Therapeutic Category analyses assist with cost control, by helping managers of pharmaceutical systems to choose the most cost-effective drugs within a therapeutic category, thus allowing them to choose alternative medicines for therapeutic substitution.

Listed below are steps that you should follow to conduct a TC analysis:

|  |
| --- |
| Step 1: List all items purchased and enter the unit cost.  Step 2: Enter consumption quantities for each item.  Step 3: Calculate the monetary value of consumption for each item.  Step 4: Calculate the percentage of total value represented by each item.  Step 5: Assign a therapeutic category to each item according to the ATC system.  Step 6: Sort the list into therapeutic categories.  Step 7: Sum the percentage value of items in each category – identify the categories accounting for greatest expenditure. |

**8 SESSION SUMMARY**

As you conclude this session, reflect on the following questions and decide if the information from the session can be used to improve rational medicine use in your facility or institution:

1. Does a system exist in your facility for prioritizing procurement, according to public health value, e.g. the VEN system?
2. If no system is currently used in your facility, how are decisions made on procurement of medicines when funds are insufficient?
3. Has an ABC analysis of medicine consumption in your facility been conducted recently? Does your system have the capacity to do this type of analysis?
4. How is information from the ABC analysis used to improve purchasing and inventory management in your facility?
5. Do you use the information from the ABC analysis to identify irrational medicines use?

If you have identified certain gaps in the system, you may wish to discuss your responses with your colleagues in your facility.

In the next session we will focus on the process of implementing a medicine use indicators study using the standard methods of measuring medicine use practices introduced in this session.

**9 REFERENCES AND FURTHER READING**

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