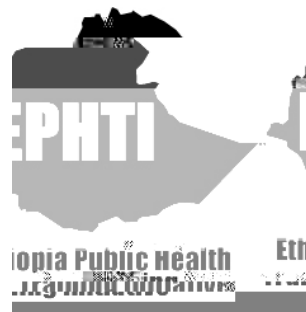


## LECTURE NOTES

# *Documentation*

*For Health Extension Workers*



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Haramaya University

In collaboration with the Ethiopia Public Health Training Initiative, The Carter Center,  
the Ethiopia Ministry of Health, and the Ethiopia Ministry of Education

November 2004



Funded under USAID Cooperative Agreement No. 663-A-00-00-0358-00.

Produced in collaboration with the Ethiopia Public Health Training Initiative, The Carter Center, the Ethiopia Ministry of Health, and the Ethiopia Ministry of Education.

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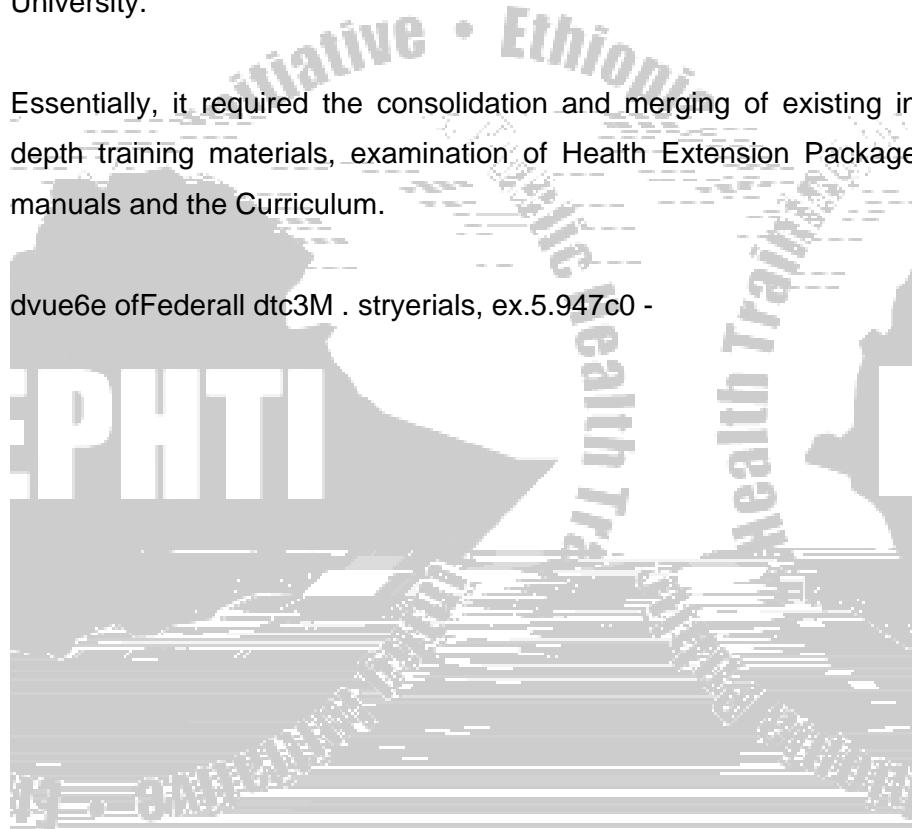
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## Acknowledgments

The development of this lecture note for training Health Extension workers is an arduous assignment for Ato Tesfaye Gobena, Ato Tadesse Alemayehu and W/ro Tiguated Fantahun at Alemaya University.

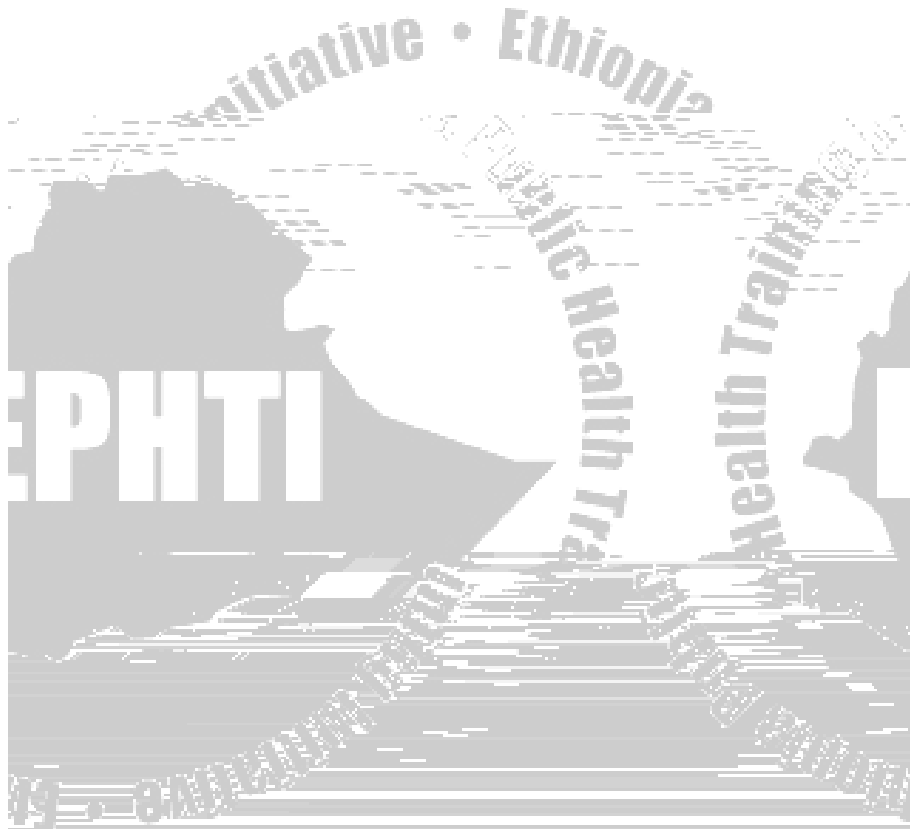
Essentially, it required the consolidation and merging of existing in depth training materials, examination of Health Extension Package manuals and the Curriculum.

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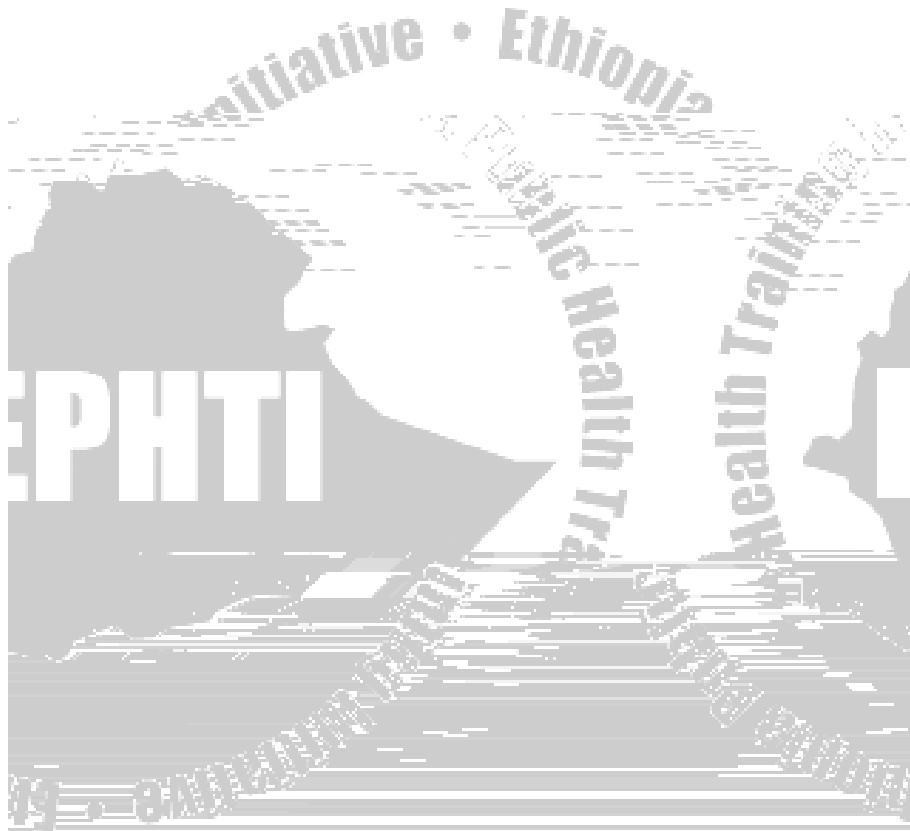
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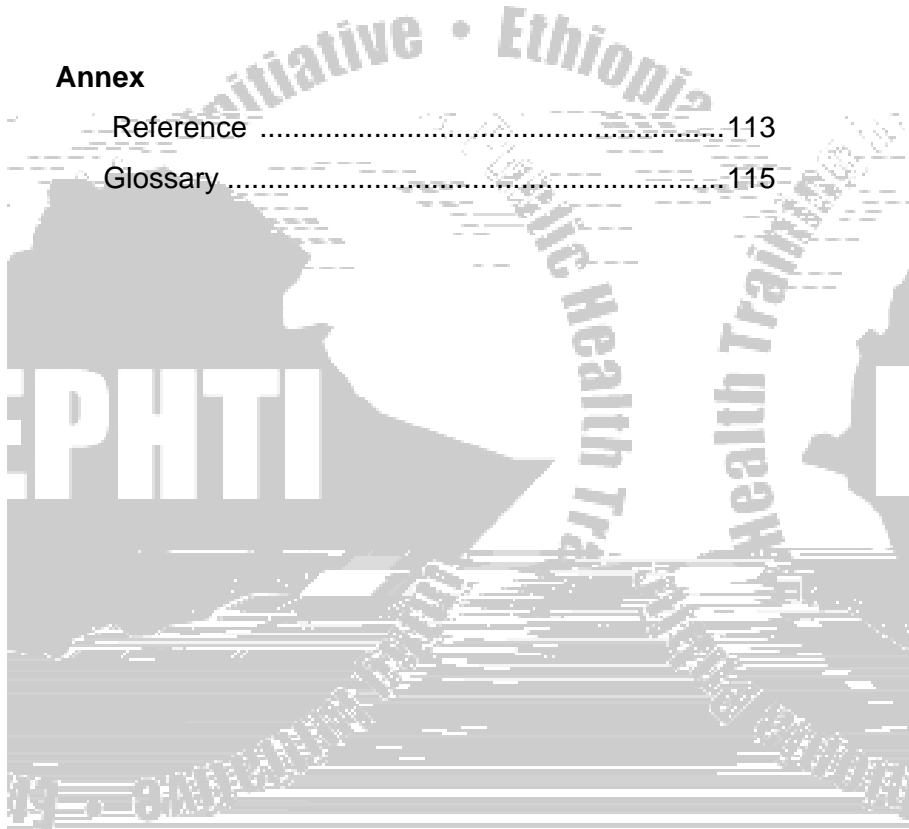
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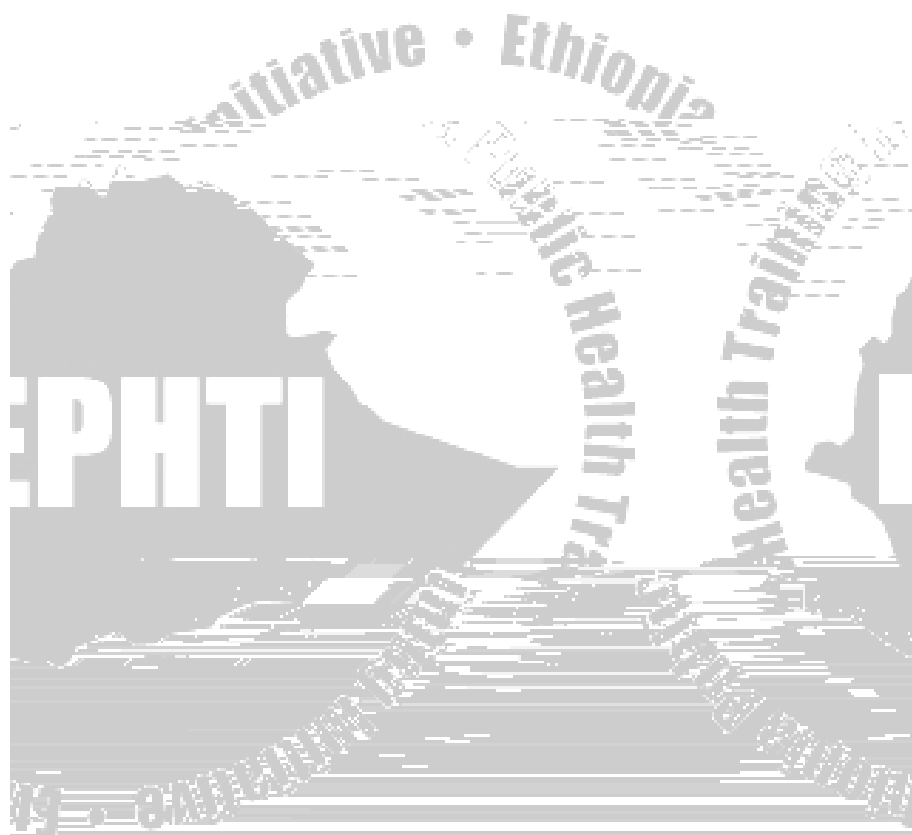
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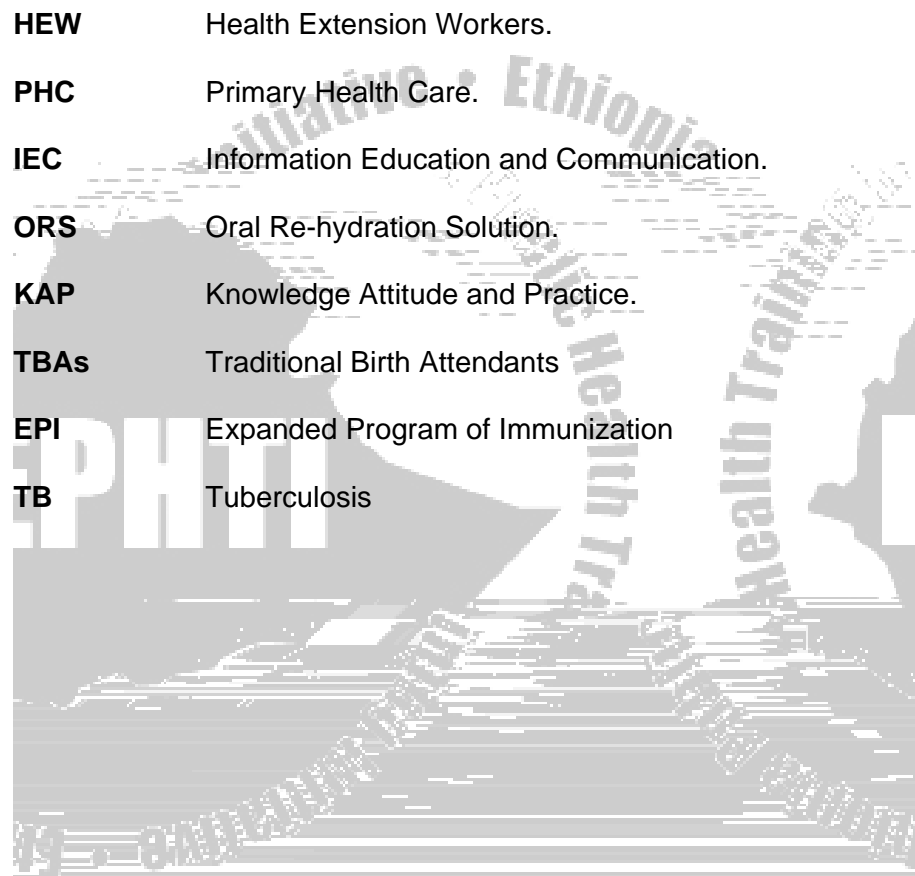
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## Abbreviations



<b>HEW</b>	Health Extension Workers.
<b>PHC</b>	Primary Health Care.
<b>IEC</b>	Information Education and Communication.
<b>ORS</b>	Oral Re-hydration Solution.
<b>KAP</b>	Knowledge Attitude and Practice.
<b>TBAs</b>	Traditional Birth Attendants
<b>EPI</b>	Expanded Program of Immunization
<b>TB</b>	Tuberculosis



## INTRODUCTION

The Ethiopian government has set preventive based health policy and specifies the general objectives of programs that have to be implemented at the middle and primary level. In many parts of Ethiopia, large numbers of families have still no access to health care or are not covered by the health system. Recently, strengthening the primary level of health care delivery is however given attention by designing a program of Health Extension Package for training Health Extension Workers who will be assigned at kebele level. This new program is believed to have importance in the efforts of extending services in a community. People will get services at their home as the Health Extension Workers assign in each kebele. This increases the health service coverage. The training of Health Extension Workers is therefore, valuable for the proper delivery of health services at the grass root level.

If we relay on recorded information of health workers who are working in health institutions (such as hospitals, health centers, etc) on risk factors, disease and change in the course of disease, we will probably fail to get complete and accurate information. The reason behind

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is that many health workers do not give due attention for accurate recording system.

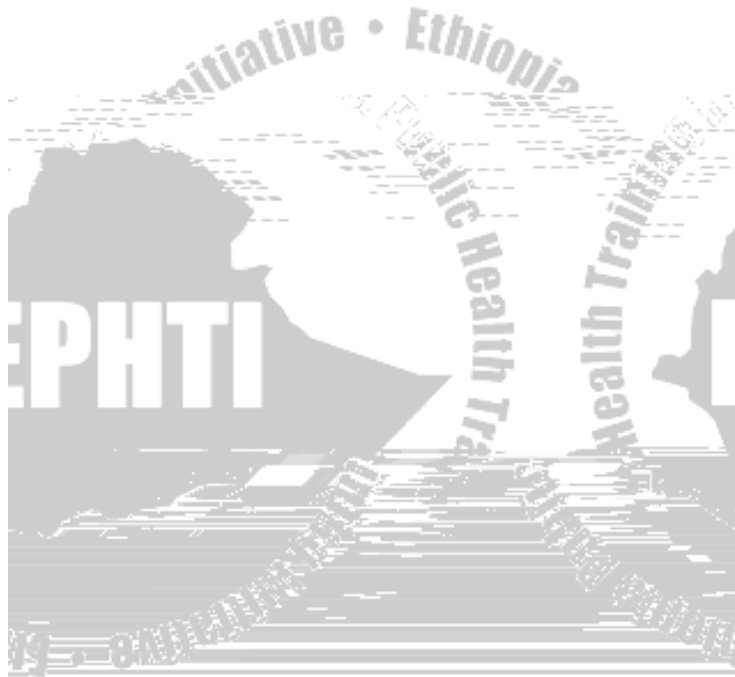
In order to solve such problems, recording should start at community level where the root of the problem might also be identified for an appropriate solution. Therefore, recording at the community level by health extension workers give solution for some of the problems.

This lecture note is divided in to six duties, which are further classified in to different tasks. Duty one is dealing with methods of preparing a map of a locality and divided it in to twenty-day blocks. In this duty trainees will also learn on preparation of questionnaire and how to conduct interviews in their house-to-house visit. The focus of duty two is on analysis of data for the purpose of utilizing the available information in order to address the health needs of the community and sending reports to the next higher level. Trainees will also be acquainted with the basic principles of statistics and presentation of

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Trainees will have basic concepts on how to prepare plan of action in duty four. The five steps in planning are



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participation and involvement of the community. This condition gives an opportunity for the community to participate on issues of their health or plays a major role on the planning, implementation and evaluation concerning their own health. The main objective of giving this course is to enable the trainees to appropriately document all health related information in the kebele.



## **DUTY ONE**

### **Collecting Primary Data**

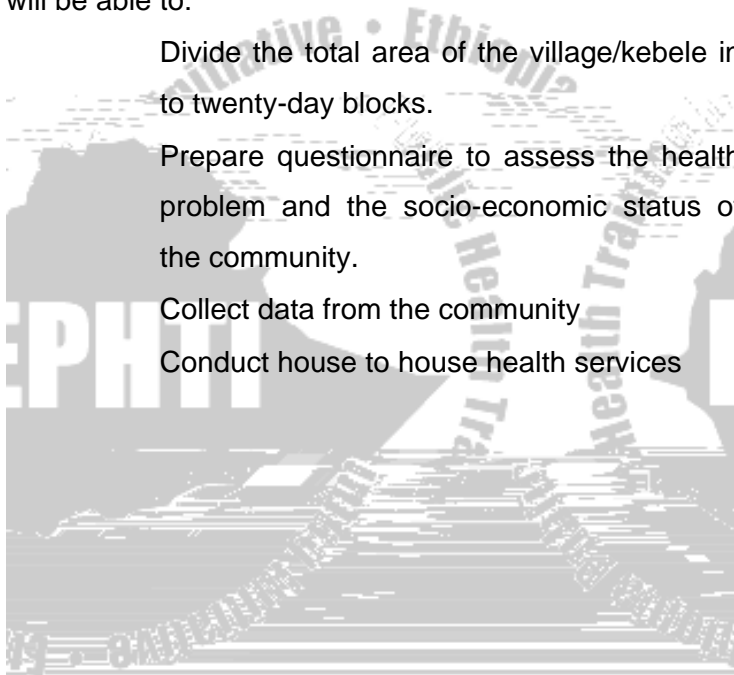
**Learning Objectives** At the end of duty one trainees will be able to:

Divide the total area of the village/kebele in to twenty-day blocks.

Prepare questionnaire to assess the health problem and the socio-economic status of the community.

Collect data from the community

Conduct house to house health services



**Task1: Dividing the total area in the map in to twenty-day blocks**

Mapping the village or Kebele is the first step in carrying out community based health activities. Community often is defined by its geographic boundaries and thus is called a geographic community. Geographic maps include large areas and consequently must be to small scale they show important land marks, such as river, swampy areas, schools, mosques, churches, etc.

In community health, it is useful to identify a geographic area as a community. A community becomes a clear target for analysis of health needs and easily mobilized for action. Groups can be formed to carry out intervention and prevention efforts that address needs specific to that community. And thus, all health extension workers should be familiar with the methods and technique used in map and topographic drawing.

On mapping a village or kebele, the Health Extension Workers (HEWs) should know the following three points:

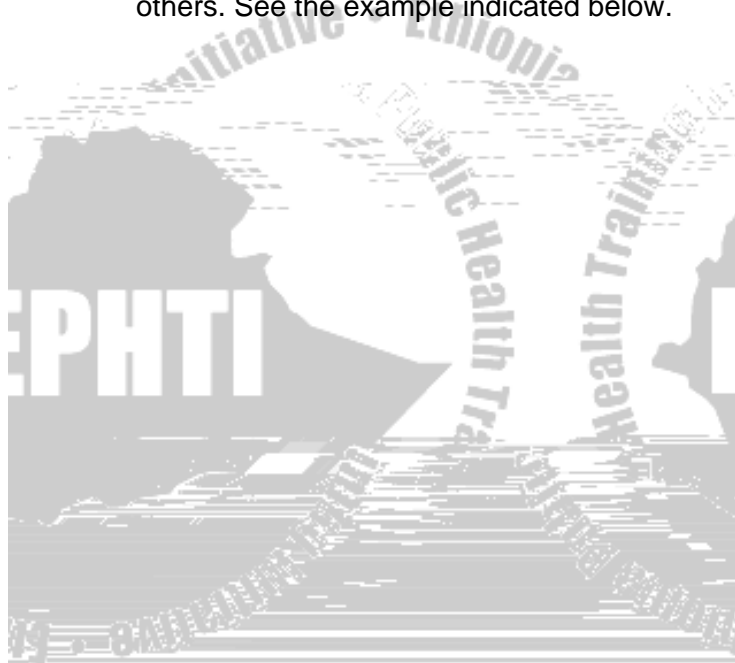
1. Identify a defined area (village) limited by convenient natural boundaries from which data can be collected.



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2. Mark out this defined area (village or Kebele) on a map with a marker, fasten it to a piece of board and hang this up on the wall.
3. Show basic data on the map, such as population of the village, houses, roads, streams, organizations, religious sites and others. See the example indicated below.



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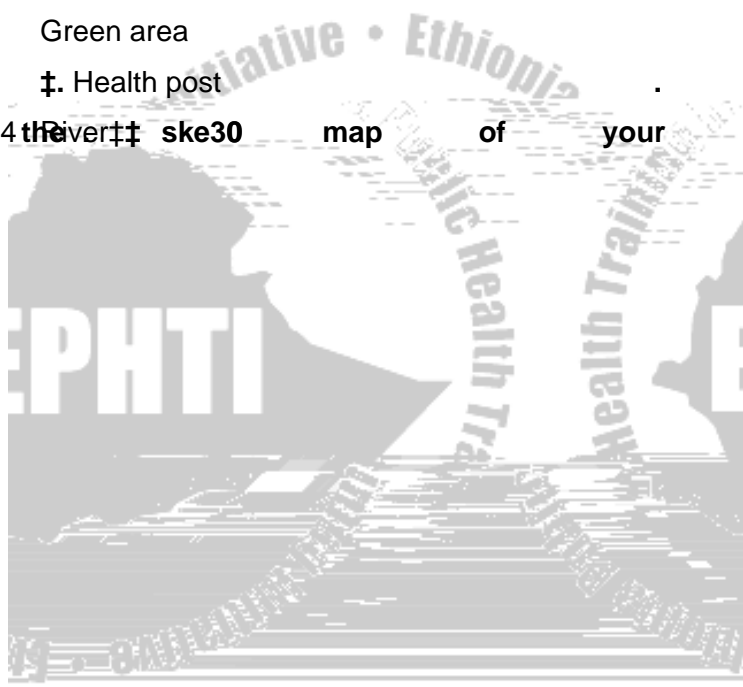
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**Key**

- . Residence ±.
- Church
- . Residence (thatched roof) .
- School
- Ç. Mosque .
- Green area
- ‡. Health post .

T 2 4 (Draw 7 . . 4 the River ‡ ske30 map of your kebele and div)-2



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Open-ended questions permit free responses that should be recorded in the respondent's own words. The respondent is not given any possible answers to choose from. For example, can you describe exactly what the traditional birth attendant did when your labor started?

Closed questions offer a list of possible options or answers from which the respondents must choose. When designing closed questions one should try to:

Offer a list of options that are exhaustive and mutually exclusive, and

Keep the number of options as few as possible.

Closed questions are useful if the range of possible responses is known.

For example

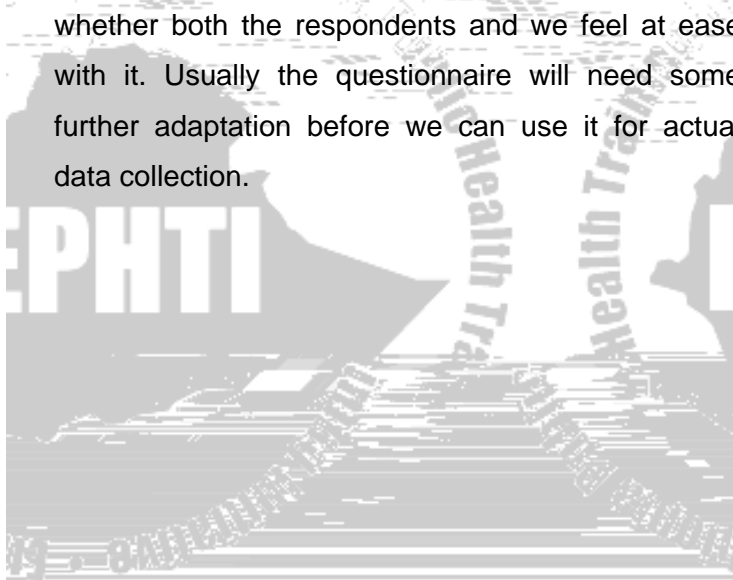
1. What is your marital status?

- A. Single
- B. Married
- C. Divorced
- D. Widowed
- E. Others

2. Have you ever gone to the local village health



Designing a good questionnaire always takes several drafts. In the first draft we should concentrate on the content. In the second, we should look critically at the formulation and sequencing of the questions. Then we should scrutinize the format of the questionnaire. Finally, we should do a test-run to check whether the questionnaire gives the information we require and whether both the respondents and we feel at ease with it. Usually the questionnaire will need some further adaptation before we can use it for actual data collection.



### **Step 1: Content**

#### **Take your objectives and variables as your starting point**

Decide what questions will be needed to measure or to define your variables and reach your objectives. When developing the questionnaire, you should reconsider the variables you have chosen, and if, necessary, add, drop or change some of your objectives at this stages.

Example, the objective of designing the questionnaire is to assess the socioeconomic status of the community. Therefore, some of the variables are ethnicity, income, educational status housing conditions etc.

### **Step 2: Formulating questions**

#### **Formulate one or more questions that will provide the information needed for each variable.**

Take care that questions are specific and precise enough that different respondents do not interpret them differently.

Check whether each question measures one thing at a time

Avoid leading questions.

A question is leading if it suggests a certain answer.



Example, what is your monthly income?

---

### **Step 3: Sequencing of questions**

**Design your interview schedule or questionnaire to be “consumer friendly”.**

The sequence of questions must be logical for the respondent and allow as much as possible for a ‘natural ‘ discussion, even in more structured interviews.

At the beginning of the interview, keep questions concerning “background variables” (e.g. age, religion, education, marital status, occupation) to a minimum.

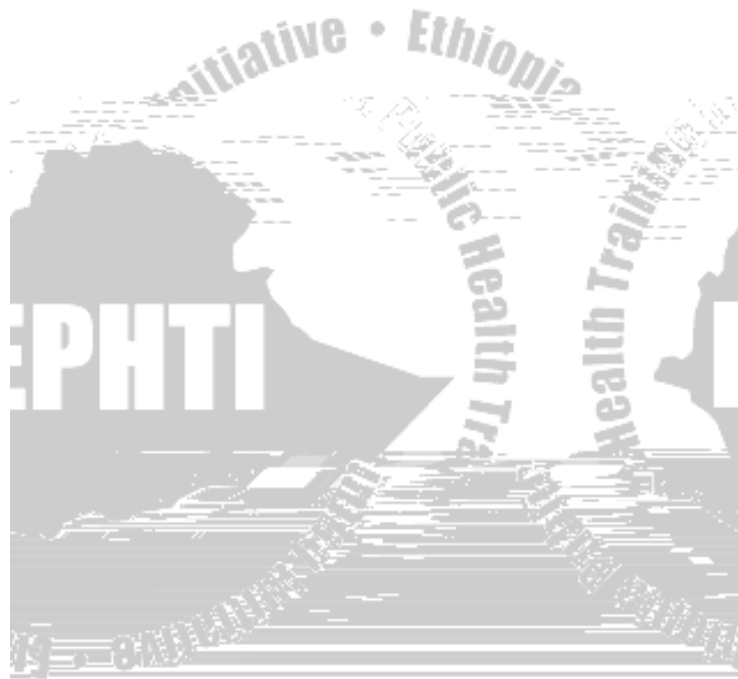
Start with an interesting but non-controversial question (preferably open) that is directly related to the subject of the study.

Pose more sensitive questions as last as possible in the interview. (example question pertaining to income, sexual behavior etc).

Use simple every day language.

Make the questions as short as possible.

Conduct the interview in two parts if the nature of the topic requires a long questionnaire (more than one hour).



2. What is your family size? \_\_\_\_\_
3. What is your educational status?  
\_\_\_\_\_

### **Task 3: Making house to house Visit**

Families are the main unit of health service in the community and have been for over a century. Working in the community and being able to visit families in their homes is a privilege. In this unique setting you are permitted in to the most intimate of spaces we, as human beings, have. A home visit is conducted to visit clients where they live in order to assist them to achieve as high a level of wellness as possible.

#### **Sampling method**

Sample-may be defined simply as a part of a population. Suppose our population consists of the weight of all the elementary school children enrolled in a certain village. If we collect the weights of only a fraction of these children, we have only a part of our population of weights, that is, we have a sample.

Sampling involves the selection of a number of study

members. If the whole population is taken there is no need of statistical inference (generalizing of sample data to the total population). Usually, a representative subgroup of the population (sample) is included in the assessment. A representative sample has all the important characteristics of the population from which it is drawn.

Advantage of sampling:

Cost- sampling save time, labour and money

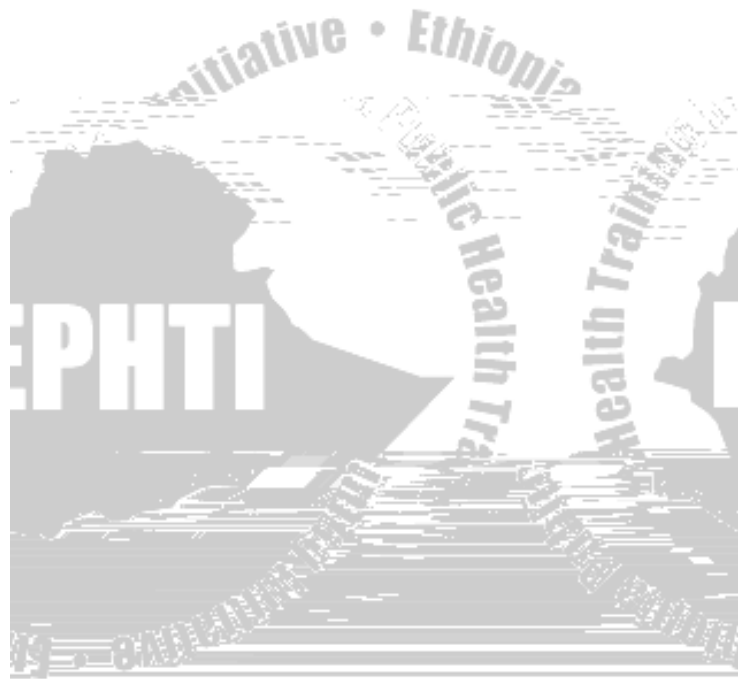
Quality of data- more time and the effort can be spent on getting reliable data on each individual sampled.

If we have to draw a sample, we will be confronted with the following questions:

1. What is the group of people (population) from which we want to draw a sample?
2. How many people do we need in our sample?
3. How these people will be selected?

### **Types of sampling methods**

1. Non – probability sampling methods. This method can not claim to be representative of the entire population.



using a 'lottery' method or a table of random numbers.

## **2. Systematic sampling**

Individuals are chosen at regular intervals (for example, every  $k$ ) from the sampling frame. The first unit to be selected is taken at random from among the first  $k$  units. For example, a systematic sample is to be selected from 1200 students of a school. The sample size is decided to be 100. The sampling fraction is;  $100/1200=1/12$ . Hence the sample interval is 12. The number of the first student to be included in the sample is chosen randomly, for example by blindly picking one out of twelve pieces of paper, number 1 to 12. If number 6 is picked, every twelfth students will be included in the sample, starting with student number 6 until 100 students are selected. The numbers selected will be 6,18,30,42 etc.

Systematic sampling is usually less time consuming and easier to perform than simple random sampling. It provides a good approximation to simple random sampling.

Demerits of this sampling method are, if there is any sort of cyclic pattern in the ordering of the subjects which

coincides with the sampling interval, the sample will not be representative of the population.

### 3. Stratified sampling

It is appropriate when the distribution of the characteristic to be studied is strongly affected by certain variables (heterogeneous population). The population is first divided into groups (strata) according to a characteristic of interest (example, sex, geographic area, prevalence of disease, etc). A separate sample is taken independently from each stratum, by simple random or systematic sampling.

**Proportional allocation:** if the same sampling fraction is used for each stratum.

**Non probability allocation:** if a different sampling fraction is used for each stratum or if the strata are unequal in size and a fixed number of units is selected from each stratum.

In this sampling technique the representativeness of the sample is improved. But, sampling frame for the entire population has to be prepared separately for each stratum.

#### **4. Cluster sampling**

In this sampling scheme, selection of the required sample is done on groups of study units (clusters) instead of each study unit individually. The sampling unit is a cluster, and the sampling frame is a list of these clusters.

##### **Procedures**

The reference population (homogenous) is divided into clusters. These clusters can be districts, villages, etc.

A sample of such clusters is selected.

All the units in the selected clusters are studied.

It is preferable to select a large number of small clusters rather than a small number of large clusters.

##### **Preparing plan of action**

The greatest barrier to a successful family health visit is a lack of planning and preparing. A visit is not successful just because the health professionals enter a home or other setting where clients are present. A successful family health visit takes much planning and preparation, involves many aspects while with the family, and requires accurate documentation and follow-up. In addition, safety measures must be followed, not only while traveling in the neighborhood but also in the home.

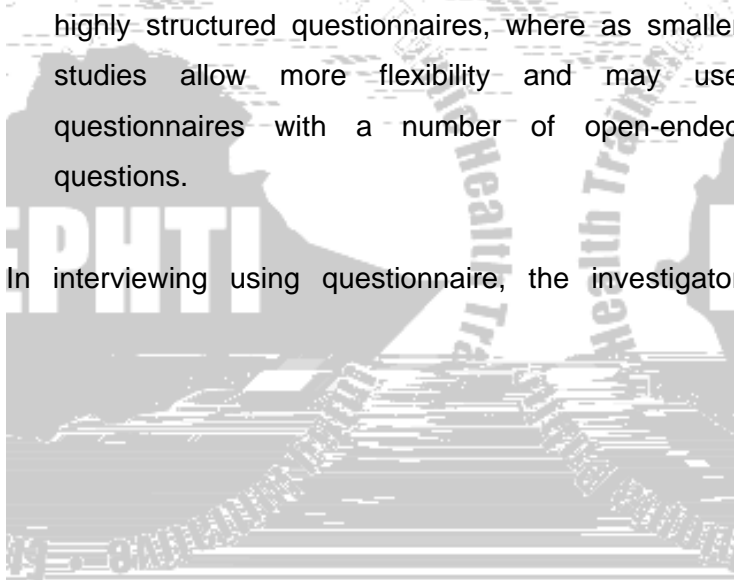




questioning the right technique to obtain all answers, or do we need additional techniques, such as observation.

2. Of whom will we ask questions and what techniques will we use?
3. Are our informants mainly literate or illiterate?
4. How large is the sample that will be interviewed?  
Studies with many respondents often use shorter, highly structured questionnaires, where as smaller studies allow more flexibility and may use questionnaires with a number of open-ended questions.

In interviewing using questionnaire, the investigator



it; if a question is not understood, an interviewer can repeat it and if necessary provide an explanation or alternative wording. In face-to-face interviews, observations can be made as well.

### **Observation**

Observation is a technique that involves systematically selecting, watching and reading behaviors of people or other phenomena and aspects of the setting in which they occur, for the purpose of getting (gaining) specified information. It includes all methods from simple visual observations to the use of high level machines and measurements. It is important to outline the guidelines for the observation prior to actual data collection.

### **Importance of getting correct information**

Before looking at any type of information, it is important to recognize that information is rarely, if ever, completely accurate. Information provides a means of presenting a view about the real world. Such views can differ not only in terms of distortions or inaccuracy but also, more fundamentally, as a result of genuinely different perceptions.

Much information collected depends heavily on both the skills of the collector and how she/he 'views' or

interprets reality.

#### Example of factors affecting accuracy of information

In carrying out a survey of a village population, one might imagine that to obtain the number and age-distribution of inhabitants was fairly straight forward. However various factors could affect the number recorded, such as:

The definition of resident' (If a normal resident was not present at the time of the survey, should she/he be counted?)

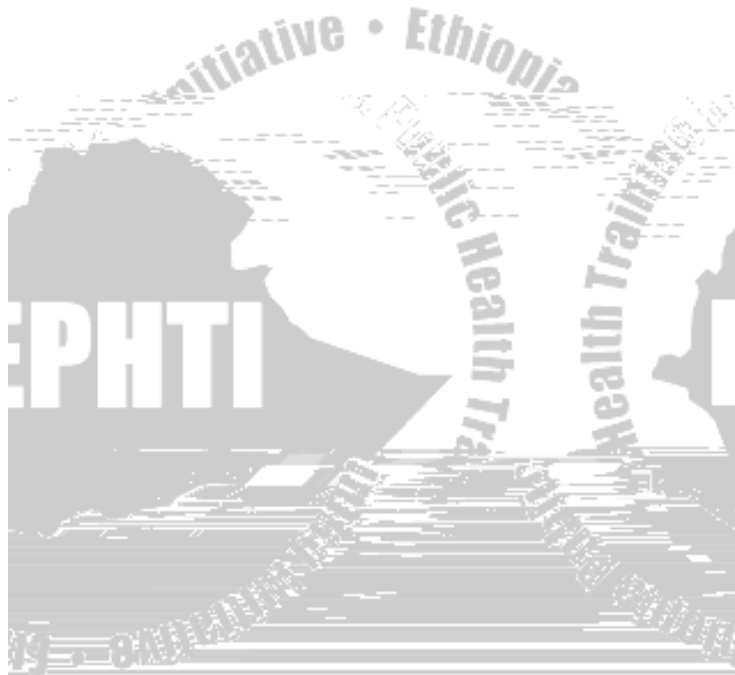
The level of motivation of the enumerator or data collector (would s/he bother to visit a home some distance from the main village?)

Enumerator training (do they ask the right questions to elicit accurate ages?)

There may also be reasons why it is in the interest of the village or indeed of the enumerator to inflate or deflate figures - for example, if a farmer suspects that the socioeconomic question has a relation

2. **Quality:** Is the information complete, accurate and clear? Does it represent a true picture of what is happening with in the organization?

3.



disease returns, informed opinion, and information from other ministries, agencies and other sources.

`Soft` information may be obtained through meetings with individuals or groups (for example, in a community meeting). While such meetings can be an important source of information, their value is, of course, dependent on the representative credentials of the informants. In addition to this, one of the importances of meetings is to validate the information collected by other techniques like face-to-face interview.

Meetings are necessary of health work, especially when the work is with rural communities. Meetings are of many kinds and can have many different purposes. Small meetings may be held with community leaders to try to identify health problems and needs. There may be meetings with special groups such as patients, community leaders or mothers for community based health activities.

### **Exercise**

Form small groups and prepare questionnaire (based on defined objectives of your assessment, its use and the variables) and conduct face – to –face interview.



## **Task 1: Preparing a master chart with the data**

### **Basic principles of statistics**

Statistics is either statistical data or statistical methods. Statistical data means numerical descriptions of things. These descriptions may take the form of counts or measurements. Even though the statistical data always denotes figures (numerical descriptions) it must be remembered that all numerical description are not statistical data.

Statistical activities must be prepared to be able to interpret or communicate the results to some one else as situation demands. The numbers in statistics contains information. Thus the purpose of statistics is to investigate and evaluate the nature and meaning of this information.

### **Principle of statistics**

Concerned with the scientific method for collecting, organizing, summarizing, presenting and analyzing data.

Data and conclusions used to make reasonable decision on the bases of analysis

Present the facts in a definite form

Simplify the complex data so as to make them



understandable

Correlate the data and make comparisons

Formulating and testing hypothesis

### **Types of data**

There are two major types of data.

**1. Qualitative (categorical) data:** is a type of data which cannot be described in numerical expression, but can only be identified by name or categories, for example, sex, place of birth, ethnic group, degree of pain, etc. Qualitative data is further classified in to two. Namely:

**i) Nominal data:** consists of two or more different categories of data values.

Example, sex (M and F)

Sex is a variable, where as “M” and “F” are data values.

**ii) Ordinal data:** groups in to categories and there is some predetermined order.

Example, the progress of a certain disease over time

- High deterioration
- Death

**2. Quantitative (numerical) data:** a type of data that has numerical values either from count or measurement. There are also two types of quantitative data.

**i) Discrete data:** data occur when the observations are described in integral value counts.

Example, number of live births/1000 mother/year, the number of pregnancies (gravity), number of family, etc.

**ii) Continuous data:** observations are characterized by continuous scale.

Example, weight, height or age of a child. The weight may be between 1 and 2, say 1.55Kg.

### **Presentation of Data**

Data collected from survey or other method is called raw data. This raw data can not convey clear and precise information. So that this unsorted data must be arranged purposively in order to bring out important points clearly.

This organized data displayed in different techniques like order array (serial arrangement of numerical values in ascending or descending orders), tables, diagrams and figures, etc. which help to present in compactable and understandable way.

**Preparing a master chart**

This is a record of primary data, which is written as it is observed before the data is analyzed and consolidated. The charts prepared in the way that the chart can accommodate information needed. It can be vary according to the data and the organization.

Table 1. This is an example of patient diagnosis master chart used for recording.

Serl No.	Name	Age	Sex	Village /kebele	Diagnosis	Treatment	Remark
1							
2							
3							
4							
5							
6							

## **Task 2: Analyzing and consolidating data from master chart**

In most cases, useful information is not immediately evident from the mass of unsorted data. Collected data need to be organized in such a way as to condense the information they contain in a way that will show patterns of variation clearly. Precise methods of analysis can be decided up on only when the characteristics of data understood.

Once the data is collected must be analyzed so that the meaningful interpretation can be made. Statistical procedures simply reduce a great amount of information to smaller one that can be easily interpreted when deciding an appropriate analysis. It is important to know statistical analysis.

**1. Descriptive statistics:** describe in mathematical or numerical terms of the data collected. Such as, mean (average), deviation, percentage, etc which are reported in written or graphic forms, rate and ratio.

**2. Inferential statistics:** which enable one to determine the extent to which change of differences observed.

Average implies a value in the distribution around which the other values are distributed. It gives a mental picture of central value. There are several kinds of averages

1. Arithmetic mean
2. Median
3. Mode.

**1. The mean ( $\bar{x}$ ):** Arithmetic mean is by far widely used in statistical calculations. It is obtained by dividing total number of observation by the number of observations.

$$\bar{X} = \frac{1}{n} \sum_{i=1}^n x_i \quad \text{Where, } \bar{x}.$$

mean

total number of population

It is influenced by both extreme values found in the data and some times the result obtained seems unreal (ridiculous).

Example, Average number of students found in a class is 48.5.

**2. The Median:** To obtain the median the data is first assigned in ascending or descending order then the middle value is taken. If the data number is even it is calculated by taking the average of the two middle values. It is not influenced by extreme values and more representatives than the mean and nearer to

the truth.

Example 1. The income of seven persons per day in Birr is as follows.

10,15,15,5,20,102,25, then, it is

ordered as

5, 10, 15,15,20,25,102

Then the median is 15.

Example 2. Diastolic blood pressure of 10 patients is:

83, 75, 81, 79, 71, 95, 75, 77, 84, 90

When arranged in ascending order as:

71, 75, 75, 77, 79, 81, 83, 84, 90, and 95

Then, the median is  $\frac{79+81}{2} = 80$

2

**2. Mode:** is commonly occurring value in a distribution of data. Its advantage is easy to understand and unaffected by extreme values.

**Presentation of data**

**1. Preparing a pictogram:** small pictures are used to represent the data. Here the fraction of the pictures can be used to represent smaller values of the whole symbol



bar must be equal for all categories. In addition the title of the figure which is placed under the figure should answer questions what, when, where, how. The following is an example of bar chart showing the number of students in each section of grade 9.

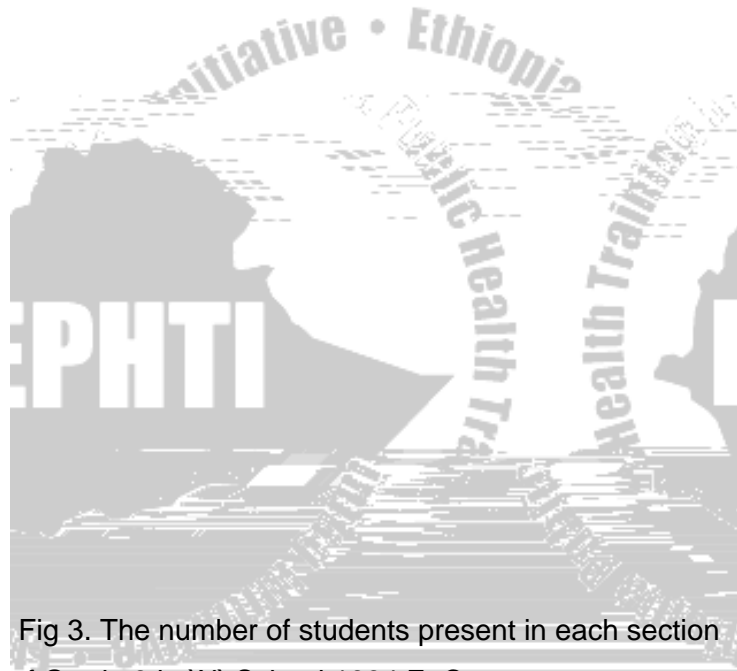


Fig 3. The number of students present in each section of Grade 9 in `X` School 1994 E, C.

**3. Preparing tables:** It is a systematic presentation of numerical data in to rows and columns. Rows are horizontal and columns are vertical assessments. It is



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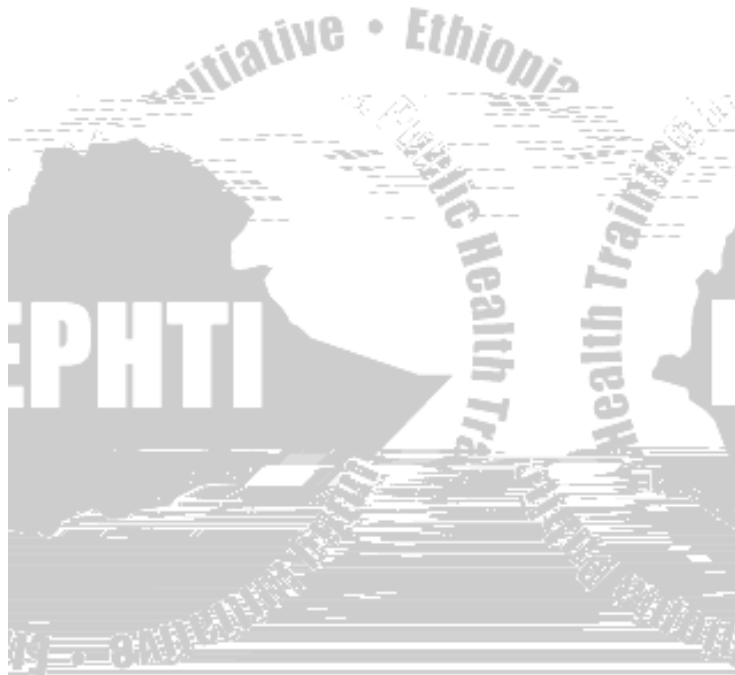
frequency distributions and inserts the values in each column and rows. Numerical entities of zero should be explicitly written rather than indicated by a dash. Dashed are reserved for missing for an observed data.

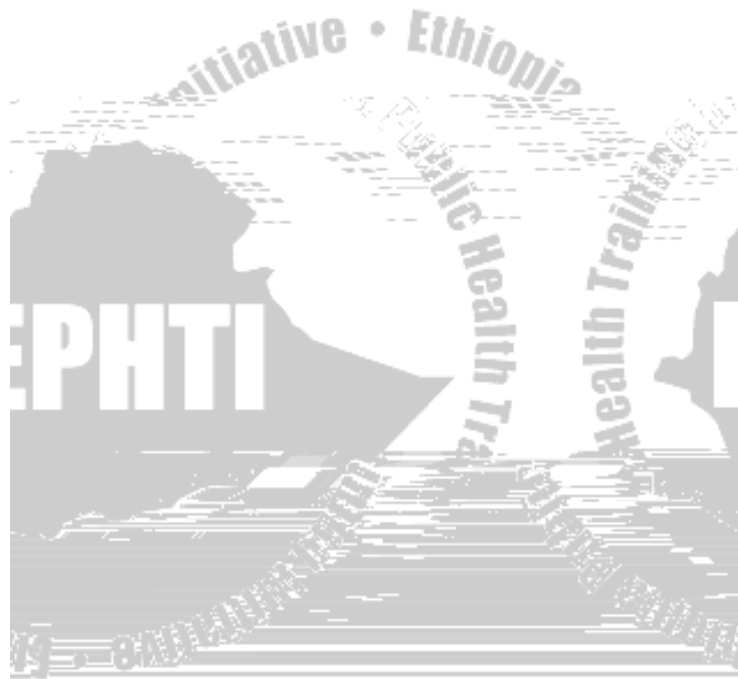
The table should be as simple as possible and self explanatory and the title written above the table answers questions like, what, when, where, how. The total should be shown either in the top row last column or in the last row first column. The following table presented as an example.

Table 2. The population size in each Kebele of town 'x' in 1980 E, C.

Kebele	Population by sex		Total
	male	female	
01	550	500	1050
02	500	560	1060
03	600	590	1190
94	9,00	890	1790
05	1,000	990	1990
Total	3550	3530	7080

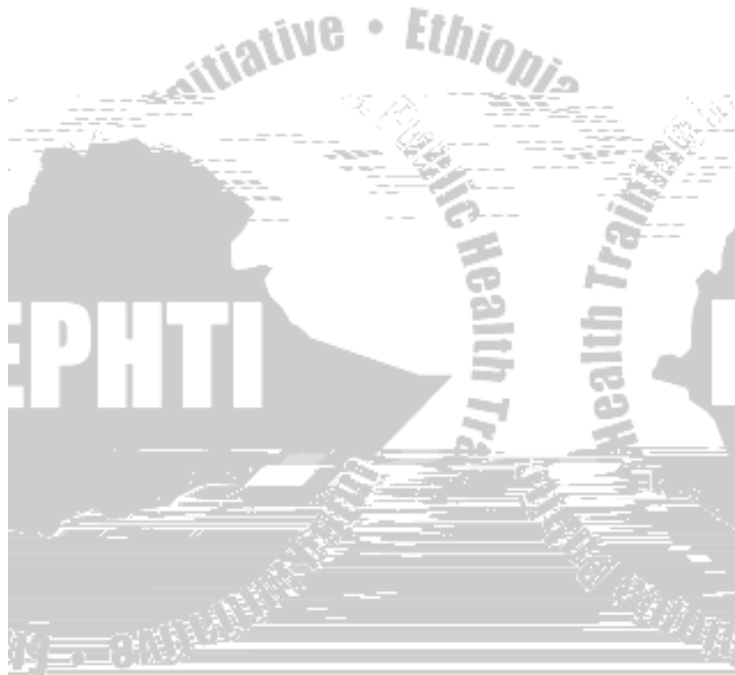
**4. Pie Chart:** it is a circle which divided into sectors. Each sector is proportional to the frequency. The full circle (360 degree) represents 100%. The titles of the

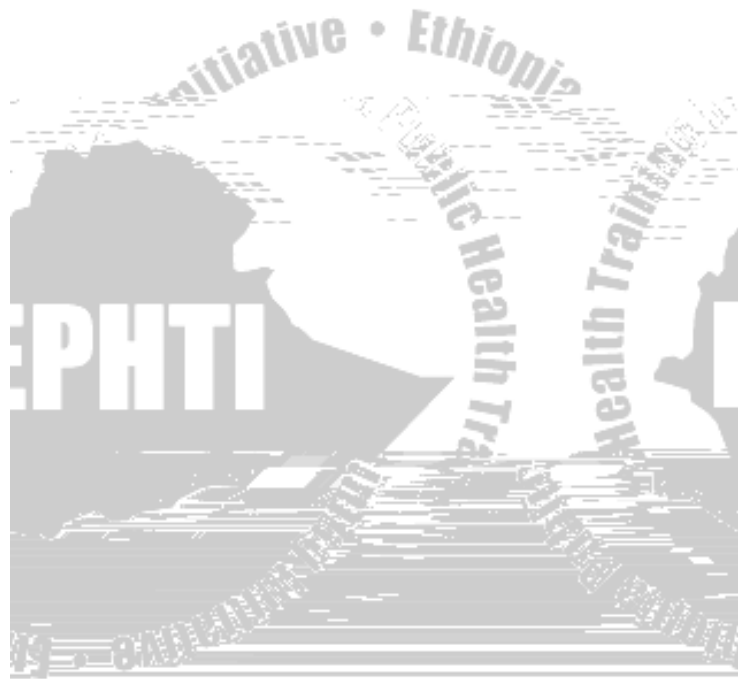




## 1. Mortality Rate

**1.1 Crude Death Rate (CDR):** determined as the total number of deaths due to all causes occurs in a determined area during a determined





Mid year population of the same age in the  
same area in a year

**1.8 Maternal Mortality Rate (MMR):** The number of deaths of mother due to maternal causes (such as complication of pregnancy, child birth and puerperium) per 100,000 live births.



$$IR = \frac{\text{Total number of new cases of a specific disease during a year}}{\text{Total population at risk in a year}} \times K$$

$$K = 100, 1000, 10,000$$

**2.2 Prevalence Rate (PR):** measures the number of people in a population who have a disease at a given time.

$$PR = \frac{\text{total number of cases existing at a point}}{\text{Total population at a point in time}} \times K$$

$$K = 100, 1000, 10,000$$

### 3. Fertility Rate

**3.1 Crude Birth Rate (CBR):** is the number of live births in a year per thousand mid year population in the same year.

$$CBR = \frac{\text{Total number of live birth during a year}}{\text{Total mid year population (1<sup>st</sup> July)}} \times K$$

$$K = 1000.$$

**3.2 General Fertility Rate (GFR):** is the number of births in a specified period per 1000 women aged 15

– 49 year.

GFR =  $\frac{\text{Total number of live births during a year}}{\text{Mid year total number of female population (15-49 age) in the same area}} \times K$

**3.3 Age Specific Fertility Rate (ASFR):** Number of live birth in a specified period in time per 1000 women in a given age or age group.

ASFR =  $\frac{\text{Number of birth with the specified age of women}}{\text{Mid year population of women at the same age with in the same period of time}} \times 1000$

**3.4 Total Fertility Rate (TFR):** is the sum of all age specific fertility rates for each year of age from 15-49 years.

#### 4. Other Demographic Rates

**4.1 Population Growth Rate (r):** this rate is sometimes called crude rate of natural increase.

$r = \text{Crude Birth Rate} - \text{Crude Death Rate}$



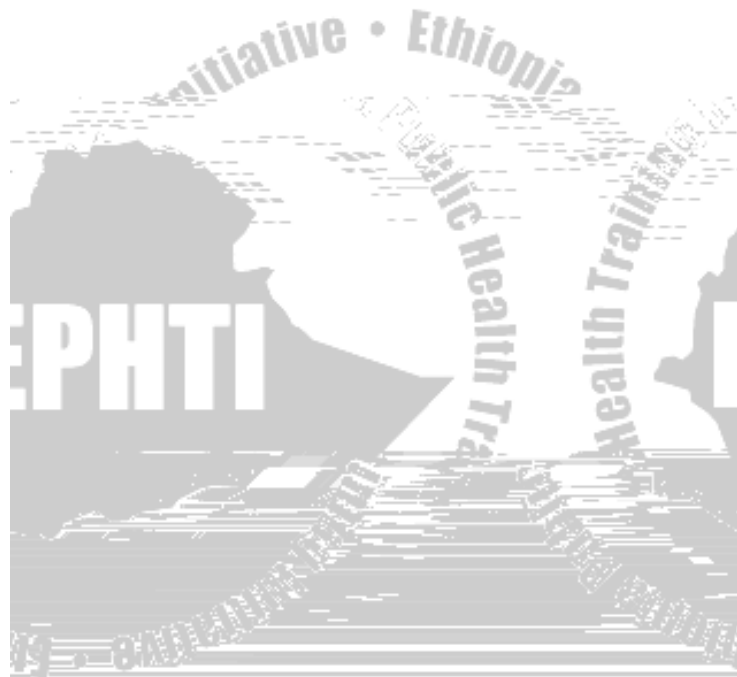
### **Task 3: Standard report format**

Reports are the information communicated to other levels of health services. They are an important tool to monitor an activity. The reports can be oral, written or given by Medias. The report consists statistical information on birth, death and morbidity, or comments or problems on programs.

A standard report format printed and distributed in advance to the health units or village health workers with the aim of keeping the uniformity and quality of data to have the same information from the reporters. The report, which is filled using a standard report format is easy to analyses and compare by higher officials. The report form printed in different color and distributed to different units accordingly.

#### **Exercises**

1. Discuss the following rates briefly and write the corresponding abbreviation for each.
  - § Crude birth rate
  - § Crude death rate
  - § General fertility rate
  - § Maternal mortality rate



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The data in the following table are a report from a certain country.

Age	Total number of women	Total number of births in age group
15 – 19	225,2000	21,834
20 - 24	217,6000	35,997
25 – 29	173,400	21,670
30 – 34	143,300	8,935
35 – 39	134,100	3,464
40 – 49	267,800	925

3. Compute the following rates for this country

- A. Total fertility rate
- B. General fertility rate
- C. Age specific fertility rate for each category.

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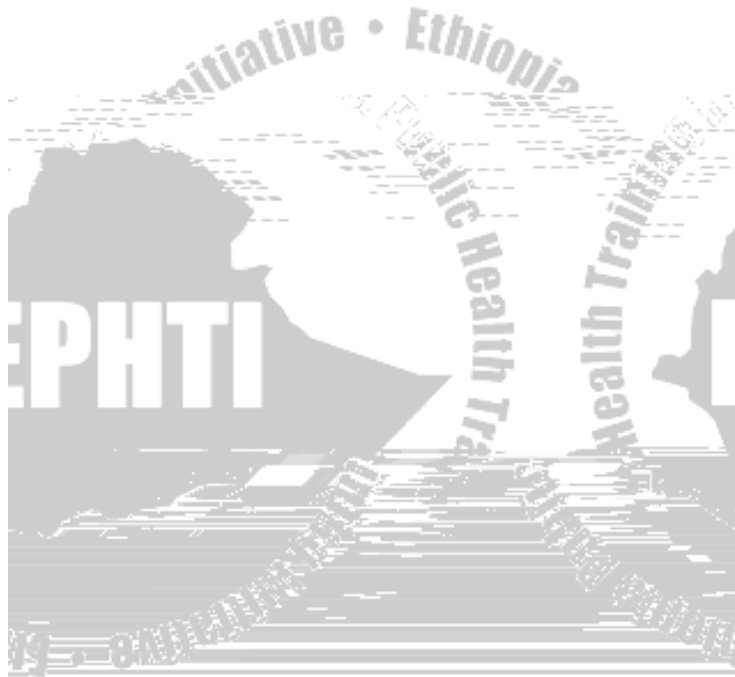
The following table shows a report from village “X” in 2000.

Events	Total
• Total number of population (1 <sup>st</sup> July)	25,000
• Live Births	1500
• Mothers (15- 49 years of age)	9,000
• Children under 5 (0 – 4 year of age)	4000
• Deaths	5000
○ All deaths	950
○ Maternal death	150
○ Under 1 year	200
○ Under 28 days	250
○ Children (1-4) years	200
š Death due to malaria	

4. Calculate the following rates for village “X” based on the data given above.

- A. Infant mortality rate
- B. Maternal mortality rate
- C. Crude birth rate
- D. General fertility rate
- E. Crude death rate

- F. Neonatal mortality rate
- G. Child death rate
- H. Specific death rate due to malaria.



## DUTY THREE

### Maintaining Records And Registers

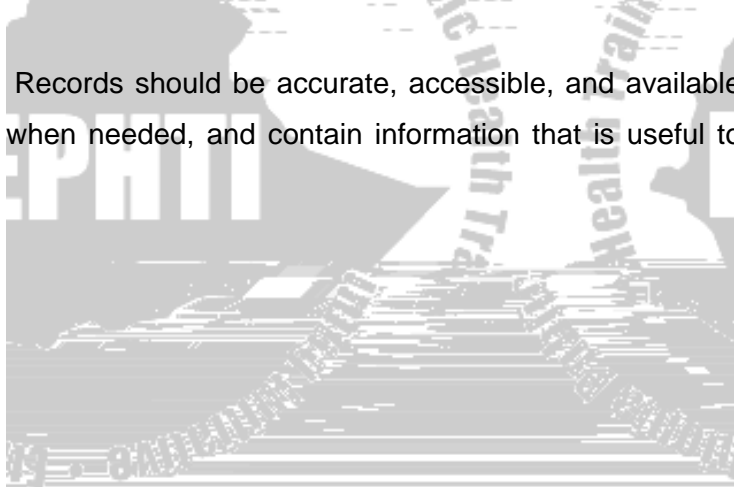
**Learning objectives:** At the end of duty three the trainees will be able to:

- § Describe a method of record keeping or design a record form for use for different activities at health post level.
- § List the principle of deigning survey records.
- § Maintain registers and records properly and correctly.
- § Enter data into the respective registers and records
- § Update data in the respective registers and records.

**Task 1: Entering data into various records and registers**

Records consists of the information kept in the health unit about the work of the unit, health conditions in the community and individual patients, as well as information on administrative matters such as staff, equipment and supplies. Records are usually written information kept in notebooks or fills; they may also be kept on to be computerized.

Records should be accurate, accessible, and available when needed, and contain information that is useful to

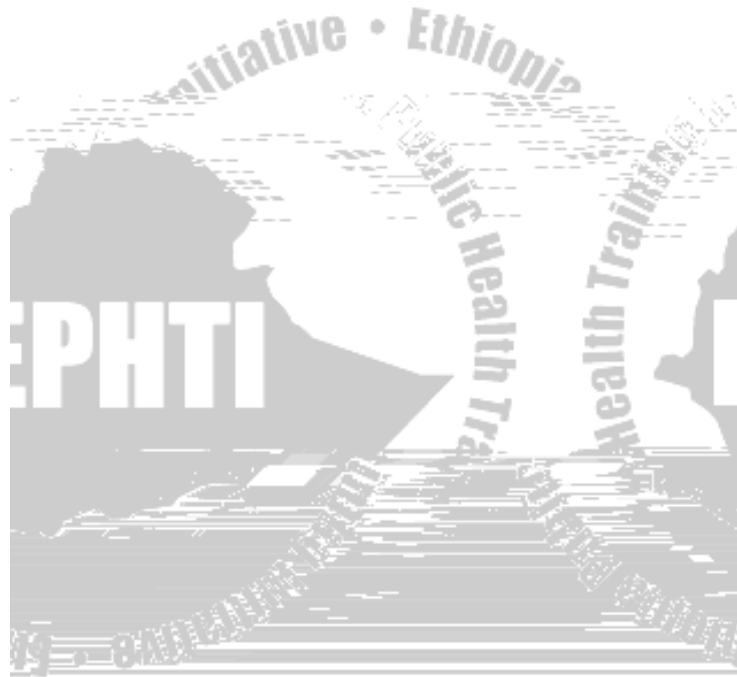


Documentation

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health bureau for recording the activities of Health Extension Workers.

Activity recording formats at Primary Health Care Unit





### **Setting up a filing system**

A filing system is an arrangement by which different types of papers are placed in separate files so that any paper can be found again rapidly.

Performances of a community health activity, based on collection, analysis and interpretation of data finally prepared to be reported and documented. Activity performances and all types of pieces of papers; including letters, receipts, invoices, reports, patients' record cards, minutes of meetings, pamphlets, leaflets, and drug prescriptions needs be kept in a filing system.

Sometimes documents are piled on desks so that it is difficult to find anything. Important documents are often placed in unknown files and are therefore lost. To make sure that any paper can be found whenever it is needed, a filing system must be set up.

A good filing system should have the following qualities:

- § There must be a place for every type of paper normally found in the health unit (an inclusive system).
- § It must be simple, so that staff members can maintain it (a simple system).

- § It must be possible to find papers rapidly when needed (irretrievability).

### **Filing arrangements (filing categories)**

There are several methods of filing used so far. These are:

- Alphabetical
- Numerical
- By subject
- Geographical

These methods can be used in health units in the ways described below. Often two or more systems may be used together.

#### **Alphabetical filing**

The files are arranged in alphabetical order, according to the first letters of the main name of the file. This system is used when there are large numbers of papers on similar subject. In health services it is the most useful for staff files.

Each staff member has an individual file. It includes personal particulars, employment and salary details, increment dates, and any correspondence relating to personal problems.

### **Numerical filling**

Each file is given a number and the files or record cards are then filed accordingly. However, a cross-reference file is needed in case, for example, patients lose their number cards.

### **Filing by subject**

Filing by subject is the most useful system for general purposes in small health units. All papers, documents, letters, etc. that do not belong to any existing file should be listed. A file should then be established for each subject category.

An example of such a list follows:

### **Correspondence**

Correspondence about patients (copies of referral letters)

Correspondence with supervisor or administrator (e.g. district or regional office at a higher level than the health unit)

All other correspondence (staff correspondence, in staff members' files)

**Funds and finance**

Requisition forms

Receipts

Issue vouchers

Petty-cash vouchers

Inventories

**Geographical filing**

There should be a file for each village, containing information such as names of leaders, dates of markets, special problems, traveling times and distances, types of transportation, etc. This is particularly useful for supervising district work, such as mobile clinics or home visiting.

**Arranging and indexing a filing system**

Filing does not always achieve its main objective, which is to allow any paper to be found any time it is needed, because papers are often placed in the wrong file, or files are not arranged in any order, or files are not indexed.

An index is a list (usually alphabetical) that refers to the place where an item or article may be found. For example, a book has an index at the back, which refers

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to a page in the text where a particular subject is found.

A filing index refers to the name or number of the file or register where certain topics are recorded. Such a list can be typed and placed on a wall, board in an office. An example of a health-unit office index is shown below;

<b>Information</b>	<b>Location</b>
Administrative and other letter	Files, top shelf
Cash book	Right-hand drawer of desk
Clinical records	Box in outpatient department
Discharge forms	Ward table
Inventories	Store cupboard
Issue vouchers	Store cupboard
Leprosy cards	Box in outpatient department
Monthly reports	File, second shelf
Petty-cash vouchers	Right-hand drawer of desk
Receipts	Store cupboard
Requisition forms	Store cupboard
Stock ledger	Store cupboard
Tuberculosis cards	Box in outpatient department
Village information	By name, third shelf

### **Registers or ledgers**

Not all records in a health unit consist of loose papers. A number of items are recorded in large books usually called registers or ledgers.

### **Where to find files, registers and ledgers**

Files, registers and ledgers are best kept where they are used; for example, the laboratory register is kept in the laboratory, the admissions register in the ward, the stock ledger and receipts file in the storeroom or cupboard, correspondence in the office, and patients' files in the outpatient department. Wherever they are kept, they need a definite place on a shelf or in a cupboard where they can be found easily.

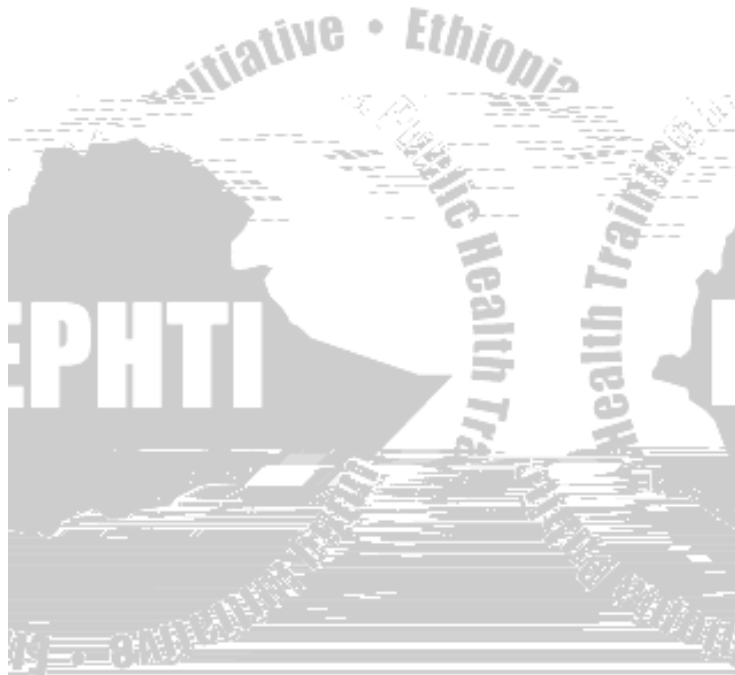
Where a number of files are kept in an office the shelves should be clearly labeled. The place where each document is kept is recorded in the office index.

### **Office accessories**

In addition to documents there are office accessories, for which space must be provided on a shelf or in a cupboard. These accessories include stationery and envelopes, official forms, glue, scissors, adhesive tape, wrapping paper and string, pens, pencils and ink, stencils and duplicators.

## Task 2: Periodic updating of data

Data once registered needs frequent updating during the different time trends. Updating registered data can be done in two ways.



3. Special survey records, for investigating special occasions in the community.

### **Importance of periodic recording**

Periodic updating of records has the following importance for improving the health care delivery system.

#### **1. Improving quality through patient records**

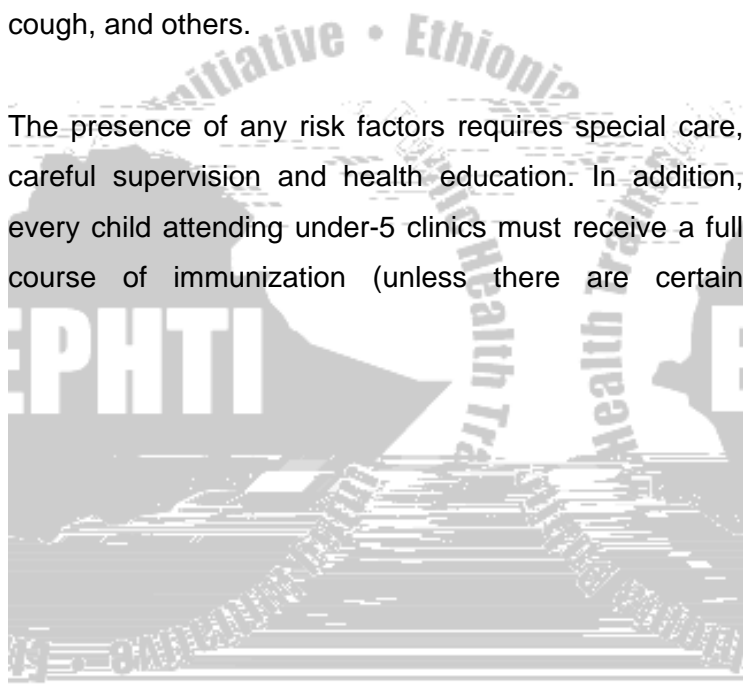
Sometimes health workers may not properly record after diagnosing patients. He/She may simply make notes on a slip of paper of the treatment he/she is prescribing for the patient which the patient takes to the pharmacy. In other situations, the clinic or dispensary may try to keep records, filed perhaps by the patients name or by sequential card number. The information in these records varies with how busy the health worker is and how sick the patient is. One may find recorded symptoms (such as fever, diarrhea, etc) or a diagnosis (malaria, hookworm, etc), or simply the treatment prescribed. In some cases the writing is so bad that it is almost impossible to understand what was written. Patient records are used as a way to help a health extension worker to carry out primary, secondary and tertiary prevention.



### **Patient records and primary prevention**

When you see a child attending an under-5 clinic, your mind find out whether that child is at risk for malnutrition by recording the child's pattern of weight gain or loss on growth monitoring chart and by finding out about certain events, such as; weaning, recent measles or whooping cough, and others.

The presence of any risk factors requires special care, careful supervision and health education. In addition, every child attending under-5 clinics must receive a full course of immunization (unless there are certain





Records which tell what action must be taken are called action-oriented records. Action-oriented records improve the quality of services.

A good way of making sure our records are “action-oriented” is to mark each part of the history or examination where action is required. For example, in one antenatal card, asterisks are used to indicate action.

\* Means hospital delivery

\* \* Means immediate referral to a doctor

## **2. Detection of Epidemics**

Another important function of records is the early detection of epidemics of disease. It is important to know how to keep records in a locality where the health extension worker is assigned which helps to detect early epidemics of important and dangerous diseases. For example, an epidemic of measles may be hard to detect in the early stages if records are not kept. A health worker who sees an average of five cases of measles a week would probably miss an increase to 10 or 15 cases in on a week unless he/she had been keeping routine records.

### 3. Planning and Organizing Health Services

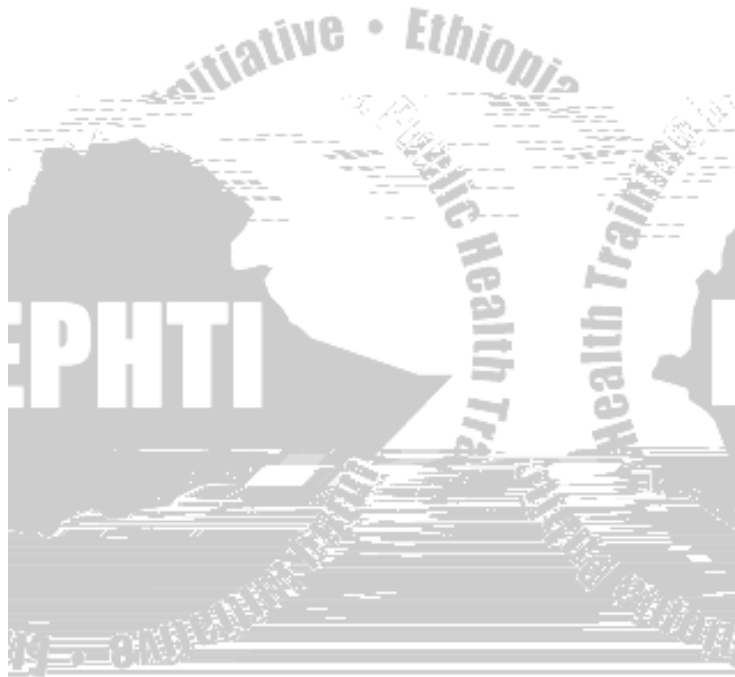


Table 3. Example of Health Extension Worker case report format

Disease	Mo n	Tu e	We d	Thu s	Fi r	Sa t	Weekly Summar y
Symptom							
Scabies							
Malaria							

NB: other diseases/symptoms could be added to this list.

This record could be used if the health extension worker wanted to investigate time trend in certain conditions. e.g. to see whether cases of child malnutrition is larger or smaller in number or percentage in this week or month than in previous weeks or months.

#### 4. Survey records

Survey is a way of collecting information. There are different types of survey or special investigation which includes prevalence surveys, demographic surveys, KAP surveys and surveys of users of health services. In each of these types of survey, there is a need to design and use a record form. If the information collected is fairly simple, then one piece of paper or a book may be used to record the required information on all the

individuals in the survey.

If the survey information is more complicated than this or if one needs to do any special analysis, e.g. examining the children for the presence of various parasites and to relate this information to methods of excreta disposal at the child's home, then it is necessary to keep a separate record form for each individual in the survey.

It is important to clearly indicate on the record what information is to be collected and how it should be recorded. Whenever possible, responses to a given item should be listed so that the person filling out the record form has only to tick the appropriate box. It is also helpful to number the boxes for each possible response.



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Example: marital status (tick one):

1	<input type="checkbox"/>	Married
2	<input type="checkbox"/>	Single
3	<input type="checkbox"/>	Divorced
4	<input type="checkbox"/>	Separated
5	<input type="checkbox"/>	Widowed
6	<input type="checkbox"/>	Unknown

Another example, using age divided into convenient groups.

Age in years (tick one)

1	<input type="checkbox"/>	0-4
2	<input type="checkbox"/>	5-14
3	<input type="checkbox"/>	15-44
4	<input type="checkbox"/>	>45
5	<input type="checkbox"/>	Unknown

This type of procedure is known as pre coding. All the responses or results of interest to the item in the survey are given a code. It is easier to pre code the information before the survey is carried out than to try to code the information after words.

**Records should be:**

- Simple
- Clear and
- Standardized

**Exercise**

Go to the nearest health institution in group and ask permission to look at the different records and registers of the institute, then:

- a) Differentiate patient cards that enable the health worker to carry out primary, secondary and tertiary prevention in individual patient.
- b) Which of those records indicate action that should be taken?
- c) Try also to observe how register are filed and made a comment about the filing system which finally be reported to your trainer.



## DUTY FOUR

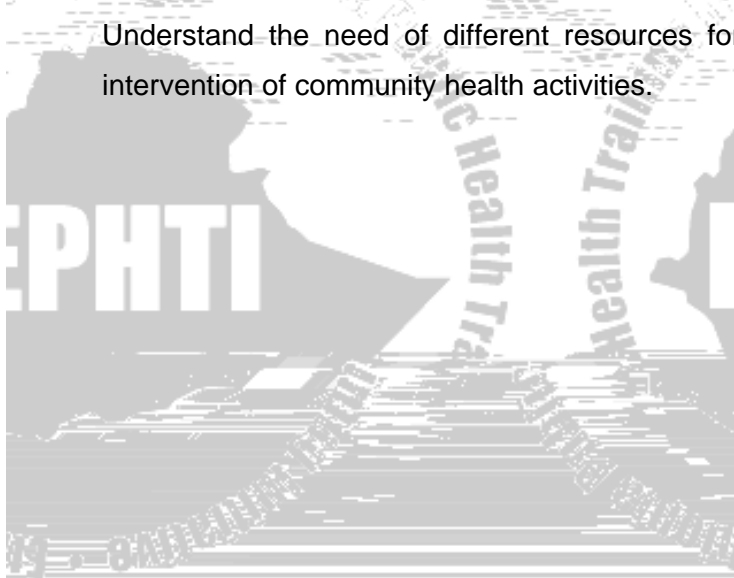
### Preparing Plan Of Action

**Learning objectives:** At the end of duty four, trainees will be able to:

Explain the importance of planning.

Acquire knowledge and skills for the preparation of health action plan for a community.

Understand the need of different resources for intervention of community health activities.



### **Task 1: Prioritizing health problems and identifying high- risk groups**

Health planning is the process of defining community health problems, identifying needs and resources, establishing priority goals and setting out of the administrative action needed to reach those goals.

A good plan should give:

Clear goal and objectives.

A clear picture of tasks to be accomplished.

The resource needed to accomplish the tasks in terms of human, materials, financial and time resources.

Planning takes place at any level in health system. Planning takes place continually and it is a cyclic process. Planning can apply for large program at national level (example, malaria control program) and at small one – at village level (example, construction of latrines). Planning requires the participation of different professionals, community, governmental or non governmental organizations, party, etc.

There are two types of planning:

1. Strategic planning – often referred as allocative planning, it is long term plan. i.e. normally five

years or more.

2. Tactical or operational planning - referred as activity planning. It covers a short period of time. i.e. one year or less.

### **Steps in planning**

The aim of presenting the planning process in steps is to provide a general frame work of action to be performed to ensure a systematic approach. However, many activities may be carried out at the same time providing a mutually supportive flow back and forth among stage of the process. In the process of planning, one has to consider several steps at the same time.

### **In the health planning process, there are six steps.**

1. Situational analysis
2. Selecting priority health problems
3. Setting objectives and targets
4. Identifying potential obstacles and limitations
5. Designing the strategies
6. Writing the action plan

**1. Situational analysis:** is the first stage in the development of a plan. It improves the understanding of the current situation of the community or village. The



1. **Magnitude of the problem:** size or extent of the health problem in the community
2. **Degree of the severity:** urgency, seriousness of the health problem, and severity of economic loss.
3. **Feasibility:** in terms of cost effectiveness and social acceptability of intervention i.e. effectiveness of intervention.
4. **Community concern:** felt need of the community.
5. **Government concern:** priority health problem of the country, national health policy, regional health objectives.

During prioritizing of health problems people give ranks according to their importance. This can be done by using the criteria on five point scale.

5 points – very high

4 points – high

3 points – moderate

2 points – low

1 point – very low

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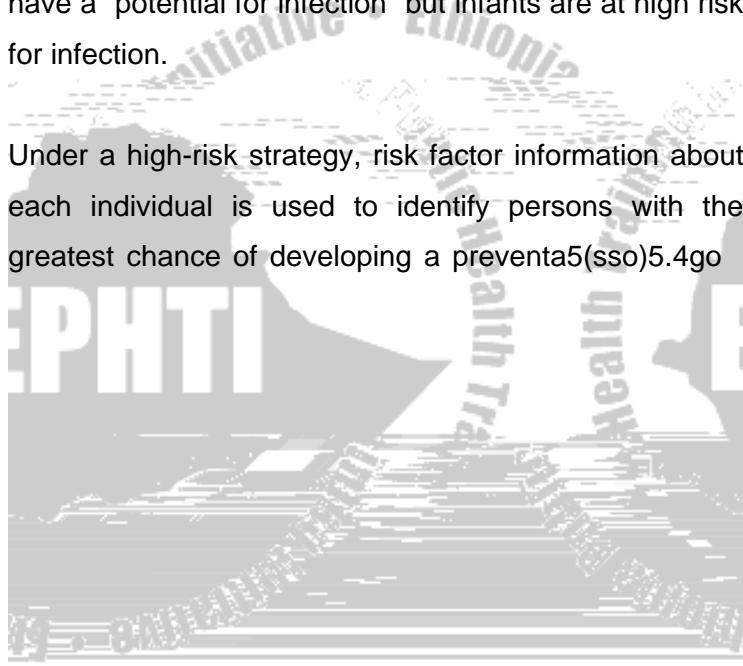
Disease conditions	Magnitude of the problem	Degree of severity	Feasibility	Community concern	Government concern	Total	Rank
Child with malaria	3	3	3	2	4	15	1
Unvaccinated child	3	3	3	2	2	13	2
Child with kwashiorkor	3	3	3	1	1	11	4
Child with polio	2	4	2	2	1	11	4
Adult with TB	3	3	2	2	2	12	3
Elder person with cancer	1	5	1	1	1	9	5

Table 4. An example of criteria ranking for different health issues.

**Concept of high risk**

High-risk groups are those groups exhibiting the symptoms of potentially abusive or neglectful behavior or under the types of stress associated with abuse or neglect. High-risk groups are more susceptible to developing health problems. For example all individuals have a “potential for infection” but infants are at high risk for infection.

Under a high-risk strategy, risk factor information about each individual is used to identify persons with the greatest chance of developing a preventable disease.



	1980	1982	1984	1986
Total population	810,000	870,000	910,000	950,000
Birth per 1000	38	32	29	21
Neonatal death (per 1000 live birth)	29	27	30	26
IMR (per 1000 live birth)	120	100	90	84

You would like also to know how the community sees its own problems. Assume that you have spent a considerable amount of time discussing the matter with the people in several villages. Their views can be summarized as follows. "Ours is a happy society, but too many babies die before they are born and many others only live a few days. Many children have diarrhea and become weak, some die. Our women are tired and weak and can not look after our children and some die during child birth. We are most grateful to the health professionals who work hard to give the vaccines to our children. But we do not understand why they want us to grow sorghum and cook it for our children".





For each chosen strategy, the corresponding activities to be undertaken and the resources needed should be detailed, including who will do the activities( job description of all involved personnel) which things would be needed (equipment, money) , where the work will be done (village, school etc.) and the methods of monitoring and evaluation.

## 6. Writing the action plan

Out line of writing the plan may include:

1. **Summary-** (of the main points raised in the document) – it gives a clear idea of what is going to be done with out going through the plan document.
2. **A problem statement-** (explanation of the back ground , the problem to be dealt with, the reason for understanding the plan)
3. **Objectives and targets** – to be clearly stated.
4. **Strategies and activities-** (responsibility should be allocated for each activities)
5. **Resource** needed and how they are going to be utilized, specify budget required.
6. **Monitoring and evaluation** (periodic and end of the program, assessment how, by whom, when indicators of effectiveness)

**Example, outline Program in maternal care.**

**The problem:**

An isolated mountainous community has no antenatal care and a high rate of maternal and neonatal deaths. Because of poor infrastructure, there is no well constructed road to reach the community.

**Objectives:**

To give both antenatal and delivery care for about 60% of pregnant women with in the next year.

**Strategies and Activities:**

The work is to be done by traditional birth attendants. The strategy is to train a nurse-midwife who will then train the TBAs. She will visit the village once a week for this purpose. Activities in detail should show on the table form.

**Resources:**

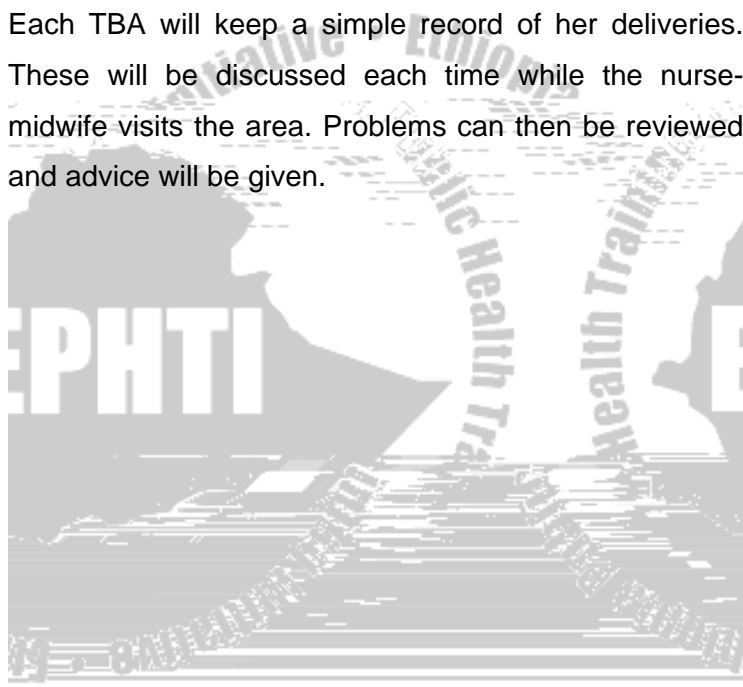
Nurse-midwife 'X' has been chosen for a short course in the training of TBAs. Her Job description can be shown in detailed. The community will voluntarily select the TBAs for training. Equipment lists and budget can be shown on table form.

**Organization:**

The training of TBAs will take place in health center and the village hall. And the schedule of work plan can also be shown on the table.

**Monitoring and Evaluation:**

Each TBA will keep a simple record of her deliveries. These will be discussed each time while the nurse-midwife visits the area. Problems can then be reviewed and advice will be given.





**Task 2: Estimating workload and resource requirements for each component of the service.**

**Estimating work load**

People like to do useful and worthwhile work, helpful to other people and helping themselves achieve their ideas. A health person likes to do work that they can see as contributing to the objective of health institutions. For successful community health activities the health worker should set an appropriate time for each activities or she/he should estimate the workload of all involved persons.

Workload balancing through proper scheduling of demand or capacity ensures that health workers, equipment and facilities are used efficiently and the community benefits at large.

The performance of daily activities requires many elements such as, people, time, equipment, materials, drugs, etc. that are brought together to achieve an objective and to carry out the work.

### **Resource requirement**

The successful performance of activities and the achievement of objectives depend on the application of knowledge and skills to problem solving, using all the necessary resources in the most efficient way. Efficiency depends up on how these different elements are managed.

Improper utilization or limitation of these resources will prevent the full attainment of objectives. Proper attention to such details will ensure that, when knowledge and skills are applied to a problem solving, they will be supported by resources that functions and a system or health institution that enables the work to run smoothly. Timely distribution of materials and supplies is important for efficient and effective activities.

Each Health Extension Worker need a list of supplies and equipment needed for each activity.

### **Exercise**

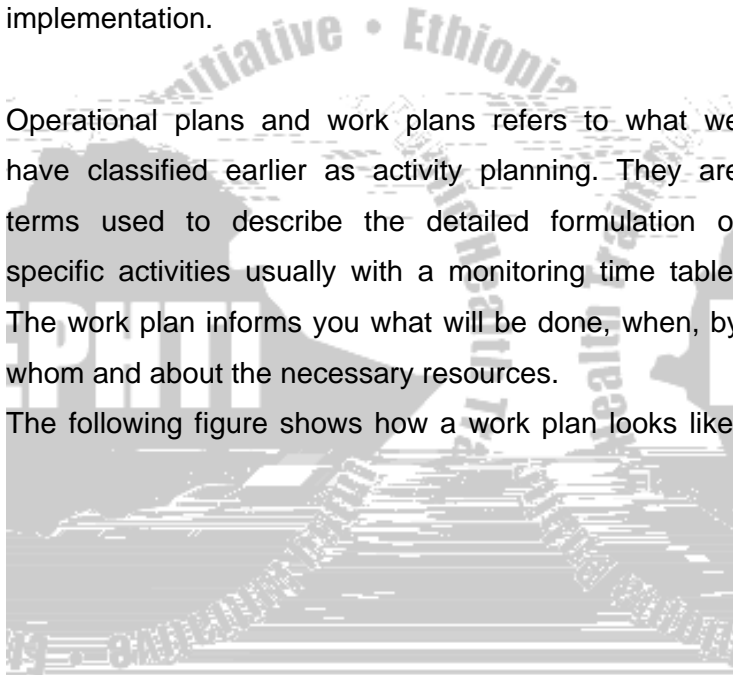
List down different types of resources that are required for HEW activities.

**Task 3: Preparing a plan of action for providing day to day services:**

Work plan is operational plans referring to the activities of a small unit or of an individual. Operational plan refers to activity plans detailing precise timing and mode of implementation.

Operational plans and work plans refers to what we have classified earlier as activity planning. They are terms used to describe the detailed formulation of specific activities usually with a monitoring time table. The work plan informs you what will be done, when, by whom and about the necessary resources.

The following figure shows how a work plan looks like.







## DUTY FIVE

### Monitoring And Evaluation Of Activities

**Learning Objectives:** At the end of duty five, trainees will be able to:

Discuss how to monitor implementation.

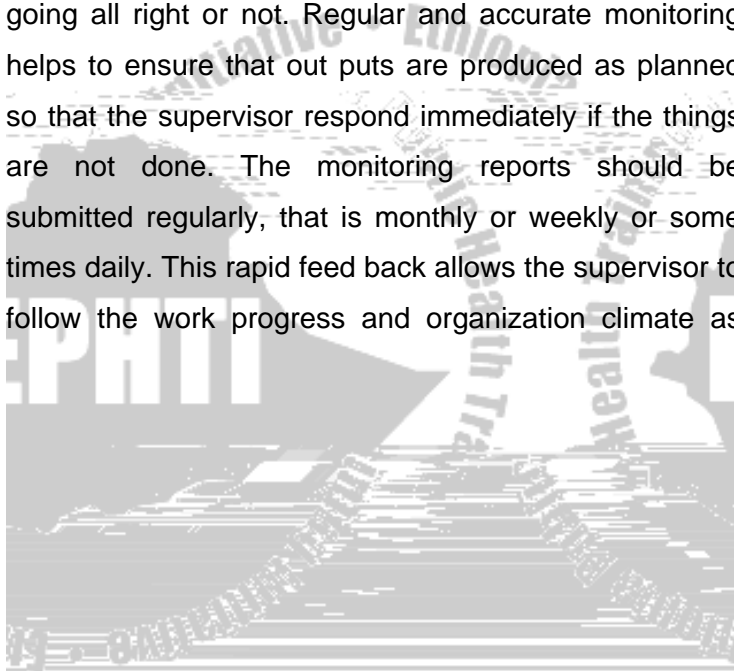
Do periodic evaluation for action plan.

Explain how to review feed back from supervisors.



**Task 1: Monitoring implementation of health programs**

Program monitoring used to improve the performance by influencing immediate decisions about how activities can be improved. This helps to know whether the things going all right or not. Regular and accurate monitoring helps to ensure that out puts are produced as planned so that the supervisor respond immediately if the things are not done. The monitoring reports should be submitted regularly, that is monthly or weekly or some times daily. This rapid feed back allows the supervisor to follow the work progress and organization climate as



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- § Discussing progress and difficulties with staffs and communities.

### **How to monitor program**

1. Establish data source
2. Collect data on program implementation and out comes
3. Compare program out come with prior or expected out comes
4. Assist in making policy and management decisions.

#### Monitoring of input includes:

- § Availability of staffs
- § Resource consumption and costs are within planned limit
- § The required information is available
- § Community groups or individuals participate as expected.

#### Monitoring of process includes:

- § Work progress according to schedule
- § Addressing of expected function
- § Communication take place as necessary
- § Work planned (standard) are met, etc

**Monitoring out put includes:**

- § Products meet as specified
- § Delivery of service as planned
- § Decision are timely and appropriate

**Example**

One of the health programs at health post level is immunization and monitoring for such activity can be undertaken as follows.

**Monitoring of input includes:**

- How much vaccine is available?
- The number of staff for out reach program.
- Availability of transportation
- The people participation actively, and etc.

**Monitoring of process includes:**

- Revise report as the plan going well
- Discussing the difficulties in out reach, etc.

**Monitoring out put includes:**

- Revise reports and compare the achievements with the plan and identify if there is any deviation
- Check that the problem encountered devised timely.

Check the deficiency has got right decision, etc.

### **Task 2: Review of feed back from supervisors**

A feedback can be a response to the reports or activities on the field for the worker or organization. The feedbacks from the supervisors can be teaching, motivating and helps to rearrange working conditions or improving quality of work.

Any feed back should be:

- A. Timely - the information generated is in time for remedial action to be taken
- B. Reliable - based on facts.
- C. Precise - focuses on performance which needs to be addressed
- D. Relevant - related to the activities.

Example, Let us say a patient referred from health post to health center by HEW. A feed back is expected from the Health Center to Health Post. Therefore, HEW can acquire knowledge and skills from senior health professionals on how to deal with such problems. She/he can learn also on how to manage the scarce



**Evaluation has five steps**

**Step1.** Deciding what aspect of the program to evaluate for efficiency and how to measure and assess efficiency. Normally a plan of action outlines the work of a health team. It lists necessary activities; indicate what they (health team) should achieve, who should perform them, when each activity should take place and how each activity would relate to the other.

So the question that should be asked here are:

Were the planned activities completed?

Did they achieve their target for specified period?

Did they perform the task on time with allocated resources?

For example, assume that one of the plans in health extension package program is to give contraceptive pills for 100 mothers during home to home visits in a year.

**Step2.** Collect necessary information about the result and the previous situations.

Let assume in the above example HEW delivered pills for 22 mothers in three months time.

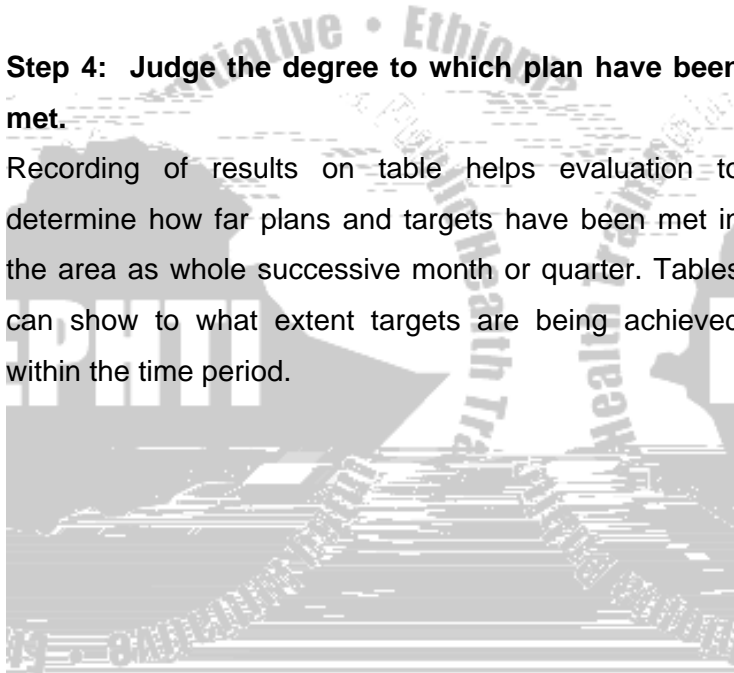


**Step 3:** Compare achievements with plan and target. Collected information should be tabulated to show the results. It is necessary to prepare tables for each evaluation period.

In the above example the quarter plan is 25, and the result obtained is 22.

**Step 4: Judge the degree to which plan have been met.**

Recording of results on table helps evaluation to determine how far plans and targets have been met in the area as whole successive month or quarter. Tables can show to what extent targets are being achieved within the time period.



**Exercise**

1. Discuss in group how to monitor MCH activities in health post.
2. Explain how to make periodic evaluation of your plan if one of your plans is to increase family planning users by 20%.
3. Elaborate the difference between monitoring and periodic evaluation.



## DUTY SIX

### Maintaining Stock

Learning objectives:



## **Task 1: Maintaining stock**

### **Importance of Maintaining Stock**

Good management takes care of equipment by:

- § Instructing and motivating staff to feel responsible for the equipment they use
- § Ordering supplies when needed
- § Storing supplies safely
- § Controlling the use of supplies.

Why is it important to keep accurate records of equipment? Why we take the trouble to keep requisition books, stock ledgers, issue vouchers and inventories? Is all the paperwork a waste of time and effort? In fact, there are several good reasons for doing the paperwork:

1. Previous order records make subsequent orders, whether the following month or the following year, much quicker and easier. They show suppliers' addresses, item reference numbers, normal quantities required, etc.

3. Issue vouchers encourage workers to the

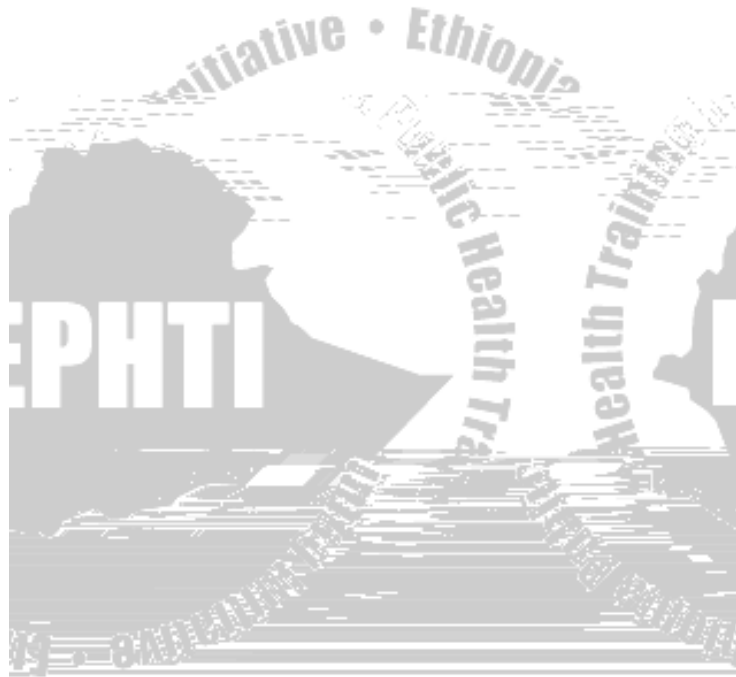






Table 7. An example of registering during receiving of new item and issuing an item in order to maintain balance in stock.

Item	Date	Received from	Invoice	Quantity received	Quantity issued	Balance in stock

## 2. Storing Equipment

Equipment is stored in two places. The first is the main or reserve store where stocks are kept but not used. And the second is the place of use, after the equipment is issued from the main or reserve store.

To store equipment/stocks the following skills are necessary.

1. Recording the receipt of new article and the issue of articles.
2. Keeping a stock-book or ledger in balance.



## **Task 2: Requesting Required Stock**

In Ethiopian setting, the required stock for the coming year is requested before the start of the next fiscal year. The new fiscal year or budget year starts every July and material requisition should be filled and delivered to the Woreda Health Department one or two months before this time depending on the ease of communication between the health services. The amount of material or equipment requested is primarily based on consumable capacity of an institute or organization. During requesting annual stock requirement, HEW can use as a reference of the amount used in the previous year.

While making a list of materials /equipments/items for the purpose of ordering or purchasing the following percussion needs to be given attention:

- š The list of the item should be prepared according to the expected place of purchase; for example:

- Paper and torch battery can be bought from a local shop
- Thermometers and other medical equipments can be order from the Woreda Health Department's medical store

- § The type of each item required be written down accurately; for example:
- Torch battery, 1.5 volts
  - Syringe, 5 ml Luer fitting

**The quantity of each item should be estimated**

The available resource may not always match with the need. Priorities must therefore be established among needs, and the needs must be balanced against available budget/fund. Usually, the amounts or kinds of materials that the Health Extension Worker wants to order/purchase must be reduced until they correspond with the funds/budget available to purchase them. For this, a cost estimate must be made before completing the order form. The items required, and their quantity, price per unit and total price should be listed in the tabular form as shown below.



Table 8. This table can be used for preparation of cost



"model" 19 model for confirming delivering of items/drugs.

"Model"20 model for requesting items/drugs.

"Model" 21 model for approving item delivery by person in authority.

"Model" 22 model for issuing items/drugs.

"model" 70G model for recording items received and delivered.

"model"70A model for recording items issued.

"model" 70K model for balancing items received and issued.

### **Task 3 .Issuing from stock**

After equipment/material has been ordered, received and recorded in the stock-book or ledger, it is issued for use when it is needed. Three paperwork procedures are involved in issuing equipment/materials from stock.

1. A ledger record (writing the issue in the stock lodger)
2. Issue of a voucher which must be signed
3. An inventory record of the section receiving and using the equipment or material.

**Ledger record**

When an issue is entered in the stock ledger, the balance of items remaining in stock is calculated by subtracting the quantity issued from the total in stock. When the balance reaches a certain low point, it is time to order new equipment. This is most important; unless issues are recorded in the stock ledger and the balance of stock remaining is calculated, it is very difficult to know when to order more stock.

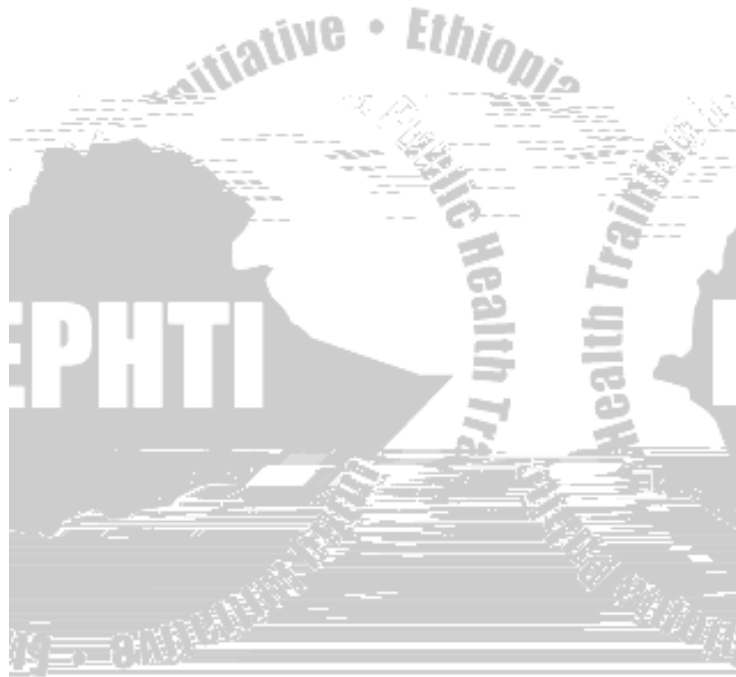
**Issue voucher**

The issue voucher is an official form on which the following need to be recorded:

- § Date of issue
- § What is issued, in what quantity, and its page number in ledger
- §

### **Updating stock periodically**

An Inventory system is an important tool for updating stock

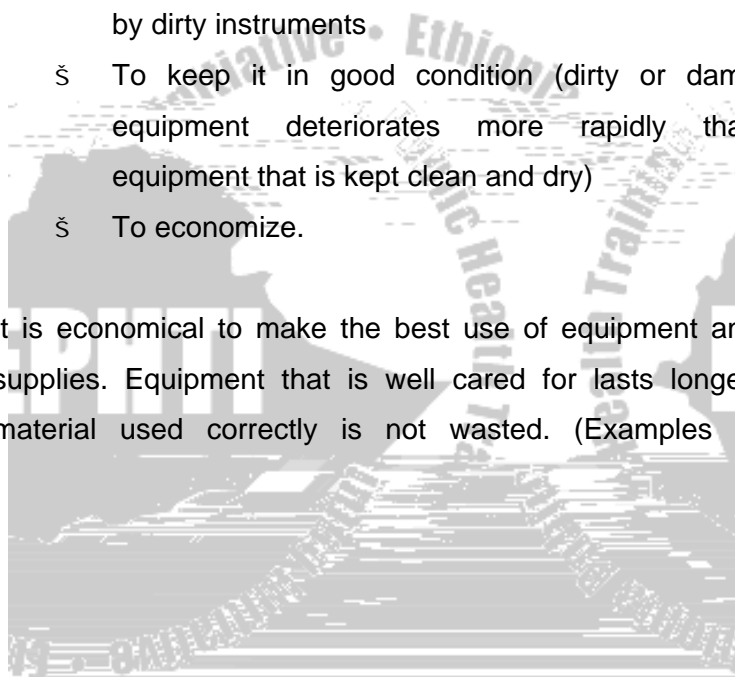


### **Convincing staff of the importance of maintenance**

There is no easy way to convince staff of the need to clean equipment and keep it in good condition. The best way is for the supervisor to set a good example and to emphasize that equipment must be cared for:

- § To prevent transmission of infection, for instance by dirty instruments
- § To keep it in good condition (dirty or damp equipment deteriorates more rapidly than equipment that is kept clean and dry)
- § To economize.

It is economical to make the best use of equipment and supplies. Equipment that is well cared for lasts longer; material used correctly is not wasted. (Examples of



consumable or long-lasting and whether it is liable to break down.

Consumable items need to be checked frequently to avoid wastage and extravagance. Long-lasting equipment such as beds, tables and chairs needs to be checked only once a year. Equipment and machinery that is liable to break down (e.g. sphygmomanometers, electric sterilizers, and vehicles) need regular and more frequent check-ups.

### **Detecting and interoperating discrepancies**

A discrepancy' is a difference between what is reported and what is found, for instance a difference between the amount of something actually used and the amount normally expected to be used, or a difference between the equipment entered on the inventory list and the equipment actually present.



**Exercises**

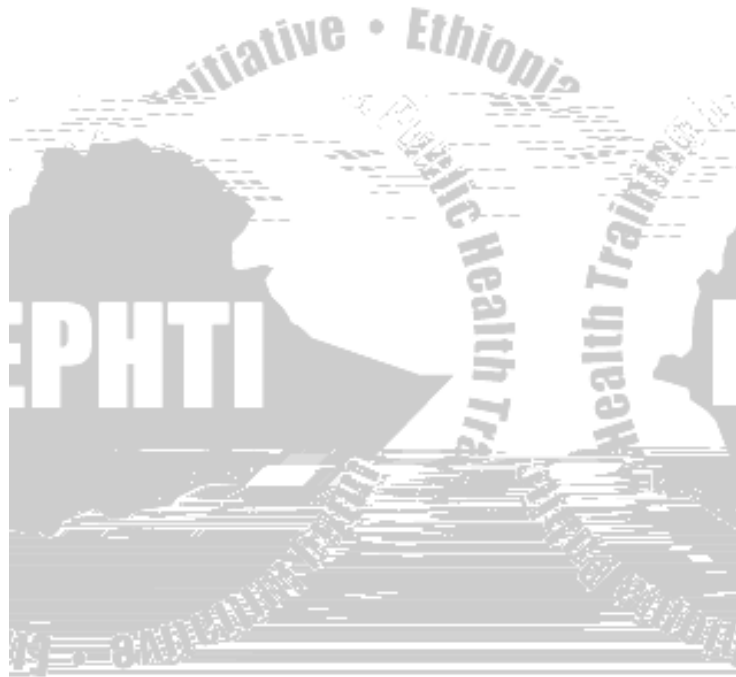
1. Use the format of stock lodger (shown on task 1) and record the amounts of each item listed below.

5 kg cleaning cloth	10 1-liter glass jar with lids
m1 DoQBT/Tauze0cises	



made on 16/12/2003 for four kebele health posts.

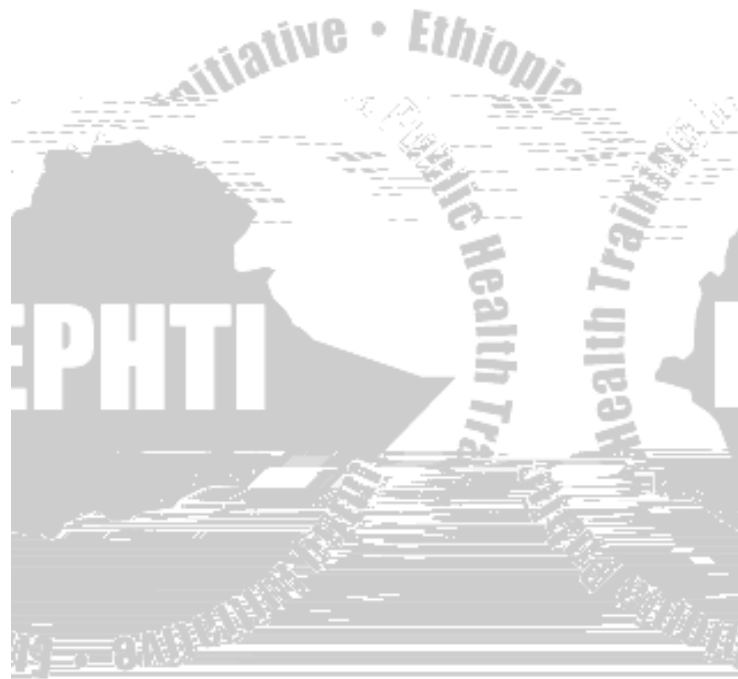
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**Learning objectives-** what a learner should be able to do after, and as a result of, the learning process, which he or she could not do before.

**Limitation-** a deficiency of necessary resource (personnel, materials, money etc)

**Monitoring-** observing, measuring and recording the way activities are being implemented. Monitoring leads to control.

**Objectives-** the planned or intended result of a program or activity.

**Plan-** a statement of goals, objectives and outputs, and a description of the courses of action and the resources necessary to achieve them.

**Priority-** a preferential rating that indicates importance or urgency, according to given criteria.

**Resources-** the means (personnel, materials, money) required for the implementation of a Program or activity.

**Sample-** a subset of population, representative of the total

population, used for estimating some property or properties of the population as a whole.

**Strategy-** a broad approach to achieving goals, with in

