

**ADDIS ABABA UNIVERSITY  
GRADUATE STUDIES**

**ASSESSMENT OF UTILIZATION OF HEALTH INFORMATION SYSTEM AT  
DISTRICT LEVEL WITH PARTICULAR EMPHASIS TO HIV/AIDS PROGRAM IN  
NORTH GONDAR ZONE AMHARA NATIONAL REGIONAL STATE**

**BY**

**GASHAW ANDARGIE (BSc.)**

**A THESIS RESEARCH SUBMITTED TO THE DEPARTMENT OF COMMUNITY  
HEALTH, MEDICAL FACULTY, ADDIS ABABA UNIVERSITY FOR THE PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF  
PUBLIC HEALTH (HEALTH MANAGEMENT SPECIALITY)**

**ADVISORS: DR. MESFIN ADDISSE (MD, MPH) - AAU**

**JUNE 2006**

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## **DEDICATION**

This work is dedicated to my beloved wife W/ro Astede Berhanu whose encouragement and help gave strength to successfully finish this MPH course. I would also like to dedicate this thesis to my daughters Hermela Gashaw and Betelhem Gashaw.

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## **Acronomy**

- 1.WHO-** World Health Organization.
- 2. HSDP-** Health Sector Development Program.
- 3.HIS-.** Health Information System.
- 4. HMIS-** Health Management Information System
- 5. HIV.** Human Immuno Virus.
- 6. AIDS-** Acquired Immune Deficiency Syndrome.
- 7. ESHE-** Essential Services of Health for Ethiopia.
- 8. HC.** Health center.
- 9. WHOs-** Woreda Health Offices
- 10. OPD-**out patient department
- 11. DOTS-** directly observed treatment short.
- 12 MCH-**Maternal and Child Health
- 13. EPI-**Expanded Program on Immunization.
- 14. VCT-**voluntary counselling testing.
- 15.TB-** Tuberculosis.
- 16. CDD-**control of dihearal diseases.
- 17.MOH-** Ministry of Health.

## **ABSTRACT**

Given the magnitude of health problem in Africa, health services provision is a crucial component of any national development. To make practical this development, utilization of information for informed decision-making at all level of data generation must be implemented especially on HIV/ADIS. But studies shows us in Africa, the utilization rate of information at all levels where 10% and 20% in Ghana and Uganda respectively. In the interests of improving health sectors, the Ethiopian government has engaged in the sector reform, including a process of decentralizing decision-making and budgetary power to the district levels. To facilitate informed local decision-making it is not well implemented a health information system to timely and accurately to provide each level of the health sector with the necessary information.

Cross sectional study was conducted from October/2005 -April/2006 to assess utilization of health information system in particular on HIV/ADIS at district health level in North Gondar, Amhara Regional stated. Quantitative data were collected using pre-tested and standardized questionnaire. In addition, reviewing of records was done in the units and departments using observational checklist to supplement quantitative data.

Data was entered, cleaned and analyzed using EPI info and SPSS statically packages. Descriptive analysis was done for utilization rate of information for informed decision making by age, sex, and educational level, training, years of service, salary and position in the organization. Chi – square test, odds ratio and confidence interval was calculated to show the association between outcome and exposure variables. Logistic regression analysis was done to control confounding effect of each other.

The total out come of this research paper was found be the utilization rate of information was 22.5% in all the study units and 8% especially in HIV/AIDS units and the general implementation of health information system was also found to be 12%. The source of data was found as routine reports, weekly identifiable diseases reports, vertical program reports and sometimes survey results. The utilization rate of information was affected by many factors but

from this research only salary and training and Presence of standards data collection methods, transmission, processing, and reporting rules was found to be significant at 95 % level of significance. So we can conclude that the utilization rate of information and implementation of health information system was found to be very low in the study area. We recommend that motivation of staffs and training of individual and strengthening of Presence of standards data collection methods, transmission, processing, and reporting rules should be given attention.

## **1. Introduction**

Today's health care system in developing countries has undergone many structural changes over the years in response to prevailing health problems and in recognition of weakness in the existing health delivery system (1). Global infectious threats, scrutiny of progress towards the millennium development Goals, and performance-based release of donor funding have all contributed to this increased awareness of the need for evidence. Decentralization and delegation of budgetary controls have shifted much of this growing burden to the periphery, requiring districts to provide local health statistics as a basis for decision-making. Increase in the global investment to control AIDS has begun to lift the historical financial barriers, but have brought into sharper focus the dual underlying constraints of human resources and health information (2).

Currently, in Ethiopia, the emphasis of health systems development aims at the district level. Based on primary health care the district health system is supposed to be self-contained segment of the national health system and it comprises a well-defined population within a clearly delineated administrative and geographical area (3). The district health offices are coordinating the diversified spectrum of health services at the district level and the system contains a network of primary health units such as health center and health posts and district hospital in some areas. According to WHO, a district health system includes all the relevant health care activities such as promotive, preventive, curative and rehabilitative health services (1).

Recognizing the manifold responsibilities of the district health team and the need to allocate scarce resources, the necessity of health management based on adequate information use become obvious and crucial. The main constraint to implement the primary health care approach

as reported by most countries is inadequate information for the managerial process (1). As commitment to health sector reform has strengthened, the realization of a good information system is necessary to support reform. Many important operational decisions were made at district level. Increased decentralization and increased focus on preventive and primary health care will increase the importance of decisions made at districts, moreover; a good management system at a district level increases efficiency and effectiveness of woreda level decision makers (4)

The needs of and the expectations in information systems in a district health system in a developing country must be seen in the context of the involved health systems. These are different from health systems in industrialized countries mainly due to the available resources. The historical background of a health system and the cultural set up also has an impact on the structure of health systems as they are today.

In literature, the terms "Health Information System" and "Health Management Information System" are used alternatively for information systems in district health systems, while the latter is becoming more popular. Both terms basically refer to the same thing. The term "Health Information System" tends to be used with more impact on the nationally organized health statistics. The term "Health Management Information System" is often used with the intention, to broaden the view towards the management impact of an information system. This term also values the need for resource management, logistics and staff information. Since in this particular thesis the focus is on information processing directly related to health, the term "Health Information System" shall be applied. But this does not exclude the integration into the managerial process (WHO, 1987).

The complex nature of district health system brings a complex nature of the involved information system. An information system in a district health system can be defined as the partial system of a district health system, which dealing with, data generation, sharing, analysis and complete information processing and storing of the district health system. The information system has to make available: - the right information, the right knowledge, to the right persons and institutions, in the right form, at the right time, and in the right place. This broad definition comprises the various expectations in information systems for district health systems. The scope of the needed information ranges from mortality and morbidity data over stock control data to knowledge on how to prevent certain diseases. The right persons and institutions include for example the members of the district health team, the ministry of health, and the donor agencies which promote vertical programs and also the communities and individual clients of a health service. The right form for a morbidity report to the ministry of health might be just a computer printed list, while donor agencies require a much more complex impact evaluation. On the other hand, the right form for health education requires a very informal, but culturally embedded and educational sound presentation of health issues. The right time for information about an upcoming cholera epidemic differs from the right time for sporadic oral health education seminars. Looking at the right places, it is evident that transport plays an essential role in information systems (3, 4).

Research done in most parts of the world reported that information collected using top- down system would have little value for health care action at the site of data generation because it was supposed to be inappropriate and erroneous (4,5). This does not only make accurate data collection difficult but considered as not useful for decision- making (5). A similar study done in Ghana and Uganda about the utilization rate of information suggested that not more than 10%

and 20% of the information enter in a register is ever used to improve management in any meaningful way respectively (6-8). The importance of Health information systems have increased from the existence of primary health care to create better opportunities for community oriented decision making rather than political and bureaucratic supervision (5).

According to 2002/03-2004/5 Ministry of Health HSDP II report there is lack of coordination in leadership, strategy, policy, and of having skilled human resources and of guidelines, timeliness, and completeness of health information system. Health information system remains poor and these problems contribute to the failure to use data as the basis for informed decision-making in planning and other management functions. This situation is observed in most parts of the health sector in general, and especially in the area of HIV/AIDS particularly, where much has to be done to develop strategies to know the magnitude of the disease and to develop intervention activities like to request drugs, develop appropriate IEC programs to refrain the pandemics of the disease in the countries. Parallel reporting mechanism resulted in multiple reporting formats and increased administrative workload (1, 10). Survey done by Essential Services of Health for Ethiopia (ESHE) in some part of Amhara Region, reported that utilization of information at district and health facilities level was partial and uneven. More systematic, long-term monitoring and data based planning were not inherent at district and regional level (11). Therefore, this study has identified how data and information generated at District level, and assessed the utilization rate and determinant factors of health information system in the study area. Finally, this study will improve and strengthen the utilization of information for decision-making at District level. This is particularly important with regard to interventions launched to curtail the pandemic of HIV/AIDS, as most activities were initiated very recently.

## **2. Literature Review**

Health information systems help globally to develop the culture of evidence based policy making to identify issues; inform the design and choice of policy; forecast the future; monitor policy implementation; and evaluation policy impact. These needs go far beyond information from, and on, the health system itself, including information on the socioeconomic, demographic, environmental, and behavioral determinants of health outcomes. Health policies and outcomes are also linked to policies and outcomes in other sectors, such as education, and to more general development frameworks such as poverty reduction strategies and monitoring of the millennium development Goals. This is highlighted in the case of information needed to understand, prevent and cure diseases. For example heightened concern about HIV/AIDS is bringing agencies and sectors together to implement, monitor and evaluate interventions to prevent and control the epidemic (2).

Therefore good management is a prerequisite for increasing the efficiency and effectiveness of health services. The need to do more with less is especially important because the health sectors faces ever increasing demand while receiving stagnant or decreasing resources (4, 7, and 12).

Information is produced from observation, and from the desire to learn and to communicate (13). Information is crucial at all management levels of the health services, from the periphery to the center that is for patient management, health unit management, as well as for the health planning management (4, 5, 9, and 14). A health information system (HIS) provides information for the management of health programs and services. In particular it is essential for monitoring

the health situation, the performance of promotive, preventive and curative health services and activities, and the availability and utilization of health resources (1, 15, 16, and 17).

A flow of information was clearly necessary for identifying community health problems and monitoring and evaluating the existing health program (5, 18). Thus the health management information system (HMIS) was establish a self- sustaining monitoring and evaluation system which would improve decision making at all levels of the health care system with timely valid and appropriate information required to increase the effective utilization of quality health services (14, 19, 20, 21). Unfortunately, health information systems in most countries are inadequate in providing the needed management support (4,7). Most health care providers in developing countries equate information system with filling endless registers with names and addresses of patients, compiling information on disease every week or every month, and sending out reports with out adequate feed back (1-4, 10, 11)

The report on Health Management Information System (HMIS) by ESHE, Ethiopia suggested that the Woreda level is especially important, since it provides first line managerial support to the facilities. To provide Woreda level managers with usable information, all facilities reporting to the Woreda should use the same system (22)

A study done in Ghana indicated that mangers at every level throughout the country expected to regularly monitor their efforts to implement these policies and make informed decision making to achieve their own goals and targets. The health management information system that is being developed has been designed to facilitate this process (7).

Health system data have usually been used only within a reporting system. Observations in Ghana and Uganda suggest that not more than 10% and 20% of the information entered in a register is ever used to improve management in any meaningful way respectively. The raw data entered in to report form to be sent to higher level is probably not used very often. Thus a lot of data may be collected, but very little is every used directly as a source to improve decision - making and to contribute to improved health care (7, 21).

A study done in Zambia described that supportive supervision of IMCI using information in the country would bring a lot of improvement on the performance of health workers in the program, March 1996 in Lusaka, only 2% of health workers were in counting respiratory rate in children presenting with cough or difficult breathing but a survey in August 1996 found that following training, had increased to 70%. Indicators related to counseling and the rational use of drugs showed similar trends. Before training, practioners prescribed antibiotics for common colds in 47% of cases a figure that dropped to 15% six months after training. Moreover health management information system and supervision system can provide usual information about services including data on the number of trained providers per facility patient load the use of pharmaceuticals and vaccines, and disease burden (23, 24)

Opit and other scholars suggested that the health management information system should be designed with the following characteristics. Like decentralization, which is self -assessment, should be carried out at the level where data were colleted and used for decision making at that level. Data should not merely collect for up ward reporting (7, 19). Action oriented -data should be collected for decision-making. Responsive data should be reported in an appropriate time frame according to its use and fixable in terms of adaptation to local needs. In addition

transparent obtaining information should be easy and dissemination facilitated by the newly created regional and national resource centers (14, 19)

The problem stems from the fact that health center staffs, who do not appreciate the purpose of the data collected, submit inflated figures in the mistaken belief that they are performance indicators rather than indicators of community health status (25, 26). The problem is also related to the fact that the process of data collection is not seen as being immediately relevant to service delivery (27, 28, and 29).

At the national level of planning and programming department MOH Ethiopia 2004/2005, HSDP report indicated that challenges faced in the country with in health management information system are lack of coordination efforts, leadership, and lack of strategy and policy shortage of skilled human resources and lack of guideline (3). The timeliness and completeness of HMIS reporting remains poor and such delays contribute to the failure to use data as the basis for informed decision making in planning and management at all level of health sectors (3, 30, and 31). Survey done by ESHE in Amhara Regional state reported that utilization of information at district and health facilities level was partial and uneven. More systematic, long-term monitoring and data based planning were not inherent at district level. Therefore this study has identified some of the health information system problems in the study area and based on the findings important recommendation were made to improve the utilization rate of information and generally to increase the over all implementation of health information system in the study area (11).

### **3. Objective**

#### **3.1 General Objective**

To assess the utilization of health information system with Particular emphasis on **HIV/AIDS** at district health level in North Gondar.

#### **3.2 Specific objectives**

1. To Identify how data and information are generated at district level.
2. To assess the degree of utilization of information for decision- making at district level.
3. To assess factors that affects the utilization of information at district health level.

## **4. Methods and materials**

**4.1 Study area** – This study was conducted in North Gondar zone, which is one of the 11 zones in the Amhara National Regional State and Gondar, the capital town of the zone, is one of the historical towns in the country located 741 Km North West of Addis Ababa. In the zone there are 4 hospitals, 18 woreda health offices, 21 health centers, and 171 health posts and 6 private higher clinics. A total of 11 physicians, 19 health officers, 11 midwives, 185 nurses, 211 health assistants are currently providing service to the community in the government health facilities (report). These figures do not include the health professionals working in the university of Gondar teaching hospital. According to 2001/02 reports above 45% of the population in the zone has access to health services facilities.

**4.2 Study design** – A Cross- sectional study was carried out from **October 2005**-April, 2006 to assess the utilization of Health Information system at district health level with a Particular emphasis to **HIV/AIDS** program.

**4.3 Source population**- All Health Centers and Woreda Health Offices in North Gondar.

**4.4 Study population**- All departments/ units in government health centers and Woreda Health Offices.

**4.5 Samples size determination** -The sample size was calculated using single population proportion with the following assumptions.

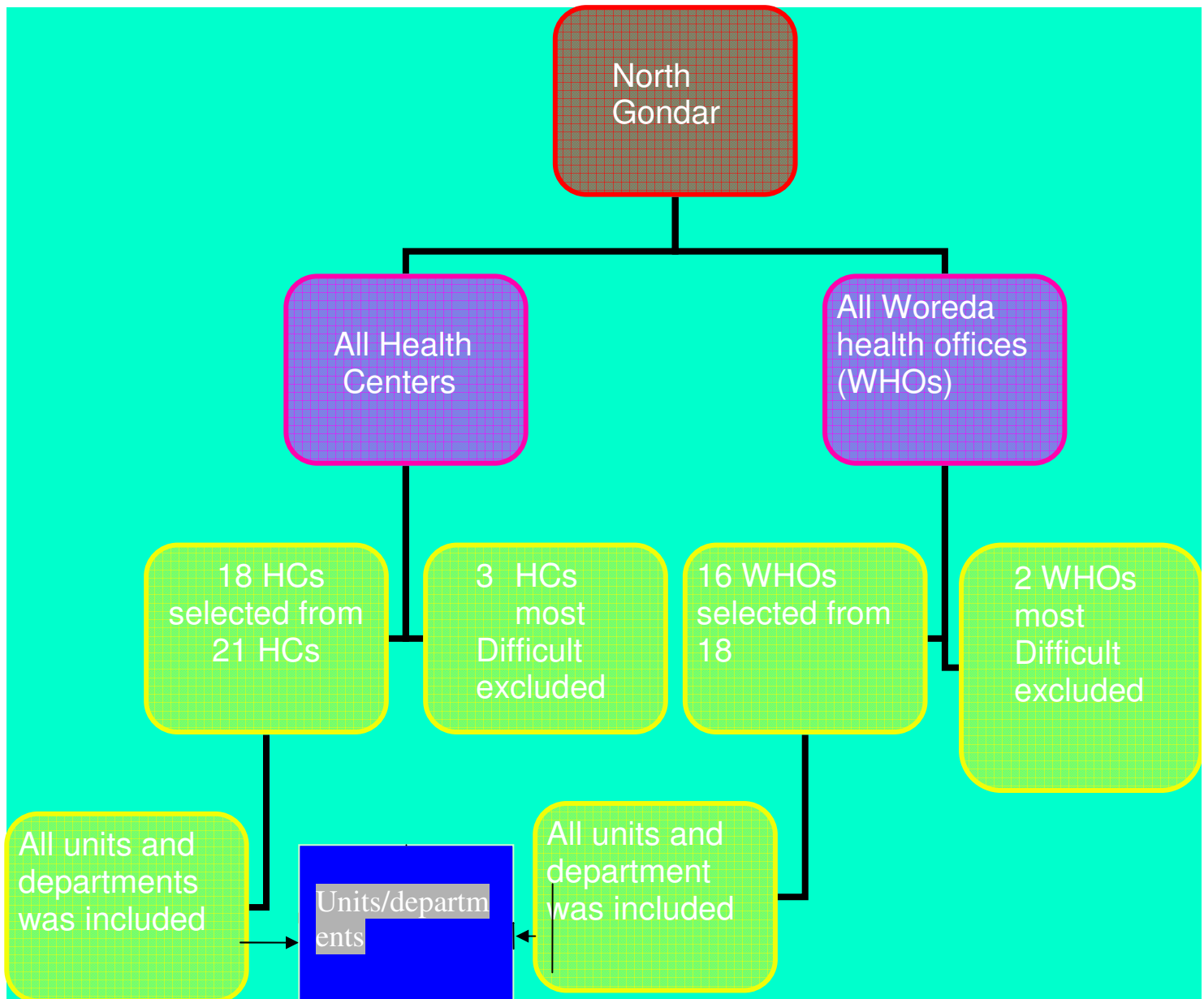
- P = 20% assumed that the proportion of utilization of information at woreda health office and health facilities level.
- D = 4% degree of precision.
- 95% confidence interval,  $\alpha = 0.05$

$$n = \frac{Z^2 \alpha/2^2 p(1-P)}{d^2}$$

Add 5 % non- response rate

Based on these assumptions, the total calculated sample size was 399 departments and units from all health centers and woreda health offices.

**Fig .1-schematic presentation of sampling procedures.**



In the sampling procedure 16 woreda offices out of the 18 and 18 from 21 health centers were also included in the study but the rest two woreda health offices and three health centers were excluded from the study due to security and extremely inaccessibility of those areas.

#### **4.6 Recruitment and training of data collectors and supervisors**

1. **Data collectors**- five mid level graduate health professionals' were recruited from Gondar town to increase the quality of data.
2. **Supervisors**- one MPH health professional was selected to lead the data collection processes.
3. **Training** - Data collectors and supervisors were trained for 2 days.

#### **4.7 Data collection techniques**

##### **Questionnaire development**

The final version of the English questionnaire was developed after extensive revision of relevant literature. The questions and statement were grouped and arranged according to the particular objectives. Quantitative data was collected using pre-tested and standardized questionnaire. The questionnaire was pre-tested in a similar study population in south Gondar five days before the final work and appropriate adjustment was done before it is finalized. Qualitative data was collected from Woreda health offices and facility level by observation of each departments and units using observational check list to supplement quantitative data to verify events.

## **4.8 Data collection instruments**

A face-to-face interview was conducted using structured questionnaire and observational checklist in the study units and departments to identify how data and information is generated like observation of registration books, monthly and annual reports, and graph, charts and Maps in the health institutions and Woreda health office.

## **4.9 Study variables**

### **Dependant variables**

- Utilization of health information system for decision - making and other management functions (for planning, monitoring, budget allocation, and making immediate actions etc).

### **Independent variables**

- Human attributes (sex, age, year of services, salary, and educational level, training)
- Characteristics of data (ownership; validity and reliability, aggregation of data, timeliness of reporting and feed back, completeness of the data, regular audit of data, Tools used).
- Characteristics of the required decisions (short term problem)
- Characteristic of organizational units/departments.
- Selection and preparation of appropriate indicators.

#### **4.10 Operational definitions**

1. **Using information for decision making**- 1= planning 2= budget allocation 3= monitoring and Evaluation of programs to take immediate action.

2. **Utilization of health information system**- 1= using information for decision making to take immediate action, 2 = feed back from respective supervisors 3= calculation of area coverage and preparation of Maps 4= presence of key indicators with charts or tables (indicators were not expected to be same that is it varies from one units to the other unit) 5= presentation of achievements of targets at the last health center and woreda team minutes. So that units /departments were considered as utilizing health information system when they are practicing at list three of them out of the five criteria's listed above.

3. **Decision making** - is defined as the capacity to formulate alternatives, estimate effects, and make choices using information at all units and departments

4. **Data quality** - The degree to which the data or statistics measure what was intended to measured when the data collection system was designed.

5. **Information**- is an organized data used for decision making at all units and departments.

6. **Health information** - is health care data that have been organized in to a meaningful format, aggregate information about all patients and other related activates important for patients /clients and for overall services.

7. **Health information system** –interrelated component parts for acquiring and analysis data and providing information for the management of health system and monitoring of health activities.

#### **4.11 Data entry and analysis**

Data was entered, cleaned and analyzed using EPI info and SPSS statistical packages. Descriptive analysis for utilization rate of information by sex, age, years of services, supervision and training and determinate factors were analyzed. Odds ratio and confidence interval was calculated to show the association between the utilization of information and exposure variables. Logistic regression analysis was done to avoid the confounding effect of the exposure variables such as sex, educational status, Training, supervision, year of services, salary and some other factors one over the other.

#### **4.12 Data quality assurance**

All collected data were checked for completeness, accuracy and consistency by the supervisors and principal investigator every day. Any thing, which is unclear and ambiguous, was corrected for data collectors on the next day. On daily bases 10% of collected samples were rechecked by the supervisor's whether the interviews have done their job properly or not. Moreover double data entries were done.

#### **4.13 Ethical clearance**

The study was carried out after getting permission from the ethical clearance committee of Addis Ababa University Medical Faculty through Department of Community Health. After that, data were collected after getting written consent from the zonal health office. Informed verbal consent was obtained from all study subjects. Each study subjects was discussed about the objective of the study and privacy was maintained during interview. At the end of each interview, health professionals were provided brief information about how to use or utilize information at the site of data generation.

## Results

Out of 18 Woreda Health Offices and 21 Health Centres available in the zone, 16 Woreda Health Offices and 18 Health Centres were included in the study. Within these Health Centres and Woreda Health Offices 395 units/departments were identified. In Most cases in each health center and Woreda Health Offices 14 and 10 units/departments were also identified and included in the study respectively (Table 2 and 3).

The sex distribution of individuals working in the study units showed that 311 (78.7%) were males while 84(21.3%) were females. Among the total 123(31.2%) were within the age of 31-35years old with a mean age of 32 years, 187 (47.3%) of them have a salary ranging from 400-800 ETH.BIRR and 148 (37.5%) of them also have 1-5 year of services (Table 1).

Distribution of level of education showed that health workers with diploma constituted 75.44 %, among these nurses constituted 50.2 %, environmental health 15.4%, Laboratory technician 6.3 % and Pharmacy technician 3.5 %. In addition degree holders also constituted 5.8 %, health assistants 13.7%, and grade 12 and other health workers constituted 5.1 %.

**Table-1 Socio-demographic characteristics of health workers and administrative staffs  
Working at health center and Woreda health offices in North Gondar, 2005/06.**

<b>Salary (n=395)</b>	<b>N</b>	<b>%</b>
400-800	187	47.3
801-1200	146	37.0
1201-1800	62	15.7
<b>Year of services (n=395)</b>	<b>N</b>	<b>%</b>
1-5	148	37.5
6-10	59	14.9
11-15	97	24.5
16-20	49	12.4
21-25	36	9.0
26 <sup>+</sup>	6	1.7

**Table 2 distributions of study units/departments at Health Centre level in North Gondar, 2005/06.**

<b>Variables</b>	<b>N</b>	<b>%</b>
Statistics	18	7.63
OPD	18	7.63
Pharmacy	18	7.63
DOTs and leprosy	18	7.63
Offices of heads of the health centres	18	7.63
Offices of head nurses	18	7.63
MCH	18	7.63
Under-5	18	7.63
EPI	18	7.63
Environmental health	18	7.63
VCT centres	17	7.20
PMTCT	12	5.09
Eye	9	3.81
Laboratory	18	7.63
Total	236	100

**Table 3 distributions of study departments at Woreda Health offices level in North Gondar, 2005/06.**

<b>Variables</b>	<b>N</b>	<b>%</b>
Offices of heads of Head of the woreda health office	16	10.063
Health programs	16	10.063
Hygiene and environmental health	16	10.063
Health services and training	16	10.063
Malaria and other vector born disease	16	10.063
Pharmacy	16	10.063
TB and leprosy	15	9.43
HIV/AIDS	16	10.063
MCH	16	10.063
Cold chain	16	10.063
Total	159	100

Three hundred ninety five study units were expected to collect data and use information for decision-making in the study areas, two hundred thirty six from health centers and one hundred fifty nine from woreda health offices. Out of the total study units 333(84.3%) were aggregate (collect) their data on daily basis. Among the total aggregated 89 (22.5 %) were utilized information for decision-making. Of 89 study units utilized information 42.7 % were contributed by Health Centers and the rest 57.3 % were by Woreda Health Offices. In most cases utilization of information in the health center were very common by EPI, office of head of the health centers, MCH units, and VCT centers. The remaining units like statistics, OPD,

laboratory, Environmental health and others did not utilize information usually (Table 4). According to the results in the Woreda Health Offices, utilization of information was practiced by Office of head of Woreda Health Offices, health program desk and MCH expert (Table 4).

At the national level health management information system has five levels of management (such as health institution level, district level, zonal level, regional level, and Federal ministry level). Plan and program department is authorized and responsible for health management information system at Federal ministry, regional, and zonal level and Statistics unit district health offices. In the health facilities usually head of the health center is responsible for statistics unit and overall coordination of all activities related to HMIS and others, moreover they are also responsible for monitoring and evaluation all activities in the health center. In one health center there is only one non-health professional person responsible for HMIS activities and in three health centers health assistant were assigned to facilitate HMIS activities. But in the rest of health facilities and woreda health offices the head of the health center and experts assigned as additional responsibilities.

**Table-4 utilization of information at district level VS all units/departments in North Gondar, 2005/06.**

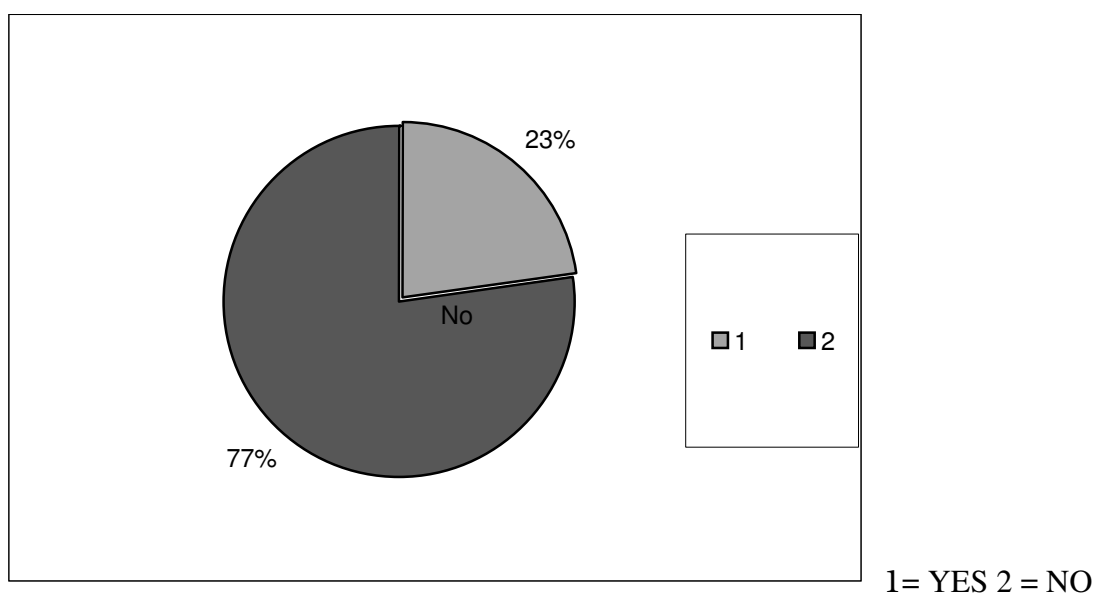
<b>Unit/departments</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>
OPD	1	17	18
Statistics	0	18	18
Pharmacy	0	18	18
Laboratory	1	17	18
DOT`S and leprosy	1	17	18

Head of the health centers	6	12	18
MCH at health center level	4	14	18
Under five	1	17	18
EPI	16	2	18
Environmental health	1	17	18
VCT center at health center level	3	14	17
Health programs desk	8	8	16
MCH at Woreda health offices level	8	8	16
Environmental health at Woreda health	5	11	16
Head of Woreda health offices	11	5	16
Malaria and other vector born disease	6	10	16
Pharmacy at Woreda health offices level	2	14	16
TB and leprosy at Woreda health offices	1	14	15
HIV /AIDS at Woreda health offices	3	13	16
Head nurses	2	16	18
PMTCT at health center level	2	10	12
Eye at health center level	0	9	9
Health services and training desk	2	14	16
Cold chain at Woreda	5	11	16
Total	89	306	395

In the study area the major sources of data and information were found be routine reports and registry books. Routine reports such as monthly, quarterly, annual reports, and weekly notifiable diseases including yellow fever, Cholera, small pox, and others, and vertical program like CDD, TB and leprosy, HIV/AIDS programs from all institutions and Woreda health offices.

In all the study units the common data collection tools are manually filled formats such as routine monthly, quarterly, annual reporting forms, and daily tally sheets. Among the total individuals interviewed about data collection tools 86.6% did not face any technical difficulty in filling the reporting tools but the rest faced problem of filling the reporting formats. Some of the problems encountered were understanding and complexity of report format.

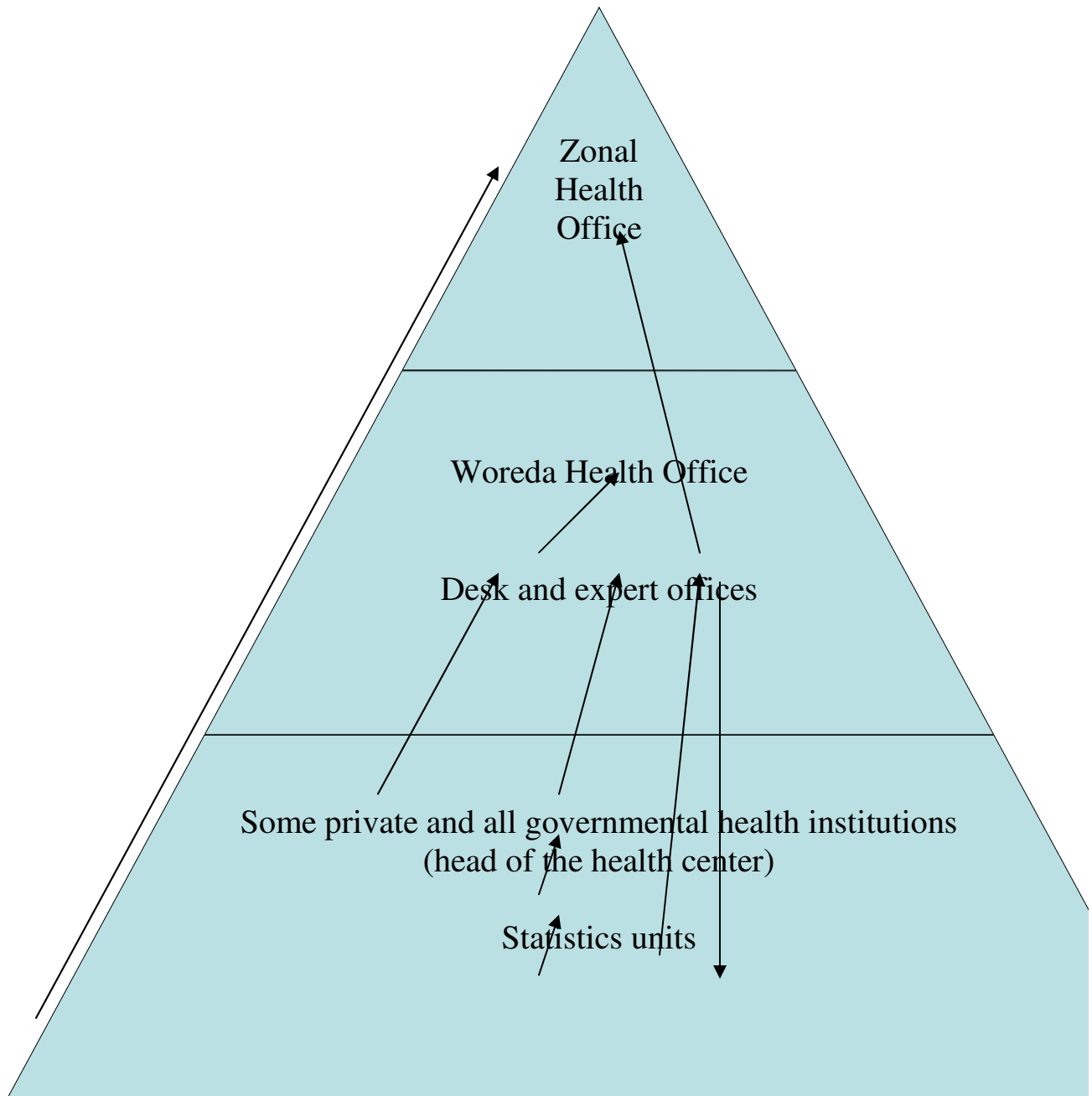
**Figure -2 shown Presences of standards data collection tools at Health Center and Woreda Health Offices in North Gondar, 2005/2006.**



As shown Figure 1, 23% of the study unit had standard data collection tools and 77% did not have standard data collection tools; and it is also true for data transmission, processing, and reporting rules at health center and Woreda health offices level. Some of rules are number of reports in a single health institution and Woreda Health Offices, time table to submit the report, how data is processed and analyzed, rules how data is changed in to information, guide line for preparation of important indicators.

During our investigation, majority of the health center units submit their reports to the health center statistics and some others both for health center statistics and vertical programs such as TB and leprosy, HIV/AIDS, CDD programs. Mean while Health center statistics aggregate reports from each unit and submit to the woreda health office. In the woreda health offices each expert compiles their reports from all health institutions and submitted to head of woreda health office. Finally the Woreda Health Office send report to zonal health offices and the zonal health offices send report to regional health bureau. In general the flow of data shows as majority of the study units transfer there data upwards that is one directional this would affect the rate of utilization of information at the facility level since there is no bi lateral communication between Woreda health offices and among units with in the same institutions and departments.

**Figure-3 Flow of data and information in health sectors in North Gondar, 2005/06.**



**Table-5 Duration of reporting every month by units/departments at the health center**

**Level to Woreda health offices in north Gondar, 2005/2006.**

Dates	N (number of units )	%
≤ 19 days	47	19.92
<b>20-24 days</b>	<b>80</b>	<b>33.90</b>
≥25 <sup>th</sup> days	109	46.19
<b>Total</b>	<b>236</b>	<b>100</b>

Table-6 Duration of reporting every month by units/departments at Woreda Health Office to

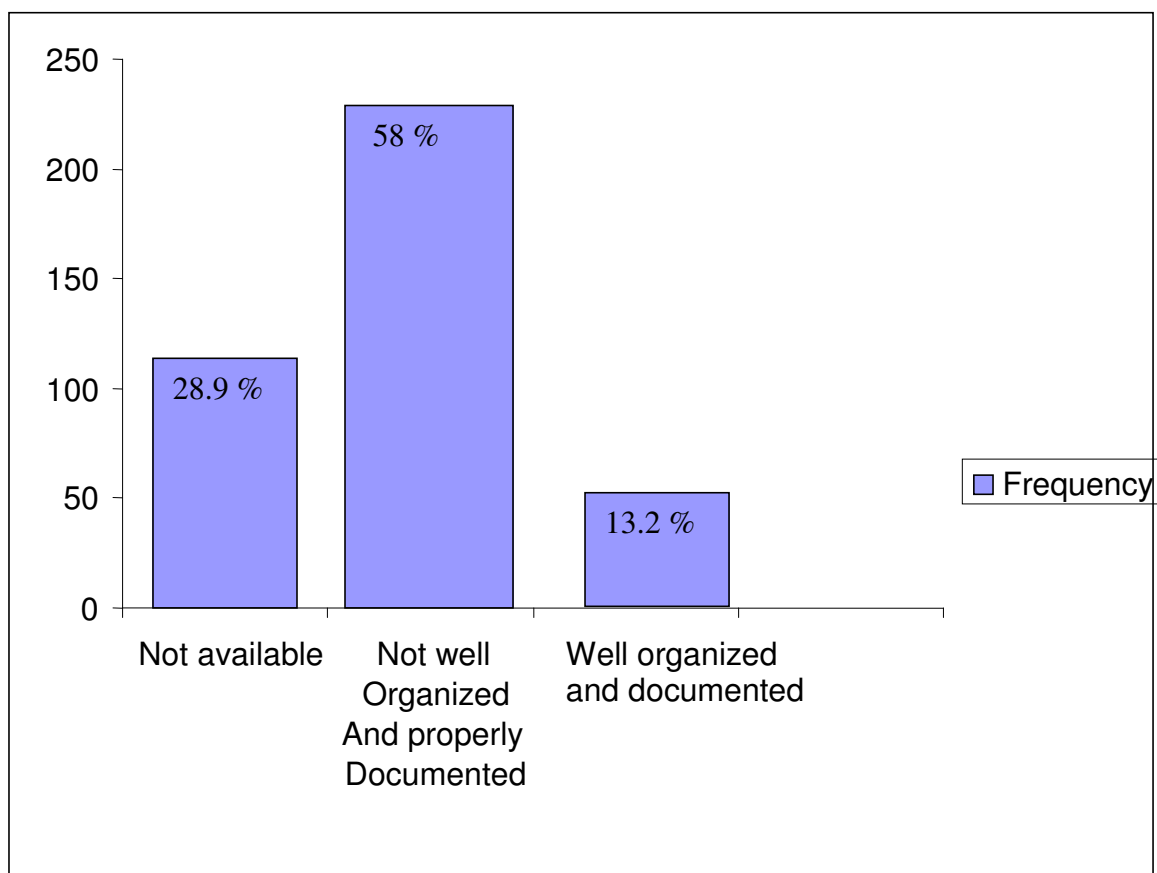
Zonal Health Desk in North Gondar, 2005/2006. □

Dates	N( Number of Units)	%
≤23 days	23	14.47
<b>24 -27days</b>	<b>61</b>	<b>38.36</b>
≥28 <sup>th</sup> days	75	47.17
<b>Total</b>	<b>159</b>	<b>100</b>

Out of 236 study units in the health center 47 (19.92%) submitted their monthly report before 19<sup>th</sup>day, 80 (33.90%) between 20 and 24, and 109 (46.19%) after 25<sup>th</sup> day of every month. twenty-three (14.47%), 61(38.36%) and 75(47.17%) of the units of Woreda health offices reported monthly report before 23<sup>rd</sup>day, between 24 to27 and after 28<sup>th</sup> day of every month respectively.

Based on personal feelings of individuals working in the study area about data generation 58% of them do not well organized and properly documents their registration books and monthly reports, 28.9 % of them completely do not have those registration books and monthly reports and only 13.2 % properly documented their reports and registration books in 1997 to 1998 Ethiopian Calendar.

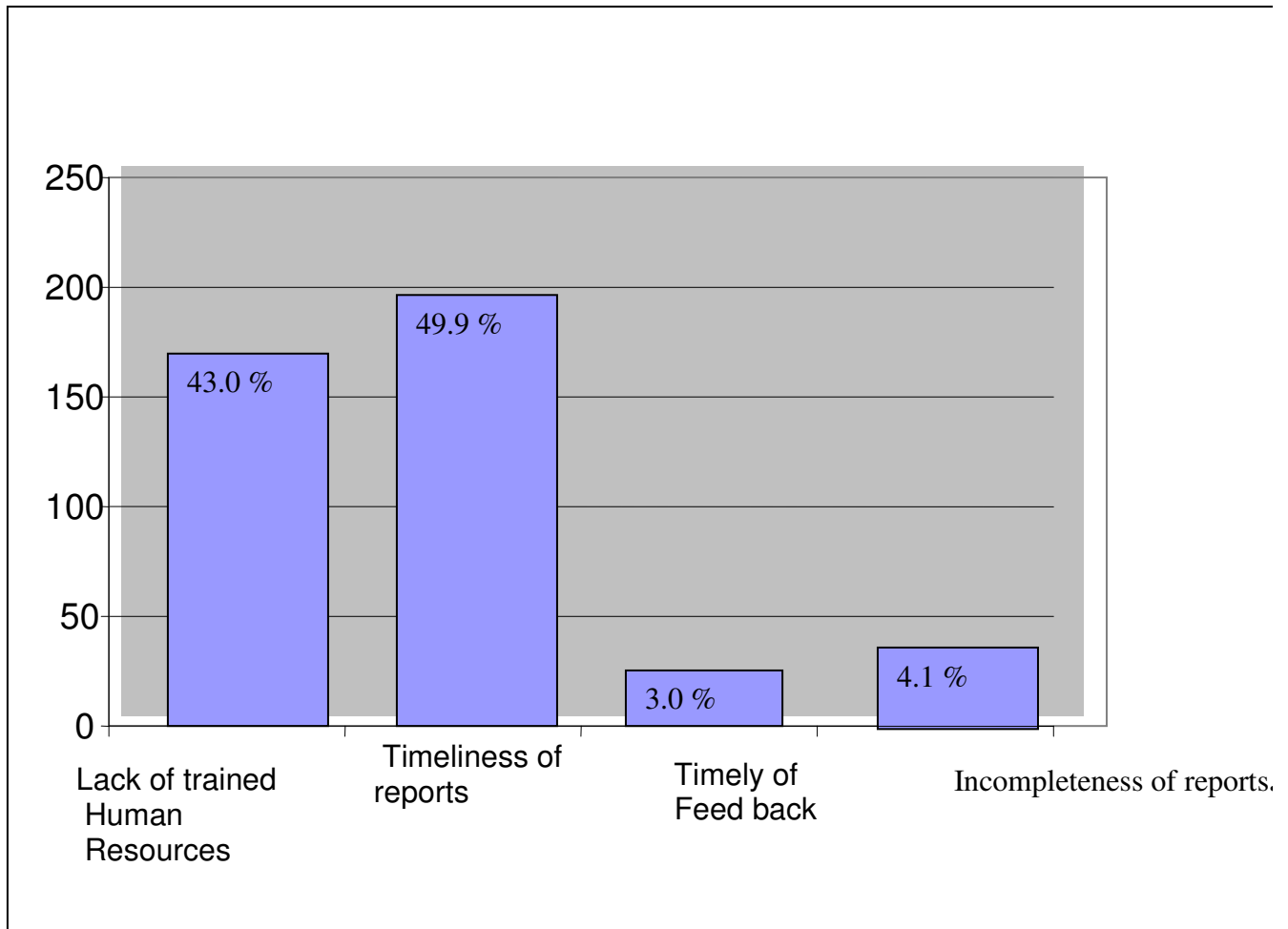
**Figure-4 observation of documentation of reports at woreda health office level and registration books and reports at the health center level in North Gondar, 2005/06.**



Among the total individual interviewed about their feelings of data generation 49.9 % of them showed that there was problem of timeliness of reports, 43% of them also showed that lack of

trained human resources, 3.0% of them also told us presences of problem in timely feed back and finally 4.1 % showed that incompleteness of reports.

**Figure- 5 personal feelings of individuals about factors affecting data generation at unit/departments of Woreda and Health Center level in North Gondar, 2005/06.**



**Table -7 personal feelings of individuals about data collection tools and the whole process of data management at Units/departments of woreda and health center level in North Gondar, 2005/06.**

Variables	n	%
1	59	14.9
2	172	43.5
3	43	10.9
4	40	10.1
5	26	6.6
6	36	9.1
7	19	4.8
Total	395	100.00

Forty three point five percent of the personal feelings of individual about data collection tools though to be ambiguous and considered to affects data quality, 59 (14.9%) were tedious and redundant, non uniformity of report forms, and absence of WHO codes, from these it is possible to understand that majority of the data generated in those institution and Woreda health offices possibly inaccurate and unreliable to users due to the above and other mentioned problems in the study units. In this study health units are the primary producers of data and expected to change the data in to information at the sit of data generation but not done usually in majority of the study units next to health facilities Woreda health offices are expected to generate data and then change the data into information but due to the same problem in the majority the units it was not practically done in the study area (see table 7).

1=tedious and redundant, non uniformity of reporting formats, absences of WHO code and all this affect the quality of data.

2= reporting formats are ambiguous then it affect data quality.

3= tedious and time consuming this leads to report delaines.

4=incompleteness of reports and not reported timely.

5=well and good

6=problem of understanding formats by low level health professionals affect the quality of data.

7=absences of computer and other materials to record and to process the data in to information.

Totally out of 395 study units 94 (23.8 %) of them having trained individuals about health information system both in the health center and Woreda Health Office level. out of 94 trained individuals 44 (46.81 %) were from health centers and 50 (53.19 %) were from Woreda health offices. mean while, in-services training were given also after six months for twenty two point five percent of the units/departments at all levels.

One hundred thirty seven (34.7%) study units were supervised in the first quarter of the year 1998 E.C by their respective supervisors. As shown in table, majority of them were supervised once. After supervision feedback was given only 48(12.2%) of the observed units or departments at the same time.

**Table-8 Number of Supervision made in the first quarter of 1998 E.C at the health center and Woreda health offices level by their respective supervisors in north Gondar, 2005/06.**

<b>Number of supervision made</b>	<b>N = (woreda and health center units)</b>	<b>%</b>
One	105	76.64
Two	27	19.71
Three	4	2.92
Four	1	0.73
<b>Total</b>	<b>137</b>	<b>100</b>

Forty-one (10.4%) of the units /departments had training design for data collection, processing analysis, and utilization of information, and standards including standards for production and dissemination of reports. Of the total study units/departments 79(20.0%) would have continuous quality assurance of data and 316((80.0%) do not have continuous quality assurance of data.

Eighty-nine (22.5%) of the units /departments change there data in to information every month but 306 (77.2%) did not change their data in to information on monthly basis.

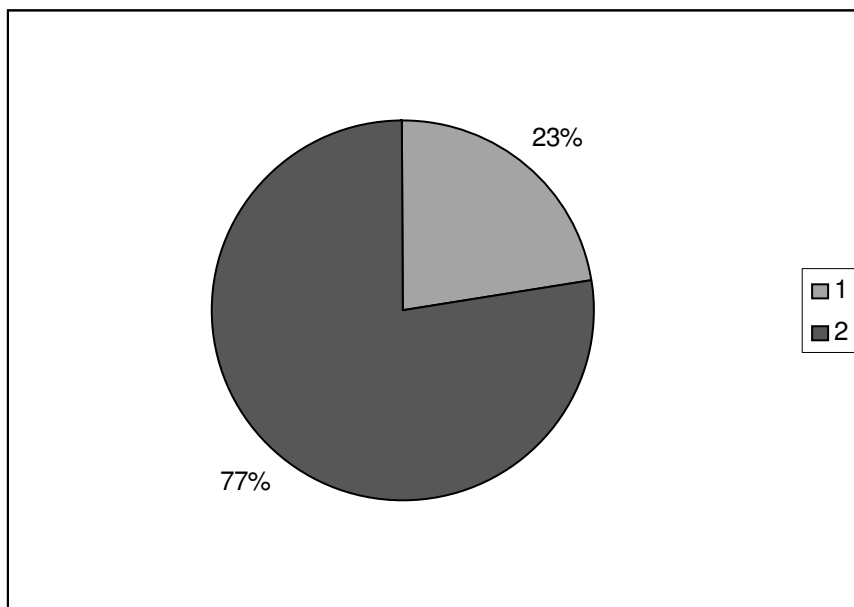
Seventy two (18.2%), of those units /departments calculated area coverage for essential services and prepare Maps and 323(81.8%) did not calculate area coverage for essential services and prepare Maps at district level.

As shown in figure 2, 23% of the units /departments used information to prepare plan of action and 77% was planed based on personal intuition.

Majority (77.2 %) of the units/ departments were not used standard graphs and charts to present their indicators.

Majority of the Woreda Health Offices and Health Centers do not present their target achievements at the meeting of last minutes.

**Figure -6 Percentage of use of data to prepare plan of action at district level in North Gondar, 2005/06**



All units and departments at health center and Woreda health offices do not have a multi disciplinary steering committee to follow the whole processes of HMIS at Woreda Health Office and Health Center level.

All Woreda and health center office data and reports were managed manually and all of them do not have computer for the overall activities of health management information system in the

study area. There fore, in those study units health information system was processed and analyzed manually. Generally the over all implementation of health management information system in all the study units was found to be 12 % based on the operational definition set for this research taking the main points from WHO guide lines (WHO,2000). To say health information system were implemented in those study units, when at list three of the criteria among the five criteria were applied in that study.

**Table-9 Utilization of information at district level VS HIV/AIDS unit/departments in North Gondar, 2005/2006**

<b>Variables</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>
VCT center at health center level	3	14	17
HIV/AIDS at Woreda health level	3	13	16
PMTCT at health center level	2	10	12
Total	8	37	45

Table 9 showed that, out of 45 units of HIV/AIDS in the study area only 8(17.7%) changed the data in to information at district and facility level, and used the information for immediate decision making to know the magnitude of the disease in the area and to treat cases (to provide PMTCT) in each areas and to develop appropriate strategic preventive methods based on the context of the local culture. The study found out that all units of HIV/AIDS submitted their report on quarterly bases and also have standard reporting formats which may be used at the regional and national level for planning and policy design. In most cases during our investigation it was identified that there was lack of trained and responsible individuals to run

the overall activities, moreover like any other majority e study units they do not have also standard procedure to change the data in to information.

**Table-10 Relationship between socio-demographic variables and utilization of information at district level, in North Gondar, 2005/2006.**

Variables	Utilization of information		OR (95%CI)
	Yes	No	Crude
<b>Age distribution</b>			
21`-25	9	74	5.48(o.80, 37.32)
26-30	11	54	3.27(0.48,21.94)
31-35	35	88	1.67(0.26,10.46)
36-40	15	50	2.22(0.33,14.56)
41-45	16	30	1.25(0.18,8.26)
46-50	1	7	4.66(0.29,73.38)
51-56	2	3	1
<b>Salary</b>			
400-800	27	160	0.53(0.30,0.93)
801-1200	35	111	0.21(0.11,0.41)
1201-1800	27	35	1
<b>Years of services</b>			
1-5	28	120	2.14(0.37,12.28)
6-10	11	48	2.18(0.35,13.45)
11-15	21	76	1.81(0.31,10.56)
16-20	15	34	1.13(0.18,6.87)
21-25	12	24	1.00(0.16,6.25)
26-40	2	4	1

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<b>Sex distribution</b>			
Male	76	235	1.76(0.92,3.36)
Female	13	71	1
<b>Level of education</b>			
Health Officers	6	11	1
Diploma Nurses	44	154	0.24(0.41,1.44)
BSc Environmental health's	6	0	0.46(0.10,2.11)
Diploma Environmental health's	18	43	0.05(0.00,7.94)
Health assistants	8	46	0.31(0.06,1.53)
Laboratory technicians	4	21	0.76(0.14,4.01)
Pharmacy technicians	1	13	0.70(0.11,4.32)
Grade 12	0	3	1.73(0.14,21.38)
Others	2	15	17.88(0.05,18.99)

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**Table-11 Relation ship between selected variables and utilization of information at district level in North Gondar, 2005/2005.**

Variables	Utilization of information		OR (95%CI)	
	Yes	No	Crude	Adjusted
<b>Supervision</b>				
Yes	40	97	0.56(0.35,0.92)	0.27(0.03,2.4)
No	49	209	1.00	1.00
<b>Feed back among units</b>				
Yes	20	34	0.43(0.23,0.79)	0.47(0.02,10.8)
No	69	272	1.00	1.00
<b>Feed back from Woreda health office</b>				
Yes	19	29	0.38(0.20,0.72)	7.54(0.27,209.6)
No	70	277	1.00	1.00
<b>Presence of standards of data collection, transmission, processing, and reporting rules</b>				
Yes	86	3	0.05(0.05,0.002)	0.002(0.00,0.01)
No	3	302	1.00	1.00
<b>Presence of standards of training , production and dissemination of materials</b>				
Yes	19	22	0.28(0.14,0.55)	0.63(0.03,11.7)
No	70	284	1.00	1.00
<b>Presence of continuous quality assurance of data</b>				
Yes	32	47	0.32(0.19,0.55)	2.8(0.35,23.1)
No	57	259	1.00	1.00

Ever heard of HIS				
Yes	60	99	0,23(0.14,0.38)	0.54(0.08,3.43)
No	29	207	1.00	1.00
Ever trained of HIS				
Yes	81	13	0.04(0.002,0.01)	0.07(0.01,0.52)
No	8	293	1.00	1.00
Presentation and discussion of information with facility management and communities				
Yes	69	124	0.19(0.11,0.34)	0.48(0.07,3.39)
No	20	182	1.00	1.00
Provide support to communities for surveillance				
Yes	69	124	0.19(0.11,0.34)	0.48(0.07,3.39)
No	20	182	1.00	1.00

### **P< 0.05**

Multiple logistic regression analysis was done to control potential confounders. Utilization of information was compared with socio-demographic variables such as age, year of services; sex, salary, and educational status of individuals were analyzed. Salary which was significant before adjusting confounders and still shows significant association yet in multiple logistic regressions analysis [OR = 5.990(2.213, 16.214)] at p-value = 0.005. But the remaining socio-demographic variable still did not showed statistically significant associations even after adjusted multiple logistic regression (Table-10).

Utilization of information was also compared with other important (key) selected variables like presence or absence of supervision, feed back given among units/departments with the origination, feed back given from respective supervisors, presence of data collection standards including standard case definition, and data transmission, processing, and reporting rules, standard training design including production and dissemination of materials, continuous quality assurance of data, ever trained about health information system, ever heard of health information system, change of data in to information every month, performance of calculating area coverage for essential services and prepare maps, use of data for plan of action, performance of presentation of information, discussion with facility management and support to community for surveillance were analyzed. Among the variables listed in table 11 that were considered to affect the utilization of information showed in crude odds ratio showed that it was highly significant in all cases. But majority of those factors are not statically significant after adjusted multiple logistic regression except presence of standards of data collection, transmission, processing, and reporting rules [adjusted OR=0.002 95% CI=0.000, 0.01] at P-value=0.000 and ever trained about health information system [adjusted OR=0.071(95% CI=0.010, 0.52)] at P-value =0.009 that is highly statically significant (see table 11)

### **Limitation of the Study**

- Lack of local and national reference materials to make comparison.

## Discussion

There is no information available at the local level in the scientific literature that quantifies the utilization of information and implementation of health information system at district level to make comparison about some of the factors. This study has tried to assess how data and information generated, and utilization of information and implementation of health information system at woreda health offices and health centers level. In addition, the study also tried to see the associations between utilization of information and the basic socio-demographic variables such as level of education, salary, age, and year of services and some other important key factors which may affect the utilization of information at each level.

In this study, the based on the criteria set in the operational definition the general utilization rate of information was found to be 22.5% and 8 % in HIV/AIDS units. In the case of general utilization of information the finding is slightly higher as compared the results reported by Campblle in Ghana and Maria a GN. Mosoke et al. in Uganda as identified 10% and 20 %(6,7). This slight increase was due to training and supervision of individuals who are working in those EPI and MCH units at health center level, and heath programs desk and MCH expert at the woreda health offices level. In addition, presence of standard data collection tools, processing, transmission and reporting rules in those units/departments. These factors were available and increase pressure due to the presence of some NGOs like WHO and UNICEF in the country that works on EPI and other health related activities to increase health services coverage especially in the performance of polio vaccine in order to decrease the prevalence of the disease in the country. So that utilization of information in the area was slightly increased due to donor driven activities because since they want to monitor and evaluate their performance regularly.

But the utilization rate of information was almost none in the other study unit / departments because the overall health information system was weak, data collection in the health facilities was poorly organized , most indicators did not always respond to specific information needs at different levels in the system, information flow were fragmented because most national programs supported by NGOs had set up separate reporting system and, often, separate supervisory system, data consolidation and processing only done manually, were time consuming and error prone, above all use of information generated was greatly limited by the quality of the data collected, by the fragmented flow of information ,and by the lack of feed back mechanisms. Moreover, majority of workers in those units/departments do not appreciate the importance of the data and information for their particular work activities, do not feel sense of ownership and relevance about the data at the sit of data generation because they did not utilize it for better decision making for their activities. In the study area most of the workers were not trained how to change the data in to information and how they utilize the information for decision-making.

In our study 34.7% of the units/departments were supervised but only 12.2% of them were given feed back in the first quarter of the year 1998 in E.C. Majorities of units/ departments were supervised once and few of them were given feed back due to lack of trained human resources in the study area, even those units/departments who were supervised and given feed back by support of donor agencies like WHO and UNIEF to increase their performance.

In this study 33.90% and 38.36% of the units/departments at the health center and woreda office level respectively submitted their reports within the reference guideline set for health workers in the SNNPR (16). The result would tell us majority of the units/departments submitted their

reports either earlier or lately i.e. data is premature or outdated data. One of the factors to use the data for decision-making is its timeliness and appropriateness (3, 4, and 5). Since majority of the reports are not timely and appropriate then the data that was collected in those units/department are not used for timely and appropriate decision making in the study area (31). The possible reasons could be absence of automated data communication or due to manual filled format communication of reports between health institution and woreda health offices.

In most of the cases data transmission used to mean the transfer of paper documents from lower level of a health system to central units. Now, however, the concept of data transmission is being completely revisited to towards increased use of data at the sit of data generation. In most of the study units there was no standard data collecting, transmission, processing, reporting rules this also affect the utilization of information at all levels.

In most cases at the woreda health offices level on average only 5-7 health workers are available provide services at least in ten units/departments and each of them have their on duties and responsibilities. The problem of lack of human recourse is also a problem to health centers even though it is not significant like that of woreda health offices. Therefore only 23.8 % of the individual were given training on health information system. The utilization rate of information was proportional to those trained individual and also our statically analysis tooled that it is highly significant. During analysis educational level was expected to be significant but it was found out that it is insignificant because especially health officers are engaged in other administrative and clinical activities rather than data management activities. Finally the overall implementation of health management information was found to be 12%, this result in agreement with what Schwartlander said more than 90% of low income countries do not have a well functioning health information system, which is vital for generating basic health data (2).

The possible reasons may be due to the absence of trained human resource, absence of standard rules and regulations, communication of data between health institutions and Woreda offices, absence of feed back, lack of timely supportive supervision between units and timeliness of reports above all lack of motivation of health workers in many aspects.

## **Conclusion**

In general the findings of this study showed that, data and information was generated at the health institution and district level from routine reports, vertical programs and disease surveillance activities and collected using manually filled formats. Finally those data and information were communicated to the next higher level using non electronic media. The quality of the data in the majority of the study unit was found to be poor. Therefore in general the utilization rate of Health information system was found to be very low including HIV/AIDS units in the study area. Among many factors expected to affect the utilization rate of health information system only motivation of staffs and training and, Presence of standards of data collection, transmission, processing, and reporting rule was found to be the only significant factors after adjusted odds ratio. But factors like feed back, supervision, timeliness of reports, making auto-machine of reporting, creating sense of ownership of individual working in those units/departments, identification of important indicators and scarcity of human resources were found to be significant factors before adjusted odds ratio and insignificant after adjusted odds ratio and must be investigated later on in the larger scale since they were expected the important factors obtained from other literature.

## **Recommendations**

To improve the utilization rate of health information system

1. Motivation and training should be given to all individual working in the health institution and woreda health offices about health information system.
2. to avoid the delays of report submission in the units /departments time frame must be respected based on the distance of the areas and if possible it could be computerized
3. Responsible person must be assigned in health centers and woreda health offices to run a health information system activity who has given in-services training about health information system.
4. In all the institutions & Woreda health offices a uniform & Standard data collection procurers, data transmission, analysis, reporting rules must be implemented.
5. Develop standard instruction manual about health information system principles.
6. Duplication of reporting system should be avoided to minimize time spent to fill too much forms and minimize the workload of health workers.

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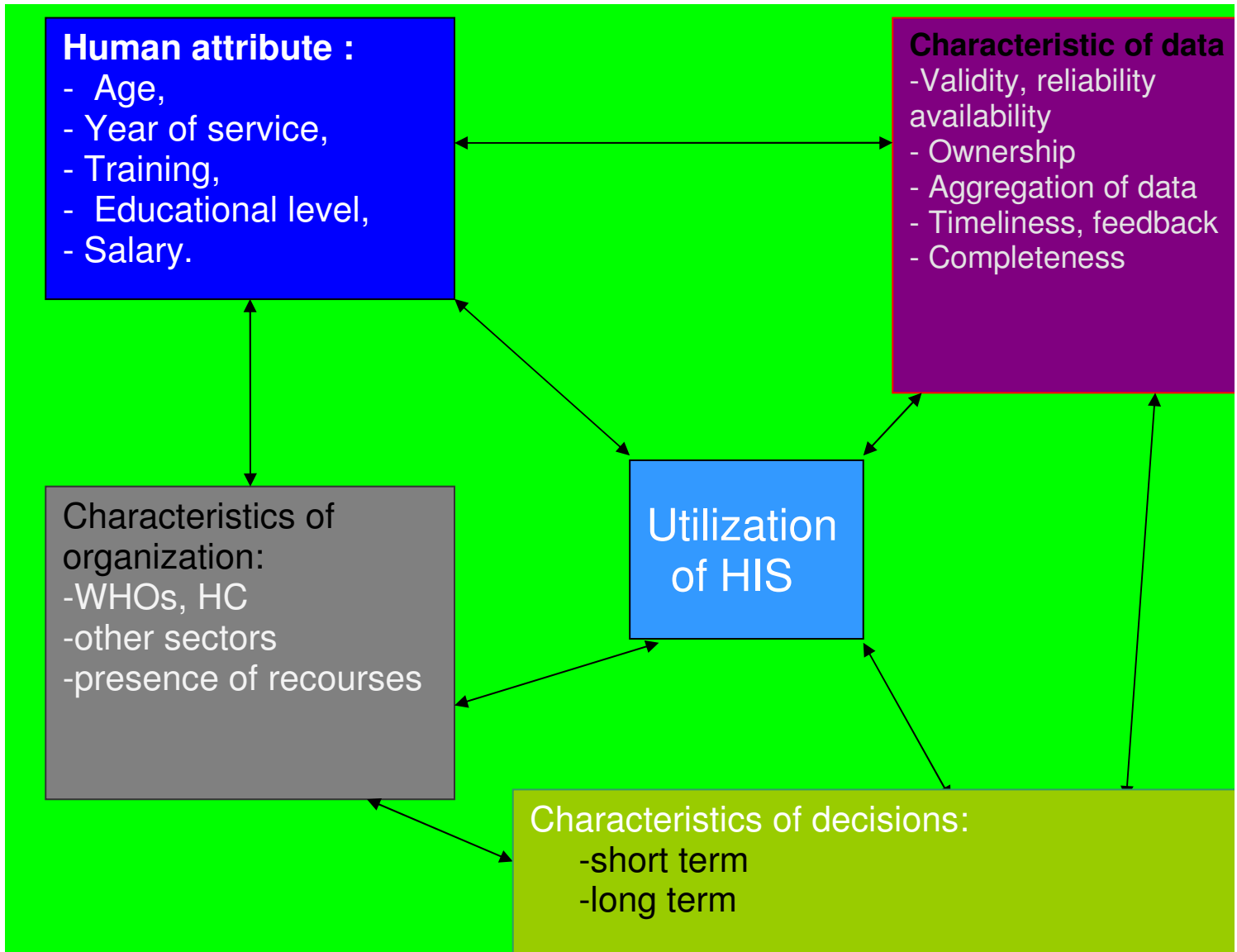
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**Annex 1 CONCEPTUAL FRAMEWORK FOR UTILIZATION OF HEALTH INFORMATION SYSTEM INFORMATION**



Annex 2

Health Information System Base line survey Questionnaire with

Particular emphasis on **HIV/AIDS** program.

1. Name of institution\_\_\_\_\_

2. Name of District\_\_\_\_\_

3. Salary\_\_\_\_\_ year of services\_\_\_\_\_ Age\_\_\_\_\_

4. Code \_\_\_\_\_

5. unit/department\_\_\_\_\_

5. Sex\_\_\_\_\_

1. Male

2. Female

6. Level of education\_\_\_\_\_

1. Medical Doctors

2. Health Officers

3. Bs.c Nurse

4. Diploma Nurse

5. Bs.c Environmental health

6. Environmental health Diploma

7. Health assistant

8. Laboratory technician

9. Pharmacy technician

10. Grade 12

11. Others\_\_\_\_\_ (specify)

7. Position in the organization\_\_\_\_\_

## **Part I facility level**

1. Is the unit/department aggregate daily services tallies?

1) Yes                      2) No

2. Is the unit/department prepared and report monthly /quarterly reports?

1) Yes                      2) No

3. If yes evidence based and at what date? \_\_\_\_\_

4. To which unit/department the unit/department report monthly quarterly reports?

\_\_\_\_\_

5. In the past 3 months, how many times the unit/department supervised?

\_\_\_\_\_

6. Feed back from unit/department in the organization on daily, monthly, quarterly and

Annual basis

1) Yes                      2) No

7. Feed back from district health office on monthly, quarterly and annual basis.

1) Yes                      2) No

8. Is the unit/department has the knowledge on data collection tools (Questionnaire)?

1) Yes                      2) No

9. Is the units/departments have data collection standards including case definitions?

1) Yes                      2) No (Evidence required)

10. Are the units/departments having data transmission, processing, and reporting rules?

1) Yes                      2) No

11. Is the units/departments have training design and standards, including standards for

Production and dissemination of materials? 1) Yes                      2) No (evidence required)

12. Are the units/departments having continuous quality assurance of health system

Data on HIV/ADIS?

1) Yes      2) No

13. Is the units/departments Utilize Information at the institutional level      1) Yes

2)

No If yes, evidence based see these criteria's circle the applicable: 1= Planning, 2= budget allocation, 3= monitoring and evaluation of programs to take immediate action,

14. Is the units/departments Utilize health Information system at the institutional level

1) Yes      2) No

If yes, evidence based see these criteria's circle the applicable:

1= using information for decision making such as planning, budget allocation, and monitoring and evaluation of programs to take immediate action,

2 = feed back from respective supervisors

3= calculation of area coverage and preparation of Maps,

4= presence of key indicators with charts or tables,

5= presentation of achievements of targets at the last health center and Woreda team minutes

15. Have you ever trained about HIS/HMIS?

1. Yes      2. No

16. Had it given in service Training after 6 months about HIS/HMIS?

1) Yes      2) No

17. Have you ever heard about HIS/HMIS?

1 Yes      2 No      (if yes evidence required)

18. Is the units/departments change the data in to information every month?

1) Yes      2) No (if yes evidence required)

19. Is the units/departments calculate area coverage for essential services and prepare Maps?                    1) Yes                    2) No
20. Is the units/departments use your data to prepare your plan of action about HIV/ADIS?                    1) Yes                    2) No
21. Is the units/departments adapted national target to local situation?                    1) Yes                    2) No
22. Is the units/departments have statement on rule and interaction of health information System with Private sectors?                    1) Yes                    2) No
23. Is the unit/department has key indicators with charts, tables?                    1) Yes                    2) No
24. Is the unit/department present information to, and discuss with facility management and community?                    1) Yes                    2) No
25. Is the unit/department provides support to communities for surveillance?                    1) Yes                    2) No
26. at your last Health center team/ district management team meetings, was the Achievement of targets included in the minutes?
27. Is the unit/department having HIS multi disciplinary committee for the all over all design and direction users of information?                    1) Yes                    2) No
28. Is the unit/department has a Health information steering committee to set the long-term goals for HIS and needs to decide which key indicators should be measured and which data are necessary?                    1) Yes                    2) No

29. How do you feel about data collection instrument and the whole processes?

\_\_\_\_\_

30. In general how do you feel about the data generation at institution especially on HIV/ADIS? \_\_\_\_\_

31. How do you document HIS/HMIS data? \_\_\_\_\_

## **Part II At the district level**

1. Is the unit/department aggregate and process facility monthly reports especially on HIV/ADIS?

1) Yes                      2) No

2. Is the unit/department prepared and report monthly quarterly reports especially on HIV/ADIS?

1) Yes                      2) No

3. If yes evidence based and at what date? \_\_\_\_\_

4. To which unit/department the unit/department report monthly quarterly reports especially on HIV/ADIS? \_\_\_\_\_

5. In the past 3 months, how many times the unit/department supervised?

\_\_\_\_\_

6. Feed back from unit/department in the organization on daily, monthly, quarterly and

Annual basis

1) Yes                      2) No

7. Feed back from regional and zonal health office on monthly, quarterly and annual

basis. 1) Yes                      2) No

8. Is the unit/department has the knowledge on data collection tools (Questionnaire)?

1) Yes                      2) No

9. Is the units/departments have data collection standards including case definitions?

1) Yes                      2) No (Evidence required)

10. Are the units/departments having data transmission, processing, and reporting rules?

1) Yes                      2) No

11. Is the units/departments have training design and standards, including standards for production an dissemination of materials?

1) Yes                      2) No (evidence required)

12. Are the units/departments having continuous quality assurance of health system data especially on HIV/ADIS? 1) Yes                      2) No

13. Is the units/departments Utilize Information at the woreda health offices level                      1) Yes  
2)

No If yes, evidence based see these criteria's circle the applicable: 1= Planning, 2= budget allocation, 3= monitoring and evaluation of programs to take immediate action,

14. Is the units/departments Utilize health Information system at the Woreda Level?

1) Yes                      2) No

If yes, evidence based see these criteria's circle the applicable:

1= using information for decision making such as planning, budget allocation, and monitoring and evaluation of programs to take immediate action,

2 = feed back from respective supervisors

3= calculation of area coverage and preparation of Maps,

4= presence of key indicators with charts or tables,

5= presentation of achievements of targets at the last health center and Woreda team minutes

15. Have you ever trained about HIS/HMIS?

1. Yes          2. No

15. Had it been in service on training after 6 months about HIS/HMIS?

1) Yes          2) No

17. Have you ever heard about (HIS/HMIS) health information system/ health management information system?

1 Yes          2 No          (if yes evidence required)

18. Is the units/departments change the data in to information every month especially on HIV/ADIS? 1) Yes          2) No (if yes evidence required)

19. Is the units/departments calculate area coverage for essential services and prepare maps?

1) Yes          2) No

20. Is the units/departments use your data to prepare plan of action especially on HIV/ADIS?

1) Yes          2) No

21. Is the units/departments adapted national target to local situation?

1) Yes          2) No

22. Is the units/departments have statement on rule and interaction of health information system with Private sectors?

1) Yes          2) No

23. Is the unit/department has key indicators with charts, tables?

1) Yes          2) No

24. Is the unit/department present information to, and discus with district management

and community?

1) Yes                      2) No

25. Is the unit/department provides support to communities for surveillance?

1) Yes                      2) No

26. In the last district management team meetings, was the achievement of targets included in the minutes? 1. Yes 2. No

27. Is the unit/department having HIS/HMIS multi disciplinary committee for the all over all design and direction users of information?

1) Yes                      2) No

28. Is the unit/department has a Health information steering committee to set the long-term goals for HIS and needs to decide which key indicators should be measured and which data are necessary?

1) Yes                      2) No

29. Is the unit/department monitors key indicators and prepare district profile especially on HIV/ADIS? 1) Yes                      2) No (If yes evidence required)

30. Is the unit/department supervises Health information system activities at facilities especially on HIV/ADIS? 1) Yes                      2) No

31. No 29 if yes, How many timed in a years\_\_\_\_\_ (evidence required)

32. Is the unit/department performs performance audits of health facilities?

1) Yes                      2) No

33. If yes, how the unit/department perform performance audits of health facilities?

34. Does the Woreda health Office compare facility performance against plan target?

(Ask to see to confirm analysis /report)

1. Yes 2. NO

35. Does the Woreda health Office compare facility performance against target

Population especially on HIV/ADIS? (Ask to see to confirm analysis /report)

1. Yes 2. NO

36. Has the Woreda health Office ever assisted its health facilities in completing the

Forms correctly? 1. Yes 2. NO

37. Has the Woreda health Office ever assisted its health facilities in understanding

What the data means? 1. Yes 2. NO

38. Has the Woreda health Office ever assisted its health facilities in using the data for

Decision –making? 1. Yes 2. NO

39. How do you feel about data collection instrument and the whole processes?

\_\_\_\_\_

40. In general how do you feel about the data generation at institution?\_\_\_\_\_

41. How do you document HIS/HMIS data? \_\_\_\_\_