UNIVERSITY OF GONDAR
COLLEGE OF MEDICINE AND HEALTH SCIENCES
INSTITUTE OF PUBLIC HEALTH

Assessment on Utilization of Health Management Information System and Associated Factors at Public Health Centers Addis Ababa City Administration, Ethiopia

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A THESIS SUBMITTED TO THE INSTITUTE OF PUBLIC HEALTH, COLLEGE OF MEDICINE AND HEALTH SCIENCES, UNIVERSITY OF GONDAR, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF PUBLIC HEALTH INFORMATICS.

May 2012
Gondar, Ethiopia

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ACKNOWLEDGEMENTS

First of all I would like to acknowledge my advisors Gasahw Andargie and Tesfahun Melese for their unreserved support and guidance in every aspect of this paper.

I am also grateful to Gondar College of Medicine and Health Sciences (GCMHS), University of Gondar and Oslo University for providing me the opportunity to conduct a research on my area of interest and my research team including the supervisor and data collectors who took their precious time and dedicated their full interest in carrying out the research, A.A.C.A.H, all Health centers staffs where the research was undertaken for their full cooperation, assistance and for providing the required information.

My gratitude also goes to my father Ato Adane Berihune who was passed a couple of years a ago, for his brilliant and thoughtful encouragement to succeed in my education.

My sincere gratitude would also go to all my friends and instructors who were willing to give constructive comments and support of any kind.

Last but not least, I owe a lot to my families, my mother W/o Yeshalem G/Hiwot, my husband Mr. Hailesemait Mekonnen and my sweet daughters Lud & Afomya for their loyal and unwavering support during my college study.

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LIST OF ACRONYMS

A.A	Addis Ababa
AACAHB	Addis Ababa City Administration Health Bureau
BPR	Business Process Re-engineering
CSA	Central Statistical Agency
DHIS	District Health Information Software
DHSP	District Health Information systems program
EHR	Electronic Health Records
ENT	Ear, Nose, Throat
EOPD	Emergency Out Patient Department
EPI	Expand Program of Immunization
EPI nfo	Epidemiological information
ETB	Ethiopian Birr
ENHISAR	Ethiopian National Health Information System Assessment Report
FMOH	Federal Ministry of Health
GCMHS	Gondar College of Medicine and Health Sciences
HMIS	Health Management Information System
HMN	Health Metrics Network
HIS	Health Information System
HISP	Health Information System Program
HIV/AIDS	Human Immune Virus/ Acquired Immune Deficiency Syndromes
HSDP	Health Sector Development Program
HC	Health Centers
HSIP	Health Information system Program
ICT	Information Communication Technology
IT	Information Technology
MDG	Millennium Development Goal
MPI	Masters Patient Index
MRU	Medical Record Unit
NHISAR	National Health Information System Assessment Report

NGO	Non Government Organization
OPD	Out Patient Department
RHB	Regional Health Bureau
SPSS	Statistical Package for Social Sciences
W H O	World Health Organization

ABSTRACT

Background: Health Information System (HIS) is integrates data collection, processing, reporting & use of information that are necessary for improving health service .Health Management Information System (HMIS) is a sub system under HIS that is specially designed to assist the management and planning of health programmes as opposed to the delivery of care and decentralized decision making and planning. However, decentralized information management is at its infancy stage in Ethiopia. Hence, to ensure the effective and efficient utilization of HMIS, periodic assessment becomes imperative.

Objective: The study aims to assess the utilization of HMIS at P H C in A. A.C.A.

Methodology: Institution based cross sectional quantitative and as a supplementary qualitative study design was conducted from April to October 2011.A total sample size of 416 was calculated using single population proportion formula. Frequencies, proportion and summary statistics were used to describe the study population in relation to relevant variables. Bivariate and multivariate analyses were also carried out to see the association between each independent variable and dependent variable.

Result: Four hundred sixteen health professionals' respondents responded to the questionnaire with 98 % response rate. The current utilization rate of HMIS at health centers was about 41.7%. The total outcomes of the generated routine data were compiled using tally sheet, registers, and reports, and the combinations of these formats. The combined utilization of the mentioned formats constituted 199(48.8%). Logistic regression result indicated that the provisions of technical supports, presence of computers, generated data at department level and practice of conversion of data into information enhanced the utilization of HMIS [AOR = 1.69, 95%CI:1.09-2.63], [AOR = 2.08, 95%CI:1.29 - 3.35] [AOR = 2.78, 95%CI:1.65 - 4.68], and [AOR = 3.44, 95%CI:(1.82 - 6.51)] respectively.

Conclusion & recommendation: The utilization of HMIS at PH.Cs in A.A is still low. It is recommended that the staffs should get intensive training, feedback, and supervisory support to enhance their motivation and commitment.

1. INTRODUCTION

1.1 Background

Health management information system (HMIS) is a process in which health data are recorded, stored and processed for policy-making, planning, implementation and evaluation of health programs for appropriate use of resources at all levels of the health systems (1).

WHO clearly stated that, information and effective health management at all levels are the prerequisite for productive health services and effective health service delivery. Developing quality health information management system is crucial to render fast and efficient service to patients/clients. Good information management is also a prerequisite for improving the effectiveness of health services. WHO has identified health information system (HIS) as critical element to achieve the campaign" health for all" by the year 2000 and beyond (2).

HIS is provision of information for the management of health programmes and services in general and to the health situation like the performance of promotion, prevention & curative health resources(3)

HMIS has sub system under HIS like epidemiological surveillance, service recording and reporting, program monitoring / evaluation and vital registration including HMIS. So HMIS is a sub system of HIS to emphasize the use of information for management of the health system (3).

HMIS is an information system specially designed to assist the management and planning of health programs, as opposed to delivery of care. It encompasses designing the data collecting and reporting tools, determining the data flow, developing procedures for data processing, and training the necessary human power to enhance the capacity and efficiency of the system.

HMIS plays predominant role in streamlining the interactive health units and arriving at decisions taking into account the wholesome objective and integrated system contents. The data and information that is readily available for timely monitoring comes from routine service and administrative records harvested through the HMIS (1) .

Therefore, HMIS is crucial for evidence based policy-making, informed decision-making during planning, implementation and evaluation of health programs; and for appropriate use of resources at all levels of the health system(4). Further, it serves as essential and necessary tool for assisting health managers to monitor activities and reach logical decisions for improvement of health services (2).

In Ethiopia HMIS that had been existed before the newly redesigned HMIS 'as-is' had low capacity to achieve the Ministry's objectives considering indicators of efficiency (time and money) and effectiveness (meeting performance requirements and expectations). HMIS is important for producing quality information that could be retrieved and manipulated by health service managers to improve health service delivery, which will in turn, improves the health status of the Ethiopian population (4).

To alleviate the existing problems and strengthen health management information system and processing, the FMOH launched a reform on HMIS/ M&E in 2007 the overarching principle of the reform was simplification, integration and standardization (4).

1.2 Statement of the Problem

Developing countries are reported to have a large amount of unreliable health data, poor human resources, poor information technology infrastructure, and defective Health Management Information Systems (5, 6). Therefore, it becomes imperative to improve the processes of data handling in order to extract useful information for health planning, decision making, and resource allocation.

The Ethiopian National Health Information System Assessment Report (ENHISAR) of 2007 identified that HMIS is among the major problems of the health sector. It is characterized by burdensome and small qualified staff, poor and fragmented information flow with no integration among the various subsystems. This resulted in conflicting reports and poor quality of data in terms of accuracy and timelines, preventing information users from effective utilization of information for decision making (7). The management of health information has been in the process of revitalization in the past five years in public hospitals and health centers of A.A.C.A. Despite the processes of revitalization, information systems of the public health institutions are not so far satisfactory in terms of standardization, customization and computerization (6).

The principal objectives of the FMOH in its strategic plan were to define the minimum standard of inputs required for HMIS at different levels of the health system and to initiate and sustain regular program review and feedback system. Regular supervision, feedback and timely staff training are very important in building capacity of the HMIS at all levels. However, in A.A regional health bureau public health institution are rarely supervised and feedback to government and NGOs are almost non-existent (16)

It is important to investigate the achievement of the objectives of the FMOH. Although few studies have been conducted on the utilization of HMIS in Public Hospitals of A.A (8), there was no study conducted on HMIS at health centers in A.A as far as my literature review is concerned. Therefore, the present study tries to investigate the utilization of the institutionalized reform of HMIS in public health centers under A.A.C.A.H.B.

1.3 Literature review

1.3.1 Historical back ground of HMIS

The innovation of HMIS began in the USA and then mushroomed in various parts of the globe. Initially the purpose of HMIS was to solve financial constraints. Historically, most health care organizations were using HMIS for isolated data processing applications. The restricted use of HMIS for specific operation tasks was focusing only on automation. The utilization of HMIS for restricted and isolated operation contributed to the soaring of costs. Hence, to reduce financial problems the idea of HMIS was born in USA. Later on in the light of the soaring costs, the principle of HMIS used to delivering quality health care in cost effective manner, i.e., managed care have been under pressure to adopt HMIS which lead to declining health care costs(9) .

Health information has been variously described by various scholars as the “foundation” for better health, “glue” for holding the health system together, and “oil” for keeping the health system running. However, there is a broad consensus that a strong health information system (HIS) is an integral part of the health system. The operational boundaries include routine health information systems which is the glue of a unified health system (10).

Similarly in Europe the integration of technologies for public heath care activities were excellently diffused and became part and package of the system (11). For instance, the use of information technology for National Health Service was current in England .Around the world similar developments in the use of Information technology (IT) are taking place with increased employment of electronic health records (EHR), automated administration and increased electronic sharing of patient information (12).

In developing countries the health management is not yet developed. For instance, in Zambia there is not adequate environment to produce quality data in the health services (13).As a consequence, there is no regular access to up-to-date health related information in Zambia. 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 without adequate feedback is very limited at all levels of regional health centers (14).

The exchange of information between nations has great significance to shared ideas regarding health related problems and solves the common problems together. Similarly, the available health information in a certain country should be imparted and known by other countries for the well being of the general public at large because it might have global impact.

Therefore, the institutionalization of the HIMS as a specialized unit in health institutions becomes a basic necessity that should be carried out as a major activity which has to be taken by health sectors in order to promote international relationship and information exchange. Meanwhile, for the same purpose the FMOH Ethiopia developed a strategic plan to accomplish the millennium development goal (MDGs) in accordance with the international indicators. To do so, the Ministry has planned to develop and implement a comprehensive and standardize national HMIS and ensure the use of information for evidence based planning and management health services (15).

1.3.2 HMIS utilization

According to FMOH report, in Ethiopia HMIS costs around 17 million birr annually, of these costs around 88% of the money is utilized for patient/client records, and the remaining 12% for tallying and compiling data reported through HMIS (4). This implies that the HMIS is an important component of the health management which requires comprehensive and research based action. To reduce the HMIS cost it becomes imperative to identify the existing problems, like illumination of duplication imbedded in the patient/client record. Therefore, assessment is one of the steps in the evaluation of the existing systems. This is done by identifying the nature of problems thereby determining how much facilities have capacity to sustain HMIS wisely (15).

Addis Ababa City Administration Business Process Re engineering (BPR) report showed that it had the highest level of staffed HMIS units. For instance, 95% of the public health facilities have HMIS unit to collect and process the data registered by the

health professionals. Around 60% of them stated that they have no adequate capacity to collect and process data. The major limiting factors 47.9% were stated to be shortage of trained staff and lack of time (16).

Excellent HMIS should comply with its principles of simplification, standardization and integration. This refers to the wise use of scarce resources to meet the intended objectives, standardization principles implies the uniformity of indicators and formats that can be comprehended by large users, third feature is that integration of emphasized streamlining of data to be shared by all partners. An essential part of HMIS reform is improving the quality of data and its use in improving service delivery (17).

To do so, FMOH reduced the amount of data collected at each level to 108 indicators. These indicators are very relevant to signal the need for direct action and to use the HMIS to gather data that are required to calculate those indicators simplification of data has its own drawbacks such as compromising the quality of data due to reduction of indicators is unsettled (18).

HMIS data should also be harmonized with health related and multi-sect oral data collected by other organizations such as vital events registration, census and survey (19). This uniformity of formats and checklists would standardize and make the access very friendly. Thus, standardization, institutionalization and customization of the information system become significant to improve the health information system. The process of improving HMIS requires appropriate institutional framework consisting of technical expertise, adequate funding and strong institutional commitment to ensure long term sustainable HMIS (3).

1.3.3 Organizational infra structure

HMIS unit equipped with information communication technology (ICT) materials and filled by trained staff could improve the quality, timeliness, clarity, presentation and use of relevant information for primary health care. However, information systems are much more than computers and telecommunication equipment for they involve people and their actions in the organizational setting in which they work. Thus, manual data process

should also be included in training courses (20, 21). There is a need for committed and competitive skilled professionals. A recent study conducted in A.A showed that only 47% of physicians responded positively to the importance of health information for the improvement of health service(16).Thus, the implementation and sustainability of HMIS can be affected by the behavior and attitude of the workers but the study mentioned above indicates the prevalence of a challenge to improve the HMIS in Addis since the physicians do not have strong positive attitude towards HMIS.

Furthermore, Data flows in HIS University of Oslo also indicated that data collected were not used for health management decision making because they are incomplete, inaccurate, untimely, obsolete, and unrelated to priority tasks and functions of local health personnel (22).

This action would compromise the HMIS integration feature for there would be poor analyzing and processing of data that helps to provide objective decision making. Collected data should be analyzed and processed to produce objective decision making practice. However, a study conducted in Addis Ababa Regional Health Bureau showed that 76.5% of the staff responded that they transferred data to higher management as periodic reports, 69.6% of unit heads responded that they analyzed the data, only 23.8% of the staff stated that they had experience in presenting their analysis in graphs, charts, and document for access(16).

All health facilities are required to present periodic reports to their respective higher levels. A study conducted with HMIS unit officers showed that 95% of reports received from public health institutions are sent timely but reports from private and NGOs hospitals and health centers are delayed (16). Another study conduct on the utilization of HIS at district level with particular emphasis to HIV/AIDS program in North Gondar, indicated that out of 236 health professionals in Health, 19.9% submitted their monthly report before 19th day, 33.90% between 20&24th day, and 46.19% after 25th day of every month. The utilization rate of information was 22.5% in all the study units & 8% for HIV/AIDS (23).

1.4. Justification of the Study

Health Management Information System is one of the seven major components of Ethiopia's Health Sector Development Program since 1997/8(1990EFY) (24).This indicates that issue of health management information system is receiving due attention given by the Ethiopian government. However, the achievements so far are not satisfactory.

The reason for this could be listed as follows the considerable problems of incompleteness, untimely, redundancies of records, diversified format to collect data, and inconsistency of facts are some of the challenges in the health information system in Ethiopia (25).

HMIS is the early step in the strategy for strengthening and improving it. This investigation contributes to the improvement of current HMIS at Health facilities in A.A. Therefore to ensure the effective and efficient utilization of a system, periodic assessment is very important at this juncture.

2 OBJECTIVES

2.1. General objective

- To assess health management information system utilization and associated factors in all public health centers in Addis Ababa, April to October 2011.

2.2 .Specific Objectives

- To describe routine data generation process.
- To determine the utilization of HMIS.
- To identify factors associate with utilization of health management information system among public health centers of Addis Ababa City Administration.

3. METHODS AND MATERIALS

3.1 Study design and period

Institutions based cross-sectional quantitative study design and as a complementary mixed method were employed. For qualitative data observation was done using check list to supplement the result of quantitative methods. The study was conducted from April to October 2011.

3.2 Study Area

The study was conducted in Addis Ababa City Administration (AACA) public health centers. Addis Ababa is the capital city of Ethiopia. It is situated at the heartland of the country, with an area of 540 square kilometers, with latitude 9^0 North and longitude 38^0 East. Addis Ababa is divided in to 10 administrative sub cities and 99 woredas. It is one of the two city administration of the Federal Democratic Republic of Ethiopia. A.A has a total population of 2,738,248 of which 1,304,518 (47.6%) were Males and 1,433,730 (52.4%) Females (27) Potential health service coverage of A.A is 86.45% (28).

A.A.H.B is responsible for the overall health activities of the city. The city has 13 public hospitals (5 under the health Bureau) and 26 health centers. In addition, there are 15 private general, seven specialized hospitals as well as clinics at different levels 89 Higher,110,medium,98lower,90specializedclinics,Ear,Nose,Throat(ENT),ophthalmology Dentistry (26). The 26 health centers are found within 10 sub city in A.A.

Health Information System Program (HISP) Ethiopia was initiated as a collaboration project between the Department of Information Science, Addis Ababa University and Department of Informatics at the University of Oslo. Initial attempts by HISP to get the formal approval of the FMOH were not accepted mainly by giving a pretext that they are intending to undertake the development and implementation of HIS using their own experts, and indicating that their priority was the development of a national HMIS strategy (6).

3.3 Source population

The source population for the study was all health workers who have been working in the 26 public health centers of Addis Ababa City Administration.

3.4 Study population

All health professionals who were working in public health centers were included as subjects of the study.

3.4.1 Inclusion criteria: selected health professionals who served at least for six months were included.

3.4.2 Exclusion Criteria: Health professionals who were ill during data collection period were excluded.

3.5 Sample Size

The sample size is calculated using single population proportion formula with the following assumptions.

$$n = \frac{(z\ \alpha / 2)^2\ P(1- P)}{d^2} = \frac{(1.96)^2(052)(0.48)}{(0.05)^2} = 384$$

Where:-

n= sample size

P = 52%, a value obtained from a related research which was conducted on Assessment of Health Management Information System at Public Hospital in Addis Ababa (8) .

$(Z\alpha/2)^2$ = confidence level at 95% (1.96).

d = 5% marginal error.

Sample size = 384

Add 5 % non-response rate

Total sample size= 403.

The 403 sample size was equally allocated to the 26 facilities, which was calculated around 16.

Finally the total sample size was obtained to be 416

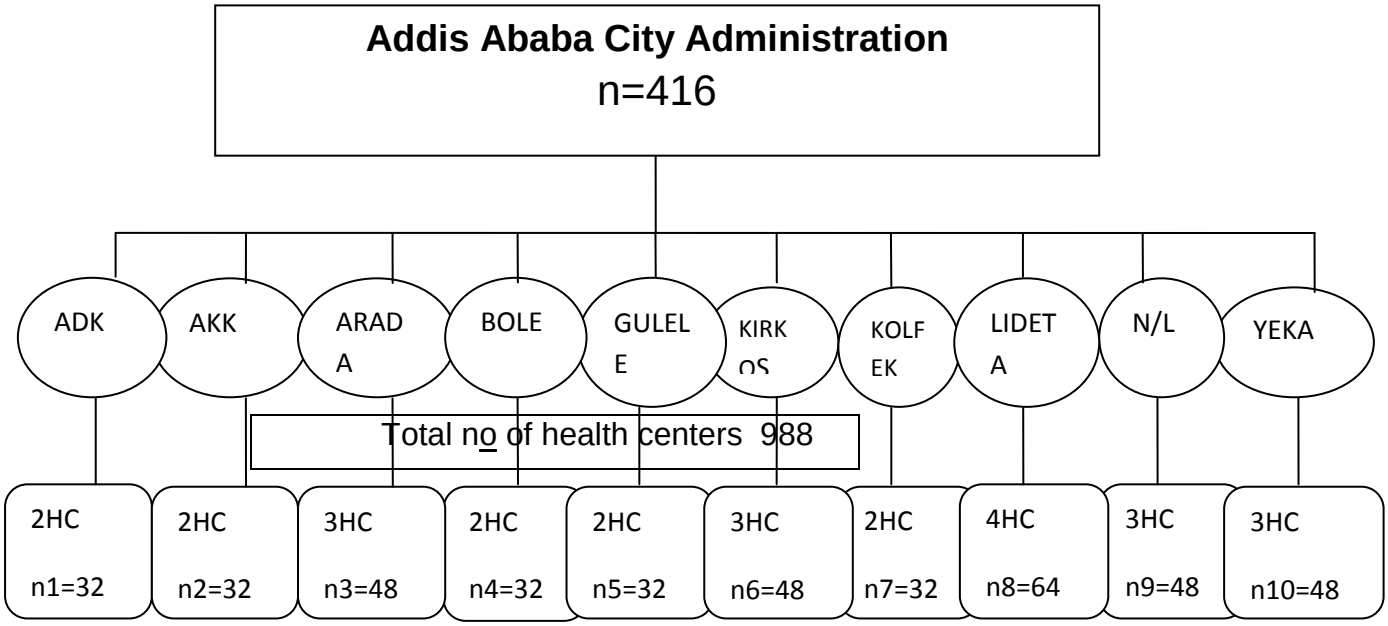

Fig 1. Schematic presentation of sampling procedures

3.6. Sampling procedure

Simple random sampling was used to select study subjects using computer generated random number .This is done by taking the lists of health professionals from all public health centers human resource administration department as a sampling frame. Further observation was done using check list to support the result of quantitative methods.

3.7 Variables:

3.7.1 Dependent variables:

- Utilization of HMIS and associate factors at public Health Centers.

3.7.2 Independent *variables:*

- ❖ Socio demographic characteristics (sex, age, educational level, salary, year of service, and occupation).
- ❖ Resource for HMIS (financial resource/budget for HMIS), human resource, ICT infrastructure (medical record unit (MRU)), standard shelf, master patient index (MPI box), information culture (use display chart, graph).
- ❖ Data completion process (data collection forms, reporting forms, and processes system)
- ❖ People who collect and use the data (attitudes and motivation, guide lines and training)

3.8 . Operational definitions

- **Information System:** A system that provides information support to the decision-making process at each level of an organization (29).
- **Health Information System:** A system that integrates data collection, processing, reporting, and using of information necessary for improving health service effectiveness and efficiency through better management at all levels of health services (29)
- .**Health Management Information System:** An information system specially designed to assist in the management and planning of health programmes, as opposed to delivery of care (29).
- **Utilization of health Information system:** were assessed by a matrix which include:
  1. Using information for decision making to take immediate action.
  2. Feedback from respective supervisors.
  3. Calculation of area coverage and preparation of maps.
  4. Presence of key indicators in charts or tables (indicators were not expected to be the same that is varies from one unit to the other unit).
  5. Presentation of achievements of targets at the health facilities.

  So, the study units will be considered as utilizing health information system when they are practicing at least three out of the five criterions listed above. (23)

- **Woreda:** The smallest administration unit of the country.
- **Standard MRU :** Area for health center rooms specified as ≥ 24m^2 for hospitals ≥60m^2
- **Standard shelves** specification of standard rooms with height of 3 meters.

I. Shelves: height, length, width, columns, rows and cells

- ✓ Height 2.75m, length 2m
- ✓ Columns 4, rows 8-10
- ✓ Cell: ht 25cm, width35cm, length 50cm, 'based on size of new folder and preferred size of shelve .Shelf specification in rooms with smaller height is similar except for the height. The height can vary, but there should be 25cm space between the upper edge (top) of shelve and roof of a room as mentioned earlier.

II. MPI boxes: In hospitals overall height of 1.5m, length of 2meters width with at least 26 pockets for alphabets, In practice some alphabets are repeated more than other alphabets, therefore, 40 boxes (pockets) are advisable. In health centers, the only difference is overall length that is, 1m and pockets (boxes) 32 (adapted from Report paper fact sheet of FMOH).

- **Paramedics: A** professional who works in a health field in an auxiliary capacity to a physician by giving injections and taking X-rays (taken from free Merriam-Webster Dictionary).

3.9 . Data collection procedures and quality control

Self administered structured questionnaire was used to collect quantitative data, for qualitative part observation check-list was used to identify data generation protocols and availability of HMIS resources.

The questionnaire was prepared in English and translated in to Amharic. Then it is translated back to English to assure consistency. Three days training was given for three supervisors (two Heath Officers and one degree Nurse) and five data collectors (degree and Diploma holders) to facilitate the data collection process. Pretest was conducted at ‘’Debrezeite’’ health center and necessary adjustments were made prior to the actual study time.

3.10 Data processing and analyses

The collected data were entered, after being encoded using EPI info version 5.3.1 and finally analyzed using SPSS version 16. Data cleaning was performed by generating frequency table to check, missed values and variables. Errors identified during data entry were corrected after revision of the original completed questionnaire.

Descriptive statistics was used to characterize the study population in relation to relevant variables. Strength of associations between dependent and independent variables was assessed using odds ratios and 95% confidence intervals to statically significances. Both bivariate and multivariate logistic regression was used to assess the association between outcome and explanatory variables. Variables having p value of 0.2 (as cut off point) in the bivariate analysis were fitted in to the multivariate model. The results were presented using texts, tables, charts, and figures. For observational findings thematic analyses with a framework approach were employed. Thematic analysis is flexible in nature that makes it useful to organize & describe data in great detail. It is an approach to deal with data that involves the creation & application of codes to data.

3.11 Ethical considerations

The study was carried out after getting approval from the Institution Review Board University of Gondar. Data collection was preceded by securing written consent from Addis Ababa Health Bureau, through formal permission letter obtained from the Institution of Public Health University of Gondar. After the purpose and objective of the study had been elaborated to each informant, verbal consent was obtained from each study participants. Participants were also informed that participation was on voluntary basis and they were aware of their rights that they could stop or leave from participation at any time they felt any inconvenience or discomfort. In order to keep confidentiality of any information provided by study subjects, the data collection procedure was anonymous.

3.12 Dissemination of results

The final report will be submitted and presented as partial fulfillment of the degree of Master of Public Health to the Institution of Public Health, Gondar College of Medicine and Health Sciences, University of Gondar. The surveyed health centers, Addis Ababa Health Bureau, the ten sub cities, and interested governmental and non-governmental organizations will also get the copy of the final report. Attempt will be made to present the findings of the study at different conferences and workshops and will be sending to publication in local or international journals.

4. RESULTS

4.1 Quantitative study

4.1.1 Socio-demographic characteristics

A total of 416 respondents were participated in the study with response rate of 98%.Regarding the demographic characteristics of respondents, 225 (55.1%) were females, 306(75%) were within the age range of 22 - 32 with a mean age of 30 years (S.D ±7.43), 162(39.7%) of them had salary ranging from 2250-5145 ETB and 275 (67.5%) of them had 1-to 5 years of service.

With regard to level of education, health professionals with degree and above constituted 192(47%) and diploma and below were 216 (53%). Majorities of the respondents were diploma holders in different health fields/discipline and Medical Doctors constitute the least number 1(0.2%). Health professionals involved in the study were nurse diploma 155 (38%), Degree Nurses 95 (23.3), Health Officers 55(13.5), paramedics Diploma 63 (15.5%), paramedics degree 39 (9.5%). 91 (22.3%) were currently working at OPD, 70 (17.2%) at MCH, 41 (10%) at HIV- clinic the remaining professionals work at different departments like laboratory, pharmacy, EOPD, EPI, and inpatient. Out of the total respondents, (66.9%) were technical staffs followed by department heads (33.1%) (table.1)

Table.1 Socio-demographic characteristics of the respondents in the health centers of A.A .July 2011

Variables	Frequency n=408	Percent
Sex of respondents		
Male	183	44.9
Female	225	55.1
Age (years)		
20-24	93	22.8
25-29	163	40.1
30-34	65	15.9
35-39	34	8.3
40-44	23	5.6
≥45	30	7.3
Salary (ETB)		
< 1249	100	24.5
1250-2249	146	35.8
>2250	162	39.7
Year of service		
1-5	275	67.4
6-10	75	18.4
11-15	29	7.1
16-20	16	3.9
21^{+}	13	3.2

Table.1-(continued) Socio-demographic characteristics of respondent in the health centers of A.A, July 2011

Variables	Frequency n=408	Percent
Level of education		
Bachelor Degree	192	47
Diploma	214	52.5
Certificate	2	.5
Respondents Occupation in the organization		
General practitioner	1	.2
Nurses Diploma	155	38
Nurses Degree	95	23.3
Health Officers	55	13.5
Paramedics Diploma	63	15.5
Paramedics Degree	39	9.5
Currently working departments		
OPD	91	22.3
F/P	26	6.4
EOPD	29	7.1
In patients	8	2.0
Laboratory	36	8.8
MCH	70	17.2
Pharmacy	36	8.8
Tb & Leprosy	14	3.4
Data clerk /statistics	9	2.2
EPI	30	7.4
Others	18	4.4
Respondent position in the organization		
Department Head	135	33.1
Technical staff (no position)	273	66.9

4.1.2. Data generation process: The routine health data were gathered by using register, report, and tally sheet. The data generation mechanisms in the studied health centers were predominantly based on tally sheet, registers, and reports in combination that accounts 199(48.8%).

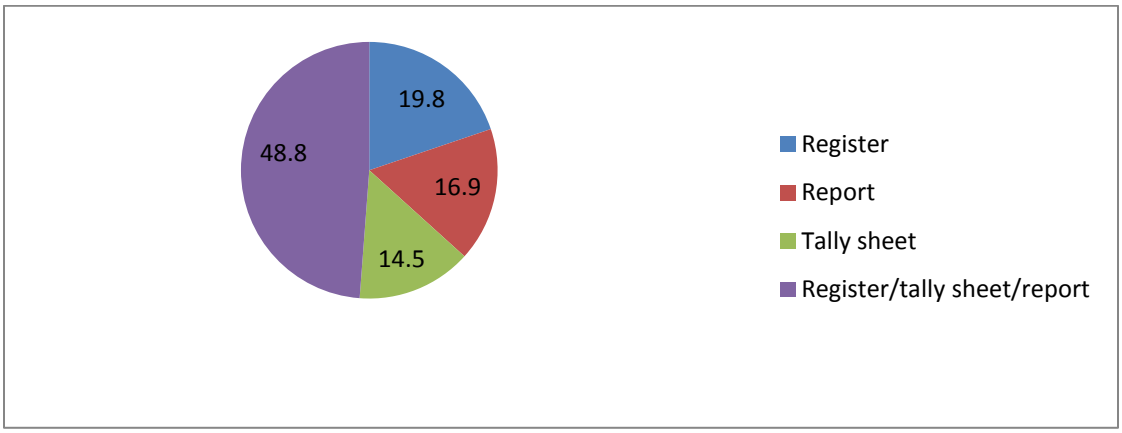

Figure 2 Data collection tools used by studied health facilities, July 2011.

Regarding the convenience of the recording tools to register or collect data, 194 (47.5%) of the respondents replied that there was incompleteness and difficulty to understand the formats while 134(32.8%) replied that the formats were simple and complete and 80(19.6%) did not comment in this issue.

To the question that whether there were shortages of paper formats to gather health data or not, 273(67%) replied that there was no shortages of paper formats, while the remaining respondents expressed that sometimes there was shortage of tools especially within the last three months preceding the service.

It has been observed that 83.1% of respondents replied that they registered the health activities /services rendered routinely and 87% of the respondents have taken data collection as part of their duty. 83.1% of the respondents indicated that the workers were committed to collect health data. (79.2%) were collected by health professionals themselves and data clerk collected 28.9%[1] of the data. Eighty two percent of the respondents argued that formats were legibly and completely filled by health professionals.

[1] The sum exceeds the total number of respondents because of multiple responses.

Majority of health facilities (62.7%) had computer programs to enter data. Most of the respondents (64%) replied that the collected data has been analyzed and displayed in the graphs and charts while147 (36%) of them replied that the data were not (table 2).

Table 2 Registration of health activities and data analysis at health centers A.A, July 2011

Variables	Frequency	Percent
Register the health activities		
Routinely	339	83.1
Rarely	28	6.8
Not at all	11	2.7
DK(do not know)	30	7.4
Data analyzed and displayed		
Graph	68	16.7
Chart	62	15.2
Both	131	32.1
No analyzed	147	36

In some of the health centers, reports were displayed by graph, chart and by both (figure 3).

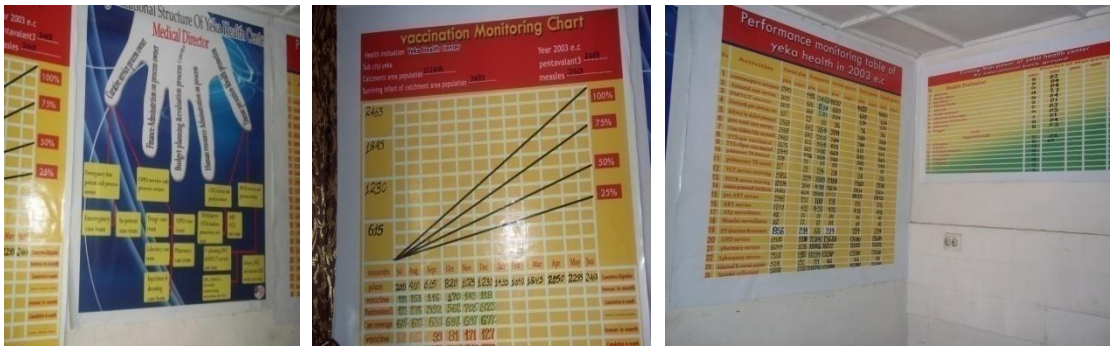

Figure 3. One of the Health Center use displayed information at, A.A.July 2011**.**

The collected data were documented using paper formats or directly feed into the computer. In the studied health facilities, 178(43.6%) used only paper formats, 66(16.2%) of them used only computer formats where as 164(40.2%) of the health

centers used both computer formats and paper formats to collect and document health information of their clients (Figure 4).

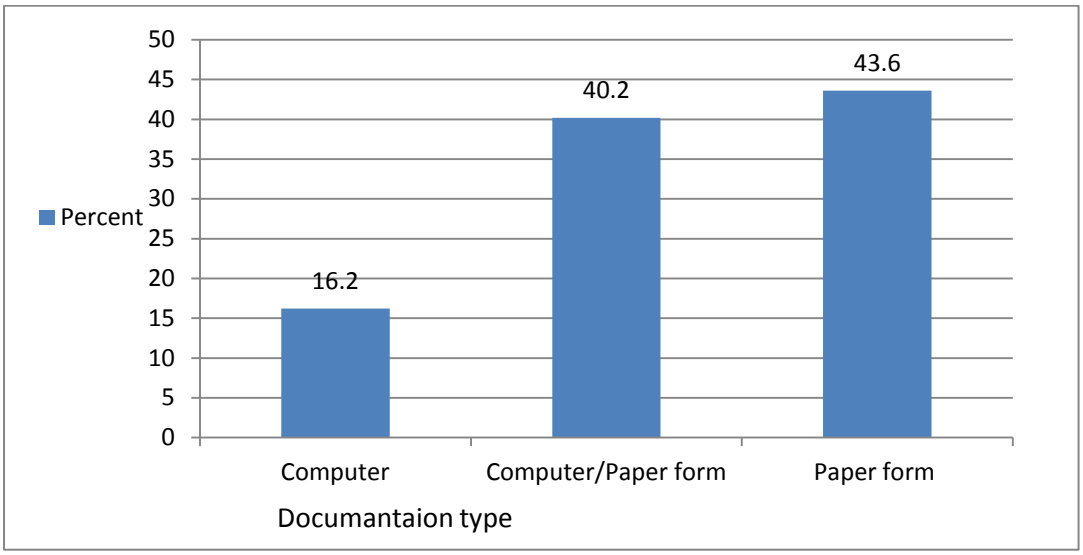

Figure 4: Percentage of documentation forms used by the health centers A.A July 2011

4.1.3 Utilization of Information:

Out of the 408 respondents, 170(41.7%) have met three and more criteria for information use. (Fig 5).

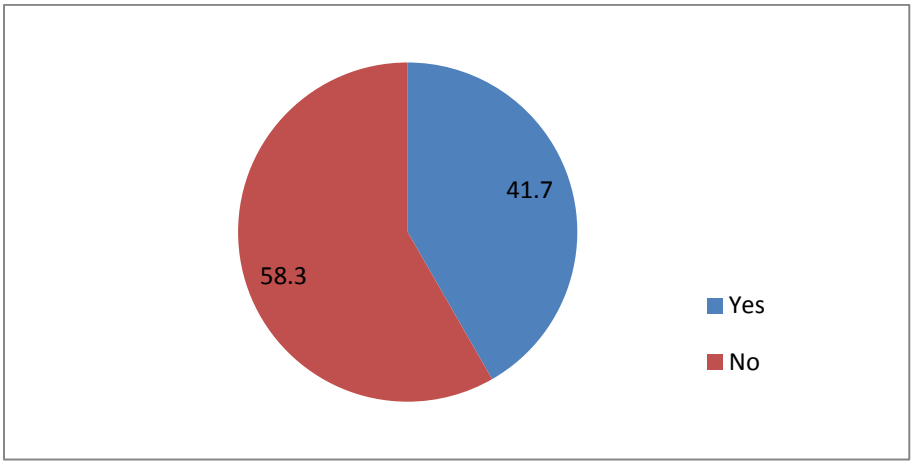

Figure 5: Percentages of HMIS utilization in health centers July 2011

About a quarter of the respondents 111(27.2%) reported that they used the generated information for the purposes of giving information to users, comparing it with the

previous year accomplishments, planning, monitoring and evaluation of programs, and decision making 62(15.1%),t he remaining respondents 46 (11.2%) reported that they report the information to upper level management while 22 (5.4%) of the respondents answered that they had no idea about its utilization 40% of the respondent were not used[2].

Table 3: Respondents' use of generated information at their departments, Addis Ababa health centers July 2011.

Variables	Frequency	Percent (%)
To give information to the user	103	24.9
To compare it with the previous	76	18.5
Monitoring/Evaluation of programs to take immediate action	64	15.6
Planning	85	20.7
Decision making	62	15.1
For ward upper level	46	11.2
For all	111	27.2

In addition the generated and analyzed data also used by the health institution itself 253(62%) and 46(11.3%) higher managerial bodies and both health center and higher offices 87 (21.3) while 22(5.4%) of respondents answered they had no idea about its utilization[3].

[3] The sum exceeds the total number of respondents because of multiple responses

Table 4 the utilization of generated information at health centers A.A July 2011

The generated and analyzed data Used by	Frequency	Percent
Health institution itself	253	62
Higher management	46	11.3
Both the health center and higher offices	87	21.3
Not used by the health center & other offices	22	5.4

Regarding the conversion of health data into information, 305 (74.8%) of respondents replied that they knew the generated data were converted into information while103 (25.3%) of them did not have any idea as to whether the data converted into information or not. Regarding data conversion to health information, 198(63%) respondents replied that the data conversion was being done on monthly basis.

Toward the availability of guidelines for HMIS, 211(51.7%) of the respondents replied that the health facilities had guidelines and user manuals to run their activities effectively. Yet, 197(48.3%) respondents replied that they did not have idea about the availability of guidelines for HMIS.

Three hundred twenty three (79.2%) respondents replied that the health facilities had clear annual plans with indicators .Means of communication with higher offices such as with the sub- cities and Addis Ababa City Administration Health Bureau was commonly made using reports,236(57.8%) followed by supervision 208 (50.4%) and seminars/meeting 134 (32.8%).[4] Regarding getting feedback from the upper level, 208 (51%) of the respondents answered that the health institutions received feedback on a monthly basis,67(16.4%) quarterly,37(9.1%),weekly,34(8.3%),every two weeks, 26(6.4%), daily 26(6.4%), and annually 18(4.4%). According to the respondents 265(65%) feedback is given by means of meetings on HMIS. Of this number, 133 (27.7 %) replied that meeting sessions were made regularly, and 152 (37.3%) replied the

[4] The sum exceeds the total number of respondents because of multiple responses

meetings were not made on regular basis. This result has strong association with the result of the observed performance log book and minute reports that showed irregular meeting of performance monitoring team.

Most of the respondents 370(90.7%) were heard about HMIS, however, only 303(74.3%) of the respondents have taken training on HMIS. Among these 152 (37.2%) of the respondents took the training last year, 128(31.4%) before a year and 22(5.4%) two years ago

The findings of this study indicated that 339 (83.1%) of the health worker have never obtained incentives/motivation on HMIS. Sixty nine (16.9%) of health workers received incentives/motivation, in the form of training and recognition.

Among the total respondent, 200(49%) replied that the HMIS units got technical support from concerned body, the rest answered that they had no idea whether the HMIS unit got technical support or not.

4.1.3 Factors associated with the utilization of HMIS

Socio-demographic factors, awareness about HMIS, presence of HMIS unit and focal person, burden of duties of HMIS on health workers, the practice of using generated information, feedback, availability of computers, presence of technical supports and attitude of workers towards HMIS were taken as factors that would affect the utilization of HMIS. Variables that had P-values less than 0.2 in the bivariate relationship were selected and taken to a multiple logistic regression model (Table-5).

Table-5 Bivariate relationship between selected variables with utilization of HMIS at health centers in Addis Ababa, July 2011.

Variable	Utilize HMIS		Crude OR(95%CI)
Age	Yes	No	
20-24	38	55	0.59(0.18,1.90)
25-29	64	99	0.55(0.17,1.72)
30-34	26	39	0.57(0.17,1.89)
35-39	17	17	0.85(0.23,3.08)
40-44	8	15	0.45(0.11,1.83)
45-49	10	7	1.22(0.28,5.25)
>50	7	6	1
Sex			
Male	72	111	0.84(0.56,1.25)
Female	98	127	1
Level of education			
Degree and above	71	121	1.44(0.97,2.14)
Diploma and below	99	117	1
Year of serves			
1-5	108	167	0.28(0.86,0.95)
6-10	32	43	0.33(0.93,1.17)
11-15	14	15	0.41(0.10,1.65)
16-20	7	9	0.34(0.74,1.60)
>21	9	4	1
Salary			
<1250	45	55	1.42(0.86,2.37)
1250-2249	66	80	1.44(0.91,2.27)
>2250	59	103	1
Ever heard about HMIS?			
Yes	159	211	1.85(0.89,3.84)
No	11	27	1
Unit assigned specifically to HMIS			
Yes	103	138	1.114(0.74,1.66)
No	67	100	1
Personnel specifically to HMIS			
Yes	123	151	1.50(0.98,2.31)
No	47	87	1
Person could have other duties too			
Yes	94	116	1.30(0.87,1.93)
No	76	122	1

Table-5 continued.

Variable	Utilize HMIS		Crude OR(95%CI)
	Yes	No	
Data converted in to information			
Yes	155	150	6.06(3.35,10.95)
No	15	88	1
Receive Feedback from HMIS unit head			
Yes	109	99	2.50(1.67,3.76)
No	61	139	1
use the generated report at the department level			
Yes	142	127	4.43(2.74,7.15)
No	28	111	1
forms/tally sheet correctly and completely filled by the health worker			
Yes	146	188	1.61(0.95,2.75)
No	24	50	1
Have annual plan			
Yes	147	176	2.25(1.33,3.81)
No	23	62	1
Total	170	238	
Presence computer			
Yes	129	127	2.75(1.78,4.24)
No	41	111	1
Gap b/n the serves			
Yes	65	115	6.62(0.44,0.98)
No	105	123	1
Data collection as part of your duty			
Yes	151	204	1.32(0.72,2.41)
No	19	34	1
Training			
Yes	139	164	2.02(1.25,3.25)
No	31	74	1
Presence Incentive/motivation			
Yes	33	36	1.35(0.80,2.27)
No	137	202	1
Technical support			
Yes	100	100	1.97(1.32,2.93)
No	70	138	1
HMIS knowledge			
Yes	51	70	1.02(0.66,1.58)
No	119	168	1
Attitude on current HMIS			
Yes	127	148	1.79(1.16,2.7)
No	43	90	1

Table 6 multiple logistic regression of utilization of HMIS with predictor variables in the Addis Ababa health centers July 2011.

Variables	Utilization of HMIS		COR (95% CI)	OR 95% CI
	Yes	No		
Service Year				
1-5	108	167	0.28(0.86,0.95)	0.33(0.85,1.32)
6-10	32	43	0.33(0.93,1.17)	0.36(0.08,1.56)
11-15	14	15	0.41(0.10,1.65)	0.53(0.10,2.61)
>15	16	13	0.34(0.74,1.60)	0.34(0.06,1.90)
			1	
Salary				
<1249	45	55	1.42(0.86,2.37)	1.09(0.60,1.97)
1250-2249	66	80	1.44(0.91,2.27)	1.19(0.68,2.06)
>2250	59	103	1	
Training				
Yes	139	164	2.02(1.25,3.25)	1.52(0.88,2.62)
No	31	74	1	
Personnel specifically to HMIS				
Yes	123	151	1.50(0.98,2.31)	0.95(0.55,1.62)
No	47	87	1	
Other duties too				
Yes	94	116	1.30(0.87,1.93)	0.89(0.55,1.44)
No	76	122	1	
Data converted in to information				
Yes	155	150	**6.06(3.35,10.95)**	**3.44(1.82,6.51)***
No	15	88	1	
Received feedback				
Yes	109	99	2.50(1.67,3.76)	1.48(0.92,2.37)
No	61	139	1	
Use generated report at department level				
Yes	142	127	**4.43(2.74,7.15)**	**2.78(1.65,4.68)***
No	28	111	1	
Annual plan				
Yes	147	176	2.25(1.33,3.81)	1.50(0.85,2.75)
No	23	62	1	
Presence of computer				
Yes	129	127	**2.75(1.78,4.24)**	**2.08(1.29,3.35)***
No	41	111	1	
Technical Support				
Yes	100	100	**1.97(1.32,2.93)**	**1.69(1.09,2.63)***
No	70	138	1	
Attitude on HMIS				
Positive	127	148	1.79(1.16,2.77)	1.10(0.65,1.86)
Negative	43	90	1	

*variables that are significant at p<0.05 level

Utilization of HMIS was compared to socio-demographic variables, and other key variables like training, conversion of data into information, staff attitude on current HMIS, presence of HMIS focal person, burden of duties, feedback provision, use of generated report at department level, preparation of annual plan, and availability of computer and computer programs. The result of the analysis indicates that salary, level of education, year of services, presence of HMIS focal person, burden of duties, and training significantly affect the utilization of HMIS before adjusting confounders.

The result of multiple logistic regressions analysis showed that the rate of data conversion into information, [AOR = 3.44, 95% CI: 1.82, 6.51], converted the collected data in to information had 3.44 times more likely to utilize HMIS as compare to those unit/department that didn't convert the collected data in to information. Use of generated report at department level [AOR = 2.78, 95% CI: 1.65, 4.68], those who use the generated report at department level had 2.78 times more likely to utilize HMIS as compare to departments that didn't use generated report. Availability of computer in the institution [AOR = 2.08, 95% CI: 1.29, 3.35], the institutions that have computer access for data base have 2.08 times more likely to utilize HMIS as compare to the institutions that didn't use computer for data base . Provisions of technical support [AOR = 1.69, 95% CI: 1.09, 2.63], institutions that get technical support from concerned bodies on HMIS issues have 1.69 times more likely to utilize HMIS as compare to institutions that didn't get technical support.

4.2. Observational Result

In this qualitative study the results obtained from observation check- list were analyzed using thematic approaches.

4.2.1. Infrastructure

In all studied health facilities observation was and focused on data management unit, Medical Record Unit (MRU)/card room and HMIS units. It was very difficult to measure the exact size of card rooms (MRU). Most of the observed health facilities have spacious card rooms with standard size, sufficient aeration, and moving spaces as

displayed in the following figure. Some of the observed health centers had three to four windows that provide fast tracking service system.

Figure- 6 standard MRU with & sufficient aeration and moving spaces A.A health center 2011

Some health centers had small card rooms that are crowded with materials, and have little aeration and open spaces (figure 7).

Figure 7 Medical record units with small size and staffed by materials with little aeration and open space, July 2011.

4.2.2 Equipments and materials in the HMIS units

All health centers have computers though the number varies. For instance, most health centers have one to four computers. All health centers use the computers mostly for storing and analyzing their datasets. Among the studied health facilities, 16 (61.5%) of them had HMIS unit while the remaining 10(38.5%) health centers did not have HMIS unit, but they still had HMIS focal persons and furnished card rooms. Only five of the health facilities had internet and other computer networking systems.

All health centers had HMIS focal person, of these, three health centers had 2 to 3 personnel, The remaining health facilities had one focal person with the qualification of IT 12 (46.2%), nurse 11(42.3%), and statistician and secretary 3(9.3%).

Standard shelves and MPI boxes are important equipments in card rooms that are used to store client health information. All of the health centers have certain number of shelves though they did not satisfactory. Regarding standard MPI boxes, all of them have only one standard MPI box.


Figure-8 Health center MPI box July 2011

In almost all of the health facilities, the HMIS unit focal persons have taken training on HMIS. However, all HMIS units did not have special budget to carry out their activities. The training of HMIS has been given by foreign aid organizations particularly from Tulane University. Although the funding and training of this aid organization will phase out, the health facilities directors believed to pursue the activities of the HMIS unit by their own budget and plans in the future.

In the health facilities there were performance monitoring teams that comprised of four to 12 members. Each team includes medical directors, HMIS focal persons and department heads. The performance monitoring teams have log books and wrote minutes during their meetings. The performance monitoring teams meet 3 to 4 times a year.

Fig 9: Health centers main and sub main thematic finding using thematic approach, A.A. 2011

5. DISCUSSION

There is lack of information at the local level in the scientific literature regarding competence of facilities and implementations of health information systems. This makes comparisons at facilities level difficult. This study has tried to assess competence of facilities related to data and information generation, and utilization of information. In addition, the study also tried to see the associations between utilization of information and important key factors that may affect the utilization of information at each level.

Accordingly, the data generation mechanisms in health centers are predominantly based on tally sheet, registers reports, and the combination of three tools 199(48.8%). This result indicates that a great deal of data can be generated in various formats and systems. This increases the quality of data that has been generated. According to WHO and SINAIS the accuracy of data quality is measured by the number of data registered, reported, and documented .This increases the data quality (29, 30). This research result has some association with the present study that showed the use of several formats to generate health data.

Based on the criteria set in the operational definition, the general utilization rate of health management information was found to be 41.7%. Even though most of the developing countries have low utilization rate, finding of utilization of information in Addis Ababa health centers was slightly higher as compared to the results of the study conducted in North Gondar the utilization rate was 22.5% in all the study units and 8%in HIV/AIDS units (23). Moreover, Ghana, and Uganda identified 10% and 20 % (31, 32). The present study shows slight increase in comparison to these studies. The reason for the increased utilization of information may be attributed to training and supportive supervision of AAHB and NGOs such as Tulane University.

Utilization of information in this study area predominantly to the sake of generated report is 269 (65.9%). This result compared to the result reported in India Study of Data Utilization in the Health Sector was for the sake of planning this deference may be due to infancy stage of utilization of information at health center in A.A (33)

The present study also tried to see factors that affect the utilization of HMIS. Accordingly, those units/departments that converted the collected data in to information have 3.44 times more likely to utilize HMIS as compare to those units/departments that didn't convert the collected data in to information. Other factor that affects the utilization of HMIS those who use the generated report at department level had 2.78 times more likely to utilize HMIS as compare to departments that didn't use generated report at department level. Institutions that have computer data base have 2.08 times more likely to utilize HMIS as compare to institutions that didn't use computer for data base. Institutions that get technical support from concerned bodies about HMIS issues have 1.69 times more likely to utilize HMIS as compare to those that didn't get technical support. In the same way a study in Korea indicated that the availability of personal computers and connection of computers with administrative offices and departments increase the average time for inquiry and record, that ultimately develops health management information system in the health centers (34).

Budget Planning is an indication of systematized and programmed functioning of institutions. In this study the 26 health centers did not have budget to run HMIS activities, this result was similar to a result obtained through observation. The works of HMIS is done from the finance of printing and publishing. This indicates that the system is not well organized. In the same manner, the study on the designing and implementation of HMIS in Malawi indicates that there is very little improvement in the design and planning of information system. This hampers the implementation of HMIS in the health facilities (35).

Other study report by the National Health Information System Assessment Report (NHISAR), the HMIS of Ethiopian lacks adequate resources to effectively maintain and upgrade the status of health information system to a level that meets the health information requirements of the country (7).The above mentioned studies strengthen the study result of this research.

The interaction between the health facilities and higher level was found to have an effect on the performance and strength of HMIS in the health centers. The results

showed that there was promising relationship and feedback between the health facilities and higher health offices and among the departments of the health centers. Reports were prepared and send to higher management offices on monthly basis. The presence of reports in the past 90 days indicated that the HMIS is functional at this level. Furthermore, from this study 51% of respondents answered that they received feedback from sub city monthly. However, 49% of the respondents had no feedback system. Study in SINAIS 64% of the facilities had reports feedback, monthly, quarterly (30).This is a significant figure that strongly affects the relationship and feedback horizontally and vertically.

The uses of information within the departments was found encouraging sixty-four % of the respondents answered that there was information use among units and institutions. The information is primarily used for the benefit of the user/clients, planning and decision making. In general, the results of the study showed that there was strong organizational structure in operation, but the financial structure was poorly designed.

HMIS performance showed increment and development compared to previous studies in Addis Ababa (16).However, when compared to other East and South African countries, HMIS utilization and implementation of Ethiopia was poor especially using information for rational decision making. For instance, in Malawi there was good design of information and encouraging feedback system (35). In Kyrgyzstan the implementation of HMIS by trained workers with skills to monitor and plan their health information system improved the quality of data (36).

Two hundred sixty five (65%)of the health centers have performance monitoring team. This team is established to maximize information use for decision making. In this study all health centers have performance monitoring team that meets three to four times a year. However, the descriptive result shows that 113(27.7%) of the team meets monthly according to FMOH report. There are discrepancies between the results of the descriptive study and observation study, observation log book shows that the team does not have regular meeting, it meets only three to four times a year. This indicated that there is no strong and smooth relationship.

In all studied health centers, there is HMIS unit responsible for data generation. Around 61.5% of the study units have separate HMIS units. 38.5%of the respondent agreed that they did not have separate HMIS unit to collect and process the data. All studied health centers have HMIS focal person. The qualifications of HMIS focal persons includes IT professionals, nurses, and statistician. Among these professional 46.2% are IT professionals, 42.3% are nurses and the rest (9.3%) are statistician and secretary. Besides on the BPR report on Addis Ababa shows that HMIS unit is highly staffed and account for 95 % of the public health centers. This report shows similar figures with respect to staff of HMIS in health facilities indicated in the present study (16). However, the presence a single focal person in HMIS would cause failure of HMIS function when the individual becomes absent from work for various reasons. This problem is also identified by the national health information report of FMOH (7).

The IT equipment such as computer, printer and internet are believed to be essential infrastructure required for the development of HMIS. These equipments have great importance to improve data storage. They also economize time and improve accuracy of information for support systems (6). However, in the present study it was found that health centers were not fully equipped with these essential infrastructures. Each of the 26 health centers has a minimum of one computer and 5 health centers have networked computerized system. Other electronic facilities like printers and fax machines were not observed in all health centers under the study.

All HMIS focal persons and 74.3% health workers have basic trainings on HMIS .This number is greater than the study conducted around North Gondar area, that shows only 23.8% of the focal persons were given training on health information system .which is almost all our study area gets training. The difference may be due to the supportive role of NGOs like Tulane University in giving on HMIS to health workers.

Regarding the convenience of the recording tools to register or collect data, 194 (47.5%) of the respondents replied that there was incompleteness and difficulty to understand the formats. According result of assessment of HMIS in A.A.H.B 75% of the

respondents has said that it is simple and complete to register on the current HMIS formats (16). This difference may be respondents biased.

In the present study it has been obtained that 81% of health professional's record their daily activities and the services provided to clients. 73.8% of the respondents take data collection as part of their duty. However, assessment of health management information system in Addis Ababa indicated that more than 80% of the total services are registered by health professionals (16). The remaining percentage is registered by other personnel; the study also showed that 78% of the respondents have stated that they take data registration as part of their duty. This result is similar to the present study.

Research done in A.A.H.B only 23.8% of the staff stated they have experience in presenting their analysis in graphs, charts (16) in this study most of the respondents (64%) replied that the collected data has been analyzed and displayed in graphs and charts this result show information culture (use display chart, graph) .Most of the health facilities have annual plan with clear indicators. They collect HMIS data using 16.2% computers, 43.6% paper formats and 40.1% both research done in North Gondar common data collection forms are manually. This deference may by currently supported by NGOs. However, they hardly have guidelines and procedural manuals of HMIS .This indicates that health centers in AA have implemented HMIS. Data processing and analyzing is in its infant stage, 62.7 percent of the respondents answered that they fed the data on computers but the software was incomplete to analyze the information. The researcher learned that in some health facilities SMART software was provided by some NGOs. However, the software was incomplete is not user friendly, other study report by SINAIS and HIS shows that the software is user-friendly (30). This difference may be due to lack of computer knowledge and technology skill among the participants of the present study.

In East Africa the implementation of HMIS faced challenge in general, this basically stemmed from the poor adoption of innovated HMIS systems, poor equipments and trained manpower and little commitment for the duty (37) Ethiopia is not exception, some projects from Europe were come to Addis Ababa to introduce systems to

institutionalize and customize the information system but failed to fulfill and innovate the health management information system due to several factors(6).

In related study .Gladwin J et al. Rejection of an innovation health information management (38) it has been indicated that there is strong challenge in East African to diffuse organizational structure and adoption of various tools that help to implement health management information system.

Demand for HMIS, confidence, motivation and competence directly affect HMIS processes and performance. Some reports indicate that the way individuals feel about the utility, skill and confidence in performing tasks affect the likelihood of task performance (39).

The researcher noted that most of the MRU staffs are working under inconvenient situation like poor office facilities, inconvenient space, and limited access to information technologies and absence of staff benefits. Lack of training opportunities also hampers staff motivation and ultimately affecting HMIS. Absence of regular monitoring and feedback mechanisms are other factors that limit the motivation and confidence of data management staff to aspire for quality outputs.

To the question that asks about respondents' current attitude towards HMIS, 67.4% of the respondents replied that they have positive attitude toward the duty of collecting data. The strong commitment was observed in collecting and storing health information with poor incentives and working environment.

A case study conducted in Uganda (40) showed that organizational issues were not pleasing in the implementation of HMIS the results documented that diffusion of innovation in organizational structures were resisted and become common barrier to establishing and sustaining effective HMIS routine. Similarly, a study in Zambia (41) showed that the existence of different forms of information in the organizational environment, including those provided by the conventional HMIS, affected the implementation of effective HMIS.

6. STRENGTH AND LIMITATION OF THE STUDY

6.1 Strength of the Study

- The study is probably a new research and serves as a baseline for future studies.

6.2 Limitation of the Study

- It is limited in public health centers
- Lack of sufficient literatures

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7. CONCLUSIONS AND RECOMMENDATIONS

7.1 conclusions

The implementation of HMIS in Addis Ababa health centers is initiated but it is still in its infancy stage. The utilization of health management information system at health centers is higher compared to previous studies.

Most of the data and information was generated from routine day to day activities and from patients who visit health centers. Register book, tally sheet and forms are the most common data collection tools currently used.

The use of information in the studied health centers predominantly to the sake of generated report to higher bodies.

All studies health centers have no budget specifically to HMIS and Performance monitoring team should not meet regularly.

Among many factors that affect the utilization of HMIS, data converted in to information, use of generated data at department level, health centers having computers and having technical support were found to be prediction of HMIS utilization in the studied facilities.

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7.2 Recommendations

To public health centers in A.A

- Feedback and supervisory support to enhance staff motivation and commitment.
- The most common data collection tools used combined forms are appreciation and user friendly data collection tools.
- Data has to be used at institutional level for planning and decision making.
- Performance evaluation team should have regular meeting schedule that fits with the plan of HMIS.

To Addis Ababa City Administrative Health Bureau and Sub cities:

- HMIS unit should have their own budget and strategy like any other health facility units**.**
- Management has to assign adequate human resource for data management units and should be equipped with basic ICT infrastructures.
- Renovation on the HMIS organizational structure.
- Intensive and continuous training should be given to health workers .
- There has to be periodic and regular feedback system to the HMIS unit from the higher management bodies.
- Supportive guidelines should be developed that help to govern the overall process.

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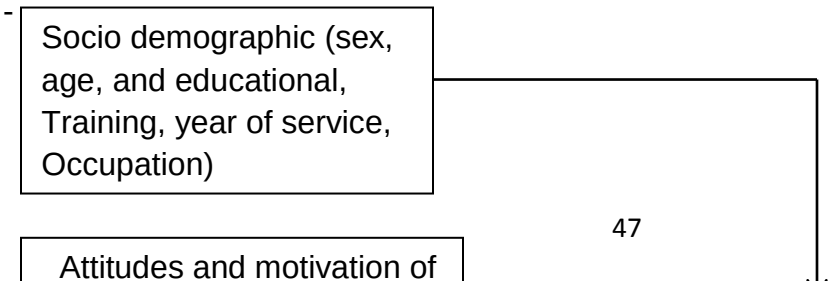
9. ANNEX

Annex1: Conceptual framework



Annex-2 Name of sub city and health centers study conducted

Table- Name and number of health centers under 10 sub city2011

No of H.C/ sub city	Name of health centers under sub city	Name of Sub city
02	Addis Ketema H.C, Wereda 7 H.C	Addis Ketema
02	Akaki,H.C, KalitiH.C	Akaki Kaliti
03	Arada,H.C,Gulele,H.C,Kebena H.C	Arada,
02	Bole 17/20 H.C,Bole H.C	Bole
02	Shiro-Meda H.C, Selam H.C	Gulele,
03	Kirkos,H.C,Kazanchis,H.C,Meshaloki a H.C	Kirkos
02	Kolfe H.C,Alembanke	Kolfe-Keranyo
04	LidetaH.C,TeklehaymanotH.C,Belets hachewH.CWreda 23H.C	Lideta
03	Wereda19,,Weda 23, Sarese H.C	Nefasilk-Lafto
03	Yeka, H.C Entot No 1 H.C Kotebe H.C)	Yeka

Annex 3: Questionnaire

UNIVERSITY OF GONDAR

COLLEGE OF MEDICINE AND HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

Hello! My name is ……I am here on behalf of Tsedal Adane, student of the School of Public Health Department of Health informatics in the University of Gondar. She is conducting a research for the partial fulfillment of the requirements for the degree of Masters of Public Health Informatics. The study is entitled as "Assessment of Health Management Information System Utilization at Public Health Centers of Addis Ababa Health Bureau, Ethiopia". She has received permission from the School of Public Health at University of Gondar and A.A Health Bureau. The objective of this study is to assess the utilization of health management information system at public health centers in Addis Ababa city administration. Health professionals that work in Addis Ababa health centers will be randomly selected. We kindly request you to answer the questions presented below.

We assure you that all information gathered during the course of the study will be kept completely confidential. All the information that you are going to deliver to us will be coded for anonymity. Only the principal investigator and the research assistants collecting the data will have access to the data.

Would you be willing your H.C to participate? Yes …….1 No …….2

Having been well explained and informed of the intentions and benefits of the study, I voluntarily consent my health centers to participate in the study.

Respondent Sign. Date

_____ _____ _____

Interviewer name Sign. Date

_____ _____ ----------

Part I: Demographic data

Cerial no	Questioner	Answer	Skip

1	Name of the institution	_____	
2	Age	_____	
3	Sex	1- Male 2- Female	
4	Level of education please specify	1) Medical doctor 2) Bachelor Degree 3) Diploma 4) Certificate 5) Grade 12 7) other please specify .----------	
5	Unit /department you are working?	1) OPD 2) In patients 3) Laboratory 4) MCH 5) Pharmacy 6) Tb &Leprosy 7) Data Clark/statics 8) EPI 9) HIV Clinic 10) emergency OPD 11/ Other(please specify)----------	
6	What is your Title/occupation?	1) Medical Doctors 2)Health Officers 3) BSc Nurse 4. Diploma Nurse 5)BSc Environmental health 6)Environmental health Diploma 7)Health assistant 8)Laboratory technician 9)Pharmacy technician 10. Others(specify) _____	
7	Position in the organization	1/Medical director 2) Medical Docter 3) head nurse 4) Staff nurse 5) HMIS Focal person 6) Pharmacy head 7) laboratory head 8) other please specify----------	
8	Year of service	1/year_____2/month_____	
9	Salary	----------	

Part II Structural/organizational

1	Have you ever heard about HMIS?	1) Yes 2) no	
2	Is there a unit (an office) assigned specifically to HMIS?	1)Yes 2) No 3) don't know	

3	Does your facility have personnel specifically to HMIS?	1) Yes 2) No 3) Don't know	
4	If yes Q no 3 the person could have other duties too?	1) Yes 2) No 3) Don't know	
5	Does the unit/department convert the collected data in to information?	1)yes 2)not converted 3) Don't know	
6	If yesQNO5 how frequent do you prepare reports (you can choose more than one)?	1) Daily 2)Weekly 3)Every two weeks 4)Monthly 5) Quarterly 6) Semi annually 7) Annually 8) Other (please specify)_____	
7	Do you regularly receive feedback from HMIS unit/department heads?	1)Yes 2)No 3)I don't	
8	If yes what interval do you receive feed back?	1)Daily 2) Weekly 3) Every two weeks 4)Monthly 5)Quarterly 6)Semi annually 7)Annually 8) Other (please specify)_____	
9	Do you use the generated report at the department level? .		
10	If yes Q no9 for what purpose do you use the information?	1 To give information to the user Yes No 2 To compare it with the previous report 3 monitoring and evaluation of programs to take immediate action, 4 Planning 5 for decision making 6 forward upper level 7) Other (please specify ----------	

11	Is the units/departments Utilize Information at the institutional level?	1)Yes 2)No 3)DK	
12	If yes, evidence based see these criteria's circle the applicable :(you can choose more than one)?	1) Planning 2) budget allocation, 3)monitoring and evaluation of programs to take immediate action	
13	Is the units/departments Utilize health Information system at the institutional level	1) Yes 2) No	
14	If yes, QNo_13 evidence based see these criteria's circle the applicable: (you can choose more than one)?	1) using information for decision making such as planning, budget allocation, and monitoring and evaluation of programs to take immediate action 2) feedback 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 minute	
15	What is your major means of communication with Regional or Sub-city Health Bureaus?	1) Feedback on reports 2)Supervision 3) seminars, meeting etc 4) No communication 5) Others(please specify ----------	
16	What are the common conventional tools used for data collection in your H.C (you can choose more than one)?	1) Forms 2) registers 3) Tally sheet 4) other (please specify ----------	
17	Are the forms/tally sheet correctly and completely filled by the health workers?	1)Yes 2)No	
18	Who records your daily activities and the services provided?	1) I myself 2) Data clerk 3) Other health professionals 4) others please specify----------	
19	Do you have a meeting session on HIS/HMIS performance?	1). Yes regularly 2). Yes but not regularly 3). Not at all 4).DK	
20	How often do you register the health	1). Routinely	

	activities services rendered?	2). Rarely 3). Not at all	
21	Does the H.C have any guide line or user manual governing the overall process of the HMIS?	1)Yes 2) No 3) I don't know 4) No response	
22	Do the unit have annual plan with clear indicators for yearly performance monitoring	1. Yes 2. No 3.I don't not	
23	How do you document HMIS data? (You can choose more than one)	1/ Paper form 2/ in a computerized form 3/Both 4/ Any other (please specify)_____	
24	Do you have computer system for generating and utilization of health information?	1/Yes 2/ No	
25	If Yes is your answer, how far do you think you have benefited from the system?	1) Very helpful to analyze data and generate new information 2) Helpful to sum-up data 3) Poorly utilized	
26	What is your opinion about the convenience of recording on the current formats?	1.Simple and complete 2.Incomplete 3.Difficult to understand 4.No comment	
27	Do you have shortage of different type of formats within three months?	1/yes 2/no	
28	If yes Q no 14 how often?	1) Always 2) Sometimes 3) not at all	
29	What do you do with the data you collect?	1) To prepared reports 2) utilized for further research(analysis it) 3) Transfer its Sum 4)If Other please specify	
30	If analyzed can you give examples (etc)	graph, 1)Yes 2)No chart, 1)Yes 2) No	
31	Who uses the information you generate?	1)The health institution 2)Higher management 3) I don't know 4) If Other please specify----------	
32	How much do you think the staff is committed to collect and prepare reports?	1) Very committed 2) Committed 3) poorly committed 4) Other please specify	

33	Do you take data collection as part of your duty?	1) Yes 2. No	
34	Are there any kinds of trainings (in service) on HMIS activity for staffs?	1)Yes 2) No 3) I don't know	
35	If yes question number 37 how long has it been after the last training is given?	1) 0 to 6 month 2) one year 3) one year to one and half years 4) more than two years 5) No training	
36	Are there any kinds of incentives/motivation for HMIS?	1)Yes 2)No 3) I don't know	
37	If yes question number 14 specific what kind of incentive?	1)Money 2) Training 3) recognition 4) other please specify	
38	Does your facility gate technical support from concerned bodies about HMIS issues?	1) Yes 2) no 3) don't know	
39	If yes question number 16 from where do you gate the support? (Multiple answers are possible	1.Sub city health office 2) RHB 3) MOH 4) NGOs 5)If other, specify	
40	What is your attitude to current HMIS?	1) Positive 2) Negative	

Observation checklist:

1	Card room Size:	_____ m2
2	Number of windows (fast tracking system)	_____
3	Number of Card room Workers:	_____
4	Number of runners:	_____

5	Number of Standard shelves:	_____
6	Availability of Standard MPI box:	_____
7	Number of computers in the card room	_____
8	Does the facility has HMIS unit?	1. Yes _____ 2. No _____
9	If yes for Q.No 9, does the unit have a pc?	1. Yes _____ 2. No _____
10	Networking	1. Yes _____ 2. No _____
11	Do the facility has HMIS focal person?	1. Yes _____ 2. No _____
12	If yes for Q.No 12, what is his/her qualification?	_____
13	If yes for Q.No 12, did he/she take HMIS training?	1. Yes _____ 2. No _____
	Facility's Information Use	If yes, when _____
14	Does your facility allocate budget for HMIS activities?	1. Yes _____ 2. No _____ If yes, How much _____ (ETB)
15	Are there the necessary equipments for HMIS in your facility? (Multiple answers are possible).	1. Electricity _____ 2. Telephone ____ 3. Computer _____ 4. Internet or any kind of network/fax ____ 5. If other, specify.....
16	HMIS Procedure Manual, Information use Guideline and Display Tools	1. Yes _____ 2. No _____
17	Do you conduct monthly performance monitoring based on key HMIS indicators?	1. Yes _____ 2. No _____ If yes, the No of meetings in the last 1 year ____
18	Do you have performance log book?	1. Yes _____ 2. No _____
19	Did you receive supportive supervision from next higher level in the last fiscal year?	1. Yes _____ 2. No _____ If yes, the No of supervisions received in the last 1 year ____
20	Is frequent feedback given from any concerned outside organs (WoHO, RHB, MOH, NGOs)?	1. Yes _____ 2. No _____ If yes, how frequent _____
21	Check displayed reports using charts and tables (if available)	

Infrastructure:

Annex 4: Amharic Quaternaries

ጎንደር ዩኒቨርሲቲ

ህክምናና ጤና ሳይንስ ኮልጅ

የህብረሰተብ ጤና ትምህር ክፍል

በአዲስ አበባ ከተማ አስተዳደር ሥር በሚገኙ መንግሥታዊ ጤና ጣቢያዎች የጤና መረጃ አስተደደር ሥርዓት አጠቃቀም (HMIS) ላይ የቀረበ መጠይቅ፡፡

<u>የስምምነት ቃል</u>

ጤና ይስጥልኝ፡፡ ስሜ_____ነው::በጎንደር ዩኒቨርሲቲ የምርምር ስራ ጊዜያዊባልደረባ ነኝ፡፡በአዲስ አበባ ከተማ አስተዳደር ሥር በሚገኙ መንግሥታዊ ጤና ጣቢያዎች የጤና መረጃ አስተደደር ሥርዓት አጠቃቀም (HMIS) እና ተያያዥ ጉዳዮች በተመለከተ መረጃ በመሰብሰብ ላይ እንገኛለን፡፡ በምናደርገው ጥናት ውስጥ የእርስዎን ተሳትፎ በእጅጉ እንሻለን፡፡ የሚሰጡት መረጃ ሁሉ ሚስጢር ነው፡፡ ስም የሚመዘግብ ቢሆንም ከጥናቱ ውጤት ጋር ተያይዞ የሚገለፅበት ሁኔታ በፍፁም አይኖርም፡፡ የሚያደርጉት ተሳትፎ በፍቃደኝነት ላይ የተመሰረተ ስለሆነ ከሚቀርብልዎ ጥያቄዎች አንዱን መርጠው ወይም ሁሉንም አለመመለስ ይችላሉ፡፡ በማንኛውም ጊዜ ቃለ-መጠይቁን ሙሉ በሙሉ ቢያቋርጡ እንኳ የሚደርስብዎ ነገር አይኖርም፡፡ ነግር ግን የዚህ ጥናት ውጤት መንግስት የጤና መረጃ አስተደደር ሥርዓት አጠቃቀም (HMIS) ለማረጋገጥ የሚያደርገውን ጥረት የሚያግዝ ስለሆነ ለመሳተፍ ፈቃደኛ ይሆናሉ ብለን ተስፋ እናደርጋለን፡፡ በማንኛውም ጊዜ ጥናቱን ለማቋረጥ ቢፈልጉ የሚያቋርጡበትን ምክንያት ማቅረብ አያስፈልግዎትም፡፡ የማቋረጥ ሙሉ መብት አለዎት፡፡ ይህን ጥናት ስኬታማ ለማድረግ ለሚሰጡን ግብዓት ከፍተኛ ግምት እንሰጣለን፡፡ይህን ጥናት በተመለከተ ምንም አይነት ጥያቄ ቢኖርዎ ዋናውን ተመራማሪ ፀደል አዳነ በዚህ ሞባይል ስልክ ቁጥር 0911838514 ይጠይቁ፡፡እንግዲህ የዚህን መጠይቅ ፉይዳ ወይም ይዘት በተመለከተ ጥያቄ ለመጠየቅ ይፈልጋሉን? በጣም አመሰግናለሁ፡፡

በጥያቄው ለምሳተፍ ፍቃድኛ ነውት? 1/አዎ 2 አይደለሁም

መልስዎ አዎ ከሆነ ይቀጥሉ

የመረጃ ስብሳቢው ስም _____ ፊርማ_____ ቀን _____

<u>ማስታዎሻ</u>፡- በተገቢው መልስ ላይ የማክበብ (0) ምልክት ያደርጉ

ተ.ቁ	ጥያቄ	መልስ/አማራጮች	
ክፍል 1:-አጠቃላይ መረጃ			
1	የተቋሙ ስም	_____	
2	ዕድሜ	_____	
3	ጾታ	1.ወንድ 2.ሴት	
4	የትምህርት ደረጃ	1//አጠቃላይ ሀክም 2/የመጀመሪያ ዲግሪ 3/ ዲፕሎማ 4/ 2ኛ ዲግሪ 5/ ሰርተፊኬት 6/12ኛ ክፍል 7/ ሌላ, ይገለጽ_____	
5	ባሁኑ ሰዓት እየሰሩበት የሚገኘው የሥራ ክፍል	1. ተመላላሽ ሀክምና ክፍል 2. አስተኝቶ ማከም ክፍል 3. ላቦራቶሪ ክፍል 4. እናቶችና ሕጻናት 5. መድኃኒት ቤት 6.መረጃ አሰባሳብ ክፍል 7. ክትባት ክፍል 8. የኤች. አይ. ቪ ሕክምና	

		9. የድንገተኛ ክፍል 10.ሌላ ከሆነይግለጹ ----------	
6	ሙያዎት ምድነው?	1/ ሐኪም 2/ ጤና መኮንን 3/ነርስ ዲግሪ 4/ ነርስዲፕሎማ 5/ላቦራቶሪ ዲግሪ 6/የላቦራቶሪ ዲፕሎማ 7/ አዋላጅ ነርስ 8/ጤና እንክብካቤዲግሪ 9/ጤና እንክብካቤ ዲፕሎማ 10/ፋርማሲስት ዲግሪ 11/ ፋርማሲስት ዲፕሎማ 12/መረጃ ስብሳቢ13/ ሌላ ከሆነ ይግለጹ ----------	
7	በተቋሙ ውስጥ ያልዎት የስራ ድርሻ?	1/የክፍል ኃላፊ 2/ ተክንካለ ሰታፍ 3/የጤናመረጃአስተዳደር ሥርዓት /HMIS/ ተወካይ 4/ ሌላ ከሆነ ይግለጹ ----------	
8	በተቋሙ ውስጥ ለምን ያህል ጊዜ አገልግለዋል?	1) አመት------ 2) ወር---------	
9	የሚያገኙት የወር ደመወዝ ስንት ነው?	_____	

ክፍል 2: <u>የተቋሙ አጠቃላይ መረጃ</u>:

1	ስለ ጤና መረጃ አስተዳደር ሥርዓት (HMIS) ሰምተው ያውቃሉ?	1/ አዎ 2/ አላውቅም	
2	ለጤና መረጃ አስተዳደር ሥርዓት /HMIS/ ተብሎ የተቋቋመ ክፍል አለ?	1/ አዎ 2/ የለም 3/ አላውቅም	
3	ለጤና መረጃ አስተዳደር ሥርዓት/ HMIS/ ተብለው የተመደቡ ባለሙያዎች አሉ?	1/ አዎ 2/ የለም 3/አላውቅም	
4	ባለሙያው ሌሎች ኃላፊነቶች ወይም ደርበው የሚሰሩት ሰራ አለ ?	1/ አዎ 2/ የለም 3/ አላውቅም	
5	የተሰበሰቡት የመረጃ ግብአቶች ዳታ (data) በሥራ ክፍሉ ወደ አስፈላጊ መረጃዎች (Information) ይለወጣሉ ወይ?	1/ አዎ 2/ አይለወጡም 3/ አላውቅም	
6	መልስዎ አዎ ከሆነ በምን ያህል የጊዜ ገደብ ሪፖርቶች ይዘጋጃሉ? (ከአንድ በላይ መልስ መምረጥ ይቻላል)	1/ በየቀኑ 2/ በየሳምንቱ 3/ በየሁለት ሳምንት 4/ በየወሩ 5/ በየሦስት ወር 6/ በግማሽ ዓመት (6 ወር) 7/ በየዓመቱ 8/ ሌላ ካለ ይግለጹ_____	
7	ከጤና አስተዳደርና መረጃ አሰባሰብ ክፍል ተወካይ መደበኛ በሆነ መልኩ አስተያየት (Feed Back) ይቀበላሉ?	1/አዎ 2/ አልቀበልም	
8	መልስዎ አዎ ከሆነ በምንያህል የጊዜ ገደብ አስተያየቱን ይቀበላሉ ?	1/ በየቀኑ 2/ በየሳምንቱ 3/ በየሁለት ሳምንት 4/ በየወሩ 5/ በየሦስት ወር 6/ በግማሽ ዓመት (6 ወር) 7/ በየዓመቱ 8/ ሌላ ካለ ይግለጹ_____	
9	የሚዘጋጅው መረጃ (Information) ሪፖርት በሥራ ክፍል ደረጃ ጥቅም ላይ ይውላል?	1/ አዎ 2/ አይውልም 3/ አላውቅም	

10	የጥያቂ ቁጥር9 መልስዎ አዎ ከሆነ መረጃውን ለምን አላማ ይጠቀሙበታል? (ከአንድ በላይ መልስ መምረጥ ይችላሉ)	1/ ለተገልጋዮች መረጃ ለመስጠት 2/ቀደሞ ከተሰራው ሪፖርት ጋር ለማነጻጸር (ለማወዳደር) 3/አፋጣኝ የሆነ እርምጃ ለመውሰድ ፕሮግራሞችን ለመቆጣጠርና ለመገምገም 4/ ዕቅድ ለማውጣት 5/ ውሳኔ ለመስጠት 6/የበላይ አካል ሪፖርት ለማቅረብ 7/ ሌላ ካለ ይግለጹ----------	
11	በተቋም ደረጃ የተዘጋጀውን መረጃ (Information) ጥቅም ላይ የማዋል ልምዱ (ባህል) አለ?	1/ አዎ 2/ የለም 3/ አላውቅም	
12	የጥያቂ ቁጥር11 መልስዎ አዎ ከሆነ መረጃን መሠረት ባደረገ ሁኔታ ከተቀመጡት ውስጥ ይመረጡ? (ከአንድ በላይ መልስ መምረጥ ይችላሉ)	1/ ዕቅድ ለማዉጣት፣ 2/ በጀት ለመመደብ 3/አፋጣኝ የሆነ እርምጃ ለመውሰድ ያሉትን ፕሮግራሞች ለመቆጣጠር ለመገምገም 4/ ሌላ ካለ ይግለጹ----------	
13	በተቋም ደረጃ የተዘጋጀውን የጤና መረጃስርአት (Utilize health Information system)) ጥቅም ላይ የማዋል ልምዱ (ባህል) አለ?	1/ አዎ 2/ የለም	
14	የጥያቂ ቁጥር14 መልስዎ አዎ ከሆነ መረጃውን ለምን አላማ ይጠቀሙበታል? (ከአንድ በላይ መልስ መምረጥ ይችላሉ)	1/ ውሳኔ ለመስጠት መረጃዎቹን መጠቀም ለምሳሌ ዕቅድ ለማሙጣት፣ በጀት ለመመደብ እና አፋጣኝ የሆነ እርምጃ ለመውሰድ ያሉትን ፕሮግራሞች ለመቆጣጠር ለመገምገም 2/ ከቅርብ ኃላፊዎች ሥራውን መሠረት ያደረገ አስተያየት ለመቀበል 3/ የጤና ሽፋን እና ወሰኖችን ለማዘጋጀት 4/ በሰንጠረዥ ቻርት በተደገፉ ዋና የትኩረት አቅጣጫዎችን ለማቅረብ 5/የእቅድ አፈጻጸምና የተደረጉ እንቅስቃሴዎችን ለማመላከት	
15	ከጤና ቢሮ እና ከክፍለ ከተማው ጋር በዋነኛነት የመገናኛ መንገዳችሁ ምንድን ነው ?	1/ በሪፖርቶች ላይ በሚሰጡ አስተያየቶች 2/ ግምገማና ክትትል 3/ ሴሚናርና ስብሰባዎች 4/ ምንም ግንኙነት የለንም 5/ ሌላ ካለ ይግለፁ_____	
16	በጤና ጣቢያችሁ መረጃ ለመሰብሰብ የምትጠቀሙበት መንገድ ምንድን ነው? /ከአንድ በላይ መመረጥ ይችላሉ/	1/ ርፖርት ፎርም 2/ ርጅስተር(የዕለት መዝገብ) 3/ ታሊ ሸት(Tally Sheet) 4/ ሌላ ካለ ይግለፁ_____	
17	መረጃ ለመሰብሰብ የምትጠቀሙባቸው ፎርሞች በጤና ባለሙያ ሠራተኞቹ በትክክል ይሞላሉ ወይ?	1/ አዎ 2/አይሞላም	
18	የየቀኑን የሥራ እንቅስቀሴ በክፍሎች የሚሰጠውን አገልግሎት	1/ እኔ ራሴ	

	በተመለከተ የሚመዘገብ ማነው?	2/ ሌሎች የጤና ባለሙያዎች 3/ዳታ ክለርክ(Data clerk) 4/ ሌላ ከሆነ ይግለፁ_____	
19	የተቋሙ የጤናመረጃ አስተዳደር ስርአተ (HMIS) የአሠራር ሁኔታ እና ብቃት የምትገመግሙበት ወይም የምትፈትሹበት ስብስባዎች አላችሁ?	1/ አዎ በመደበኛ ሁኔታ አለ 2/ አዎ አለ ግን መደበኛ አይደለም 3/ የለንም 4// አላውቅም	
20	የሚሰጡትን የጤና አገልግሎት እንቅስቃሴዎች በምን ያህል ግዜ መረጃ ትመዘግባላችሁ?	1/ ሁልግዜ 2/ አልፎ አልፎ 3/ በጭራሽ አይመዘገብም 4/አላውቅም	
21	የተቋሙ የጤና መረጃ አስተዳደር ስርአት (HMIS) ጠቅላላ ያሠራር ሁኔታ የሚገልጽ ማንዋል /መመሪያ/ የጤና ጣቢያችሁ አለው?	1/ አዎ 2/ የለም 3/ አላውቅም	
22	የሥራ ክፍላችሁ የየዓመቱን የሥራ ሁኔታ የሚገመግምበትና የሚቆጣጠርበት አመታዊ ዕቅድ አለው?	1/ አዎ 2/ የለም 3/ አላውቅም	
23	የተቋሙን የጤና መረጃ አስተዳደር ስርአት (HMIS) መረጃዎች የምትይዙት በምን መልኩ ነው? (ከአንድ በላይ መልስ መምረጥይችላሉ)	1/ ኮምፒውተራይዝድ በሆነ ሁኔታ 2/ በወረቀት /በመዝገብ/ ላይ 3/ ሌላ ካለ ይግለጹ	
24	ኮምፒውተር አላችሁ የጤና መረጃ ጥቅምና አፈጣጠር የምትመዘግቡበት? (For generating and utilization of health information?)	1/ አዎ 2/ የለም	
25	የጥያቂ ቁጥር 24 መልስዎ አዎ ከሆነ ከኮምፒውተር ምን ያህል ጥቅም አግኝተዋል?	1/በጣም ጠቃሚ ነው ተገቢው ዳታ ለማጥናት እና አዲስ መረጃ ለማግኘት2/በጣምጠቃሚ ነውድምሮችን ወቅተዊ ለማድረ 3/አጠቃቀሙ በቂ አይደለም	
26	አሁን የሚሰራበትየጤና መረጃ አስተዳደር ስርአት (HMIS)ቅጽትክክለኛነት ላይ ምን አስተያየት አለዎት?	1/ ቀላል እና የተሞላ 2/ያልተሞላ 3/ለመርዳትያስቸገር4/አስተያየት የለም	
27	የሪፖርት ማቅረቢያ ቅጽ እጥረት በዚህ 03 ውር ውስጥአጋጥሞችሁ ያውቃል?	1/አዎ 2/የለም	
28	የተራ ቁጥር 27 መልስዎ አዎ ከሆነ በምን ያህል የጊዜ ድግግሞሽ ውስጥ የሪፖርት ማቅረቢያ ቅጽ እጥረት ያጋጥማችኋል?	1/ሁልጊዜ 2/ አልፎ አልፎ 3/ በጭራሽ	

29	በተሰበሰበው መረጃ ምን ያደርጋሉ?	1/ ርፖርት ይዘጋጅበታል 2/ ተገቢው ጥናቶች ይደረግበታል(analysis it) 3/ ድምሮችን ለማውቅና ለማሰተላልፍ. 4/ ሌላ ካለ ይግለጹ	
30	በጥያቃ ቁጥር 29 ላይ ተገቢው ጥናቶች ይደረግበታል ካልን ምሳሌ ይግለፁ?(analysis it)	1/ግራፍ(graph)	

		2/ቻርት(chart) 3)ሌላ ካለ ይግለጹ--	
31	የመረጃ ዉጤት ተጠቃሚ ክፍል ማነው ?	1/ የጤና ማዕከሉ 2/ ከፍተኛ የሥራ አመራር 3/ ተጠቃሚ የለም 4/ ሌላ ካለ ይግለጹ	
32	መረጃ ለመሰብሰብና በአግባቡ ለማሠራጨት የጤናጣቢያ ሠራተኞች ምን ያህል ተነሳሽ ናቸው ብለው ያስባሉ?	1/ በጣም ተነሳሳሽነት አላቸው 2/ ተነሳሳሽነት አላቸው 3/ ብዙ ተባባሪ አይደሉም 4/ ሌላ ካለ ይግለጹ	
33	መረጃን መሰብሰብ እንደ አንድ የሥራ ድርሻ ይመለከቱታል?	1/ አዎ 2/ አይደለም	
34	ሠራተኞች በጤና አስተደደርና መረጃ አያያዝ በ (HMIS) ዙሪያ ስልጠና አግኝተው ያውቃሉ?	1/ አዎን 2/ አላውቅም	
35	ስልጠና አግኝተው ያውቁ ከሆነ የመጨረሻ ሥልጠና ከወሰዱ ምን ያህል ጊዜ ይሆኖዎታል?	1/ ከ0 እስከ 6 ወር 2/ አንድ ዓመት 3/ ከአንድ ዓመት አስከ አንድ ዓመት ተኩል 4/ ከሁለት ዓመት በላይ	
36	ለጤና መረጃ አስተዳደር ስርአት (HMIS) ላይ የሚሰጥ ማበረታቻና ማትጊያ አለ?	1/ አዎ 2/ የለም	
37	ለጥየቃ ቁጥር 36 ምልሰዎ አዎ ከሆነ ማበረታቻና ማትጊያው ምን ዓይነት ነው?	1/ በገንዘብ 2/ በሥልጠና 3/ ዕውቅና በመስጠት 4/ በሌላ ዓይነት	
38	ለጤና መረጃ አስተደደር ስርአት (HMIS) በተመለከተ ከተቋሙ ከበላይ አካል/ከአጋር/ ድርጅት የሚሰጥ ሙያዊ ድጋፈ አለ?	1/ አዎ 2/ የለም 3/ አላውቅም	
39	ለጥየቃ ቁጥር 38 ሙያዊ ድጋፍ ካለ ከየትኛው ክፍል መሆኑ ቢገለጽ (ከአንድ በላይ መልስ መምረጥ ይቻላል)	1/ ከክፍለ ከተማ ጤና ቢሮ 2/ከጤና ቢሮ 3/ ከጤና ጥበቃ ሚኒስቴር 4/ ከጤና ተራድዖ ድርጅት(NGO) 5/ ሌላ ካለ ይግለጹ	
40	አሁን እየተስራበት ያለዉ የጤና መረጃ አስተደደር ስርአት (HMIS) ላይ ያለዎት አመለካከት እባክዎ ይግለፁ?	1/ጥሩ አመለካከት(Positive) 2/ጥሩ ያልሆነ አመለካከት(Negative)	

አመሰግናለሁ !!

Annex: 5 Information Sheet

INFORMATION SHEET AND CONSENT FORM

TITLE OF THE RESEARCH PROJECT:

Assessment on utilization of Health Management Information System at Public Health Centers Addis Ababa City Administrative, Ethiopia

Name of principal investigator: Tsedal Adane

Name of the organization: School of public health, Gondar College of Medicine and Health science, University of Gondar.

Name of the sponsor: University of Gondar, Addis Ababa Health Bureau and University of Oslo.

Information sheet and consent form prepared for all health professionals in the public health center in Addis Ababa.

Introduction

This information sheet and consent form is prepared with the aim of explaining the research project that you are asked to join by the group of research investigators.

The main aim of this research project is to Assess Health Management Information System Utilization.

The research group includes 1 principal investigator, 10 data collector and 5 health officer as supervisors from Addis Ababa hospital and 2 advisors from University of Gondar.

Purpose of the research project

The aim of this study is to assess utilization of health management information system in Addis Ababa health center which means information use for decision- making, planning and budgeting etc. The result of this study will be used especially in the study area, for the health care providers to design appropriate intervention on HMIS issues to address the problem.

Procedure:

At this study involves all health professional and data clerk selected by simple random sampling. In order to assess HMIS utilization at public health centers in Addis Ababa city administrative, we kindly invite you to take part in our project. If you are willing to practice in our project we are so happy for you to participate in this study and we need you to clearly understand the aim of this study and to sign the consent form. Then you are kindly requested to give your response to the data collectors.

For this questionnaire based study, study subjects are HMIS utilization all staff in the health center and selected by simple random sampling procedure and who are volunteer to participate in the study. All the response given by participants and the result obtained will kept confidentiality by using coding system whereby no one will have to access to your response.

Risk and /or discomfort

By participating in this research project you may feel that it has some discomfort especially on wasting your time(a maximum of 15 minutes) but this may not be too much as you are one of the member of the health institution. So your response will help as an important input to show the gap and means to improve the HMIS utilization. There is no risk to participating in this research project.

Benefits

If you are participating in this research project, there may not be direct benefit to you but your participation is likely to help us in showing the gap of HMIS utilization and associated factors helps to improve for providing accurate information.

Incentives/ payments for participating

You will not be provided any incentive or payment to take part in this project.

Confidentiality

The information collected for this research project will kept confidential and information about you that will be collected by this study will be stored in a file, without your name, but a code number assigned to it. And it will not be revealed to anyone except the principal investigator and assistants will be kept locked with key.

Right to refusal

You have the full right to refuse from participating in this research. (You can choose not to response some or all the questions) and this will not affect from getting any kind of information. You have also the full right to leave from this study at any time you wish, without losing any of your right.

Person to contact

This research project will be reviewed and approved by the ethical committee of the University of Gondar. If you want to know more information you can contact the committee through the address below. If you have any question you can contact any of the following individuals and may ask at any time you want.

1. Tsedal Adane:
   Mobile: +251-19-11-83-85-14 / e-mail: tsdaladane@gmail.com
2. Mr. Gasahw Andargie: University of Gondar
   Mobile: +251-19-11-38-54-23 / e-mail: gashawab@gmail.com
3. Mr. Tesfahun Melese : University of Gondar
   M0bile: +251-19-18-77-98-20 / e-mail: tesfahunmelese@yahoo.com

Annex 6 Amharic Information Sheet

የጥናቱ ርእስ

ጤና መረጃ ማኔጅመንት ሥርዓት (HMIS) በተመለከተ

ጥናቱን የሚያጠናው ፀዳል አዳነ

አማካሪዎች አቶ ጋሻው አንዳርጌ

አቶ ተስፋሁን መለሰ

የ□ር□ቱ ስም ጎንደር ዩኒቨርስቲ የህክምናና ጤና ሣይንስ ኮሌ□ የህብረተሰብ ጤና ትምህርት ክፍል

ለጥናቱ ገንዘብ የሚያወጣው □ር□ት የጎንደር ዩኒቨርስቲ እና የአዲስ አበባ ጤና ቢሮ

ይህ ስለጥናቱ የማስተዋወቅያ ወረቀት የተዘጋጀው በቅርብ ጊዜ የተተገበረውን የጤና መረጃ ማኔጅመንት ሥርዓት አጠቃቀምን ማጥናት ሲሆን ጥናቱም በአዲስ አበባ ከተማ አስተዳደር የሚገኙ የጤና ተ**ቋ**ሞች ላይ ይካሄዳል፡፡

መግቢያ

ይህ ስለጥናቱ የሚገልጽ ወረቀት የተዘጋ□ው የጥናቱን አላማ በመግለጽ መሰረት ያደረገና በጥናቱ ለመሳተፍ ፍላጎት ያለው ማንም ሰው መሳተፍ ይችላል፡፡ የጥናቱ ዋና ዓላማ የጤና መረጃ ማኔጅመንት ሥርዓት አጠቃቀምን ማጥናት ሲሆን ለዚህም የተለያዩ ተያያ□ ጉዳዮችን ማየት ይሆናል፡፡

በዚህ ጥናት ላይ የሰለጠኑ 10 የመረጃ አሰባሳቢ የመጀመሪያ ዲግሪና ዲፕሎማ ያላቸው ነርሶች ፣ 5 የጤና መኮንኖች መረጃ ሰብሳቢዎችን የሚቆጣጠሩ ፣ 1ዋና ተመራማሪ እና ከጎንደር ዩኒቨርስቲ 2 አማካሪዎችን ይይዛል፡፡

ይህ የኢንፎርሜሽን ሽትና የስምምነት ማረጋገጫ የተዘጋጀው ስለሚካሄደው ጥናት ግንዛቤ ኑሮት የበኩሎትን አስተዋጽኦ እንዲያደርጉ ነው፡፡

ጥናቱ የሚካሄደው በአዲስ አበባ ከተማ አስተዳደር በሁሉም ጤና ጣቢያዎች ሲሆን የጥናቱ ዋና አላማ የጤና መረጃ ማኔጅመንት ሥርዓት አጠቃቀምን መዳሰስ ይሆናል፡፡

ማብራሪያው የተዘጋጀው በጎንደር ዩኒቨርስቲ የሕብረተሰብ ጤና ሳይንስ ትምህርት ክፍል

2ኛ ዓመት የድህረ ምረቃ ተማሪና በጎንደር ዩኒቨርስቲ አማካኝነት ነው፡፡

1. **□ጥናቱ ዓላማ፡**

የጥናቱ ዋና ዓላማ በአዲስ አበባ ከተማ አስተዳደር የጤና መረጃ ማኔጅመንት ሥርዓት አጠቃቀምን መዳሰስ ሲሆን ለሚሠራው ስራ ወሳኝ ምክንያቶችን በጥናት ለማወቅና ለወደፊቱ ፕሮግራሙን የተሻለ ለማድረግ ነው፡፡

2. **የጥናቱ ሂደት**

ጥናቱ የሚካሄደው አሃዛዊ እና ኳልታቲቭ የሚባለውን ዘዴ በመጠቀም ከጤና መረጃ ማኔጅመንት ሥርዓት አጠቃቀምን በመዳሰስ ለጤና ሙያተኞችና ለመዝገብ አያያዝ ሰራተኞች በተዘጋጀው መጠይቅ መሰረት ፎርሙን መሙላትና በአካል ተገናኝቶ መወያየት ሲሆን ጥናቱን ለማካሂድ ፈቃድ ከጎንደር ዩኒቨርስቲና ከአዲስ አበባ ጤና ቢሮ ፈቃድ ሲገኝ ይሆናል፡

3. ሊከሰቱ የሚችሉ ስጋቶችና የምቾት መጓደሎች፡-

በዚህ ጥናት በመሳተፈ ምን አልባት ጊዜን ሊሻማበት ይችል ይሆናል ከዚያ ውጭ ሌላ ምንም ችግር አያመጣም ወይም አያጋጥመትም ምክንያቱም ማንኛውም ኢንፎርሜሽኑን የሚያዘው በሚስ□ር ስለሆነ ነው፡፡

4. ጥቅሞች፡-

ጥናቱ በሚካሄድበት አካባቢ ለሚ□ኙ ጤና ድርጅቶች፣ ጤ/ጥ/ጽ/ቤትና ሌሎችም በጥናቱ ስለሚሳተፉና በውጤቱ መሠረት ለፕሮግራሙ ማነቆ የሆኑ ችግሮችን ለይቶ ለማወቅና መፍትሄ ለማፈላለግ ትልቅ አስተዋጽኦ አለው፡፡

ርስዎ በዚህ ጥናት መሳተፍ የተለየ ጥቅም አያገኙም ነገር ግን የርስዎ በጥናቱ መሳተፍ የጤና መረጃ ማኔጅመንት ሥርዓት አጠቃቀም ያለውን ችግር ለይቶ ማውጣትና መፍትሔዉን በመፈለግ የጤና አገልግሎት ሽፋን ከፍ እንዲል ለማድረግ እጅግ በጣም ከፍተኛ ጠቀሜታ አለው፡፡

5. ማካካሻ፡-

በዚህ ጥናት በመሳተፎ ምንም አይነት ማካካሻ አይሰጠወትም ነገር ግን በጥናቱ በመሳተፈ ምስጋናችን ከፍ ያለ ነው፡፡

6. ሚስ□ር መ□በቅ፡-

□ሚጠየቁት የሰራተኞች **ስም አይመዘገብም** ሰራተኞች ተጠይቆ የሚመልሳቸው **መልሶች ብቻ ይመዘገባሉ፡፡ ይህ የተመዘገበው መረጃም ሚስጥራዊ ስለሆነ ከዋናው ተመራማሪና ከረዳት ተመራማሪው ውጭ ለማንም አይገለጽም፡፡ በጥናቱ ያለመሳተፍ ወይም □ራስን ከጥናቱ የማግለል መብተ በማንኛ□ም □□ የተጠበቀ ነው፡፡**

7. መረ□ ስለማ□ኘት

ይህ የጥናት ፕሮጀክት በጎንደር ዩኒቨርስቲ የቅድመ ጥናት የምርምር ኮሚቴ (Ethical committee) **□ታይቶ □እንዲፀድቅ ይደረጋል፡፡ ማንኛውም አይነት ጥያቄ ካለዎት** ፀዳል አዳነ ፊት **ለፊት ወይም በስልክ**

ቁጥር 09 11 83 85 14 በማንኛውም ጊዜ ማነጋገር ይችላሉ፡፡ ወይም አቶ ጋሻው አንዳርጌ በስልክ ቁጥር 09 11 38 54 23 ወይም አቶ ተስፋሁን መለሰ በስልክ ቁጥር 09 18 77 98 20 ማነጋገር ይችላሉ፡፡

ከላይ የተዘረዘሩትን ሃሳቦች በደንብ ተገንዝቤ በጥናቱ ለመሳተፍ ተስማምቻለሁ፡፡

ስም_____□ርማ_____ ቀን _____

ይህ መጠይቅ በ---------- ንጉሳን ክፍሎች የተከፈለ ሲሆን ---------- ጥያቄዎች አሉት፡፡ ጥያቄዎች ከመጀመራቸው በፊት የስምምነት መግለጫ ይገኛል፡፡ ይህን መጠይቅ ለመረጃ መሰብሰቢያነት ከመጠቀም በፊት ሁሉም ገጾችና ጥያቄዎች መኖራቸውን ያረጋግጡ፡፡ መረጃ ለመሰብሰብ በቅድሚያ የስምምነት መግለጫውን ለመረጃ ሰጪ በጥሞና አንብበው መስማማታቸውን በፊርማ ያረጋግጡ ለእያንዳንዱ ጥያቄ መረጃ ሰጪ የሚሰጡትን መልስ በመልስ እረድፍና በጥያቄው አኳያ የሚገኘውን ቁጥር ያክብቡ በእያንዳንዱ ክፍለ ጊዜ መጠይቅ ሲጀምሩ እና ሲያጠናቅቁ ሰዓቱን ይፃፉ፡፡ሲጨርሱ አሚልተው መመዝገብን በማረጋገጥ ይፈርሙ

የስምምነት መግለጫ፡-

ስሜ ---------- ይባለል፡፡ የጎንደር ዩኒቨርስቲ የ/ጤ/ሳይንስ ት/ት ክፍል በሚካሄደው ጥናት ውስጥ በጊዜያዊ መረጃ ሰብሳቢነት በመስራት ላይ እገኛለሁ፡፡ የጥናቱ አላማም የጤና መረጃ ማኔጅመንት ሥርዓት አጠቃቀምን መዳሰስ ሲሆን በጥናቱ በርካታ ሰራተኞችን ማሳተፍ አስፈላጊ በመሆኑ በተለያዩ ቦታዎች የመረጃ ስብሰባው በመከናወን ላይ ነው፡፡

በዚህ ጥናት ስለ ግል ህይወት፣ስለ አገልግሎት ዘመን፣ስለ ደሞዝ፣ ስለ ትምህርት ደረጃ እና ስለሚሰሩበት ክፍል የመሳሰሉት ጉዳዮች ይጠየቃሉ፡፡ አንዳንድ ጊዜ ለራስ የማይመች ጥያቄ ሊጠየቁ ይችላሉ፡፡ የእርሰዎን ማንነት የሚያመለክት መረጃ ፈፅሞ አይመዘገብም፡፡ የሚሰበሰበው መረጃ ተጠቃሎ በዋናው አጥኝ በጥንቃቄ የሚቀመጥ ሲሆን ጥናቱ ሲጠናቀቅ ማንም ሰው በማያገኘው ሁኔታ ይወገዳል፡፡ መጠይቁ የሚካሄደው በፍፁም ፈቃድ ነው፡፡

ከዚህ ጥናት የሚገኘው ውጤት ለወደፊቱ ኘሮግራሙን የተሻለ ለማድረግ ይጠቅማል፡፡ በአጠቃላይ መጠይቁ ከ10-15 ደቂቃ ይወስዳል፡፡ በትዕግስትና በጥሞና አዳምጠው ለመመለስ የሚያደርጉትን ጥረት እያደነቅን በቅድሚያ ከልብ እናመሰግናለን፡፡በጥናቱ ለመሳተፍ ፈቃደኛ ነዎት? ካልሆኑ አመስግነሽ/አመስግነህ አሰናብት፡፡ ፈቃደኛ ከሆኑ ቀጥይ/ቀጥል/፡፡ፈቃደኝነታቸውን ያረጋገጠችው/ ያረጋገጠው/ ጠያቂ ስም ----------ፊርማ ----------

Declaration

I, the undersigned, senior MPH student declare that this thesis is my original work in partial fulfillment of the requirement for the degree of Master of Public Health in Health Informatics.

Name: Tsedal.Adane
Signature: _____

Place of submission: School of public Health, College of Medicine and Health Sciences, University of Gondar.

Date of Submission: _____

This thesis work has been submitted for examination with our approval as university advisor(s).

Advisors

Name	Signature
1. Ato Gashaw Andarga	----------
2. Ato Tesfahun Melese	----------

ASSURANCE OF INVESTIGATOR

I, the undersigned, senior MPH student agree to accept responsibility for the scientific, ethical and technical conduct of the research project and for provision of required progress reports as pre terms and conditions of the research and publications office of the University of Gondar.

Name of the student: Tsedal Adane

Date: _____ Signature: _____

Approval of the advisor (s)

Advisors

Name	Signature	Date
1. Mr. Gashaw Andargie	_____	_____
2. Mr. Tesfahun Melese	_____	_____