



**ADDISS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
JOINT PROGRAM BETWEEN FACULTY OF INFORMATICS AND MEDICAL
FACULTY
DEPARTMENT OF HEALTH INFORMATICS**

**Problems and Prospects of the Routine Health Information System in Ethiopia:
the case of government health institutions in Addis Ababa**

Sara Alemayehu

A thesis submitted to the school of graduate studies, Addis Ababa University in partial fulfillment of the requirements for the degree of Masters of Science in Health informatics.

June 2010

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Sara Alemayehu

ADVISOR: Fikre Enqueselasie (PHD.)

Name and signature of Members of the Examining Board

Chairman, Examining Board

Dr. Fikre Enqueselasie
Advisor

Examiner

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LIST OF ACRONYMS

CDC- Center for disease control

FMOH- Federal ministry of health

HIS- Health information system

HMIS- Health management information system

HMN- Health metrics network

ICT- Information communication technology

IT- Information technology

M & E- Monitoring and evaluation

MOH- Ministry of health

PCIS- Patient care information system

PRISM- Performance of routine information system management

RHIS- Routine health information system

SPSS- statistical packages for social sciences

USAID- United States aid for international development

WHO- World health organization

ACKNOWLEDGEMENT

I am grateful to my advisor Dr. Fikre Enquoselassie whose advice had been invaluable throughout the conduct of this study. My acknowledgement also goes to the school of public health of Addis Ababa University for funding this study.

I am also grateful to all participants of the study and data collectors who committed themselves throughout the study period.

I especially extend special gratitude to my friend Esayas Haregot, who made this assessment possible through his unreserved support and encouragement.

Finally, my heart-felt gratitude goes to my family in general and Ato Aklilu Wubet (my husband), Hermela Aklilu and Alazar Aklilu (my kids), in particular for their unreserved help and encouragement during my entire study.

ABSTRACT

Back ground: - The ultimate objective of a routine health information system (RHIS) is to produce information for taking action in the health sector. If a routine health information system is to produce all the value it should, it must produce high-quality data—actionable insights framed on accurate facts. This information must be actively used to guide day-to-day operations, track performance, learn from past results and improve accountability. However, this has not been the scenario in most developing countries.

Objective: - This study was aimed at assessing the problems and prospects of the routine health information system of Ethiopia taking the case of government health institutions in Addis Ababa.

Methodology:-A descriptive cross-sectional study was conducted at 19 government health institutions in Addis Ababa between the months of January and June, 2010. The performance of the RHIS was assessed using the performance diagnostic tool of the PRISM package conducting an interview and document review; where as a PRISM self-administered questionnaire was used to assess the knowledge, skill, and attitudes of the staff working in the facilities. SPSS version 15 was used for analysis.

Results: Problems of lack of timeliness, feedback, use of information for decision making were the main problems in the RHIS process. Performance of the RHIS was found to be poor as explained by not adequate use of information and data quality. Moreover, several factors which fall under two main categories, behavioral and organizational factors, were seen to influence the performance of RHIS in Addis Ababa.

Conclusions: Performance of the RHIS is generally found to not adequate with several factors indentified to be possibly responsible. Further study to ascertain causal relationships with factors and assess impact on the health status of the community is recommended.

I. INTRODUCTION

1.1 Back ground

In recent times of resource constraints, good governance, transparency and accountability have become the mantra of development. Consequently, more attention is given to strengthening evidence-based decision-making and information systems.¹ Health information is essential for health decision-making at all levels of the health pyramid from the level of individual patient care to the management of specific health programmes at policy level where strategic decisions are made.²

The Health information system (HIS) currently in place in Ethiopia generates data from two main sources : population -based and health service-based health information sources.³ Debates abound at different forums regarding which data source is preferable for developing and tracking health system targets, documenting best practices or effectiveness of interventions, and identifying gaps in performance. The missing point in the debate, however, is that each method of data collection serves a different purpose and has its own strengths and weaknesses. Furthermore, there is no evidence that a third party survey assures better accountability or improvement in health system performance. Performance remains an organizational issue and needs to be dealt with as such. ¹

The Routine Health Information System (RHIS) allows organizational members to track their progress routinely in meeting organizational objectives, including patient management objectives, for which data cannot be collected otherwise. Health system managers have no substitute for routine information in terms of monitoring progress towards achieving service coverage objectives and managing associated support services (e.g. logistics, human resources, finance) for their local target populations.¹ Moreover; it wouldn't be practical to conduct surveys all the time to get data input because it is resource intensive to do so. Therefore, it would be more effective and practical to assess and look for ways to strengthen the RHIS.⁴

1.2 *Statement of the problem*

Routine health information systems (RHIS) attempt to produce timely and quality information about what is happening in health sector organizations. Ideally, this information is then used to guide day-to-day operations, track performance, learn from past results, and improve accountability. However, the systems designed to track health data often fall short of this ideal—data quality may be low, processes for using data other than sending reports may not exist, or managers and staff may have

limited understanding of the importance of the information and few incentives to give attention to the management of information system processes.⁵ RHIS systems often do not provide the information needed to improve health system performance. This is because traditional assessments only answer part of the question as they look narrowly at technical issues, such as data collection methods or Information Technology. Interventions then have limited impact because the success of an RHIS framework depends on far more than technical capabilities.¹

It is reported that the Ethiopian national HIS are often too disease-specific, fragmented, and delinked from strategic program planning or evaluation to provide health program leaders and managers the information they need to make informed decision.⁶ Besides, though health workers in general understand the principle of using information for improving health planning and service performance, the process workflow as presently structured operates better to accommodate routine administrative needs and the transfer of information from one level to the next rather than local use of information for service delivery improvement.³

1.3 Research questions: this study therefore aimed in answering the following questions;

- Is information utilized for decision making by the facilities?
- Are the organizations committed to a culture of using information?
- Do the people responsible for data collection have the necessary skills?
- Do managers support them with training, supervision and feedback?

1.4 Rationale of the study

The ultimate objective of a routine health information system (RHIS) is to produce information for taking action in the health sector. If a routine health information system is to produce all the value it should, it must produce high-quality data—actionable insights framed on accurate facts. This information must be actively used to guide day-to-day operations, track performance, learn from past results and improve accountability.⁵ However, this has not been the scenario in most developing countries including Ethiopia

II.LITRATURE REVIEW

2.1 Theoretical review

2.1.1 What is Health Information System (HIS)?

Health information system is a combination of vital and health statistical data from multiple sources used to derive information about the health needs, health resources, costs, use of health services and outcomes of use.¹ A strong health information system (HIS) is an integral part of the health system, the operational boundaries of which include all resources, organizations and actors that are involved in the regulation, financing, and provision of actions whose primary intent is to protect, promote or improve health.² This is particularly so when resources are limited and funding-allocation decisions can mean the difference between life and death. The need for sound information is especially urgent in the case of emergent diseases and other acute health threats, where rapid awareness, investigation and response can save lives and prevent broader national outbreaks and even global pandemics.⁷

2.1.2 Factors determining performance of HIS

Health information systems have evolved in a haphazard and fragmented way as a result of administrative, economic, legal or donor pressures. The responsibility for health data is often divided among different ministries or institutions, and coordination may be difficult due to financial and administrative constraints. For example, counting births and deaths – a basic building block of a health information system – is generally undertaken by planning or interior ministries. Special efforts are therefore needed to ensure adequate coordination and sharing of information between health ministries and other sectors.⁷

Health information systems are further fragmented by disease-focused demands that often relate to donor requirements and international initiatives directed towards specific areas such as malaria, HIV/AIDS or tuberculosis. Intense pressure for the rapid availability of data often contributes to the establishment of disease-specific information systems driven by performance-based funding. Countries then risk being overwhelmed by multiple, and often parallel, information demands that can stretch available resources beyond their limits. Within the health sector itself, health workers are overburdened by excessive reporting requirements from multiple and poorly coordinated subsystems that cannot deliver timely, accurate and complete data. Although a vast amount of data may be collected, only a small proportion is synthesized, analyzed and used.⁷

Information system development until recently relied mainly on technical approaches from assessing information needs to developing data analysis and presentation tools, and using information and communication technology (ICT), with little recognition of the effects of contextual issues. Information systems were defined as a set of related elements without any consensus on defining and measuring the systems' performance. Attention was given neither to how people react to and use information systems for problem solving or self regulating their performance (behavioral factors), nor to organizational processes for creating an enabling environment for using and sustaining RHIS. When attention was given to these factors there was no attempt to put them in a coherent framework to understand their effects on RHIS processes and performance.¹This study therefore lies here when seen by this framework of literature.

In response to this need, a draft performance of routine health information system (PRISM) framework was presented at an international workshop on district HIS in South Africa that incorporates behavioral and organizational factors to the technical one. In the absence of an 'operational' definition of RHIS performance in the literature, RHIS performance was defined as 'improved data quality and continuous use of information'. It was stated that RHIS performance is affected by three categories of determinants: technical, behavioral and environmental/organizational. The RHIS performance occurs within an environment/ organizational setting. Organizational members need motivation, knowledge and skills (behavioral factors) to perform RHIS tasks, and specialized technical know-how/ technology (technical) is required for timely analysis and reporting.¹

While the draft Prism framework provided a new direction in analyzing RHIS performance, further work was needed to delineate the boundaries of the technical, behavioral and organizational determinants, and to specify the relationship among the three categories to measure their relative impact on RHIS performance. There was also a need to clarify the role of RHIS processes on RHIS performance.¹

As a response to this need, a shift has been made from Prism to the PRISM (Performance of Routine Information Systems Management) framework, focusing on RHIS performance management. A routine health information system is composed of inputs, processes and outputs or performance, which in turn affect health system performance and consequently lead to better health outcomes

(Figure 1). A RHIS pays more attention to the internal determinants. Therefore, the environmental/organizational category is renamed as organizational factors, while environmental factors are considered to be constraints under which every RHIS works and has little control over.¹ In one study it is stated that introducing computer technology not necessarily creates effectiveness and efficiency in health services. Health Information system often fails because behavioral aspects of organizations are not taken in to account.⁹ It is also reported that motivating RHIS users remains a challenge despite training on data collection and data analysis. Negative attitudes such as ‘data collection is a useless activity or waste of care provider time’ hinder the performance of RHIS tasks.¹⁰ Those who are facing the enormous difficulties of developing useful Patient Care Information System (PCISs) often stress the importance of ‘organizational issues.’¹¹ Organizational factors such as inadequacies in human and financial resources, low management support, lack of supervision and leadership affecting RHIS performance are described.¹⁰

2.1.3 The PRISM framework

The PRISM framework brought a paradigm shift in RHIS design and evaluation by considering RHIS to be a system with a defined performance, and by describing the organizational, technical and behavioral determinants and processes that influence its performance. The framework implies continuous improvement of RHIS performance by analyzing the role of each of these determinants and by identifying appropriate interventions to address determinants that negatively influence RHIS performance. Through broader analysis of organizational information needs, it also hinders fragmentation of the existing RHIS and promotes a more integrated approach to information system development.¹

The PRISM framework also states that RHIS performance is affected by RHIS processes, which in turn are affected by technical, behavioral and organizational determinants. It shows that behavioral determinants have a direct influence on RHIS processes and performance. Technical and organizational determinants can affect RHIS processes and performance directly or indirectly through behavioral determinants. For example, the complexity of data collection forms (technical) could affect performance directly or indirectly by lowering motivation. Thus, the PRISM framework delineates the direct and indirect relationships of the determinants on RHIS performance and measures their relative importance. The PRISM framework also opens opportunities for assessing the relationships among RHIS performance, health system performance, and health status.¹

2.1.3.1 RHIS performance

RHIS performance is defined as improved data quality and continuous use of information. Data quality is further described in four dimensions: relevance, completeness, timeliness and accuracy. Relevance is assessed by comparing data collected against management information needs. Completeness is measured not only as filling in all data elements in the facility report form, but also as the proportion of facilities reporting in an administrative area (e.g. province or district). Timeliness is assessed as submission of the reports by an accepted deadline. Accuracy is measured by comparing data between facility records and reports, and between facility reports and administrative area databases, respectively.¹

Use of information depends upon the decision power of the people and the importance given to other considerations despite the availability of information. However, without assessing use of information, it is difficult to know whether a RHIS is meeting its intended objectives, improving evidence-based decision-making, and consequently leading to better health system performance.¹

By defining and measuring RHIS performance, the PRISM framework draws attention to setting and achieving targets, which act as motivators to self-regulate and continuously improve performance. The framework identifies the location of responsibility for actions leading to better accountability. However, performance is considered a system's characteristic, thus it needs to be seen in conjunction with system processes and the determinants affecting them.¹

2.1.3.2 RHIS processes

Processes are the backbone of performance. In the PRISM framework, use of information is considered an output rather than a process. It also adds specific indicators for measuring RHIS processes, such as existence of procedures for data collection and transmission and consequences for not following these procedures. The PRISM framework draws attention to neglected RHIS processes, such as checking data quality, displaying of information and giving feedback, and makes them part of the accepted norms.¹

2.1.3.3 RHIS determinants

Behavioral determinants

RHIS users' demand, confidence, motivation and competence to perform RHIS tasks affect RHIS processes and performance directly. How an individual feels about the utility or outcomes of a task or his confidence in performing that task as well as the complexity of the task all affect the likelihood of that task being performed. Limited knowledge of the usefulness of RHIS data is found to be a major factor in low data quality and information. Motivating RHIS users remains a challenge despite training on data collection and data analysis. Negative attitudes such as 'data collection is a useless activity or waste of care provider time' hinder the performance of RHIS tasks.¹

Organizational determinants

RHIS users work in an organizational context, which influences them through organizational rules, values and practices. This organizational context is the health services system and can be managed by the public or the private sector. Organizational factors such as inadequacies in human and financial resources, low management support, lack of supervision and leadership affecting RHIS performance are described in the information system literature.¹

Technical determinants

Technical determinants are all the factors that are related to the specialized know-how and technology to develop, manage and improve RHIS processes and performance. These factors refer to development of indicators; designing data collection forms and preparing procedural manuals; types of information technology; and software development for data processing and analysis. Others also described these factors as potentially affecting RHIS performance. Thus, it is necessary that RHIS users have good knowledge and information technology skills to effectively use and sustain it. However, in low technology settings, well-designed, paper-based RHIS can still achieve acceptable levels of performance.¹

2.2 Empirical Review

The problems preventing decision makers from having access to information are many and complex. A journal on data for decision making reported that inadequate data-collection systems, an apparent lack of interest and motivation among personnel, lack of data analysis among data managers, lack of dissemination and feedback of information, and lack of reliability in case reporting are among the

hindering factors. Overly complex systems, delays in reporting urgent events, incomplete reporting, and perception that data users did not have input into the collection of information were also mentioned as problems.⁸

By the late 1990s and early 21st century, increasing evidence showed that routine information systems were not producing the intended results. Studies done in Mozambique and Kenya showed that data quality was poor while use of information for planning and decision-making was found to be weak in Brazil and South Korea. Many factors contributed to under-performing information systems, such as difficulty in calculating indicators because of poor choices for denominators in DR Congo and inadequacies in computerization, data flow, human and capital resources, and low management support in a Kenyan study. Another study conducted in Tanzania found weaknesses in the areas of standardized case definitions, quality of reporting, analysis, supervision and feedback.¹⁰

A survey done to assess the HMIS performance in Mexico revealed gaps between respondents' perception of the promotion of a culture of information and their actual competence and knowledge of HMIS tasks. On average, 70% of respondents believed strongly that the MOH promotes checking data quality but only 57% of the respondents could describe at least two ways of checking data quality. Seventy one percent of respondents believed strongly that the MOH promotes problem solving skills but only 23% of the respondents demonstrated skills in defining and solving problems. Moreover, 72% of respondents believed strongly that the MOH promotes use of HMIS information but only 52% of the respondents showed how to use HMIS information.¹²

A recent survey of the health information infrastructure in the Regions of Latin America and the Caribbean revealed major problems and constraints related to data collection, information utilization and dissemination, and the capacitating of human resources. Of the application areas studied, the level of information use was reported consistently as absent or low.¹³

RHIS performance evaluation study conducted in South Africa using PRISM tools also revealed that data accuracy was only 43% and the information use level was 65%. With regard to the underlying determinants of RHIS performance, 83%, 76% and 78% of respondents strongly believed the department promotes checking data quality, problem solving and use of information, respectively. These perceptions were coupled with a perceived high level of confidence in carrying out HMIS

tasks: On average 74%, 77% and 75% of respondents perceived that they had confidence in their ability to check data quality, solve problems, and use information, respectively. In contrast, only 0.6%, 12% and 28% of the respondents showed HMIS task competence for checking data quality, problem solving and use of information, respectively.¹²

Another study conducted in Uganda revealed that data accuracy was 79% while the level of information use was 41%. The completion rate was zero: many sections of monthly reports were not completed by the facilities; and the timeliness rate at districts varied between 5% and 91%, indicating that in some districts the facilities were not submitting monthly reports on time while others did not face the same problem. Some organizational and behavioral factors explaining the low level of HMIS performance were also demonstrated in the study. On average, 74% of the respondents strongly believed that the MOH promotes checking data quality; Furthermore, 72% of the respondents strongly believed that the MOH promotes the use of information; but only 5.5% of the respondents were competent in information use. Underperformance was further explained by lack of training in HMIS tasks and quality supervision. Only 9% of the facility staff reported receiving training and on average 78% of health centers in each district reported receiving at least one district supervisory visit in the last 12 months. However, only 50% of health centers received supervisory comments on their submitted reports, and only 43% of health centers received feedback. These results show the need for improving supervision quality. Limited availability of human and in-kind resources also was found to negatively affect HMIS performance: 40% of health centers were understaffed, 61% of the health centers visited had some source of electricity, and 65% of health centers had functional calculators. No software program existed at the district level to analyze collected data and generate feedback reports.¹²

A baseline assessment of the Pakistani HMIS showed that HMIS data accuracy (41%) and information use (10%) were limited. One of the contributing factors was low HMIS task competence. Less than 42% of the respondents were able to calculate, plot, explain, and find a trend in a bar chart and use those findings for decision making. There was no mechanism for checking data accuracy.¹²

A study conducted in Malawi reported that completeness of facility-based routine data remains a big problem in Malawi. Data are incomplete in several ways. A number of facilities are not sending

reports at all. Some other facilities are not sending reports regularly. The facilities regularly sending reports are nevertheless not reporting data on each element every month. The facilities that are sending reports regularly on each data element are still failing to capture all the records. Thus, an indicator value generated from routine data is always lower than actual and therefore each report needs adjustment for under-reporting.¹³

Data for Decision Making (DDM) project designed by CDC and USAID assisted 15 developing countries in Africa, Latin America, Middle East and Asia in identifying and addressing barriers to the use of data taking timeliness, simplicity, flexibility, acceptability, accuracy and usefulness. Each system was found to have deficiencies in at least four of the six attributes, with two systems having five deficiencies and three systems having six deficiencies. Timeliness was considered to be a problem in five out of the six information systems examined. Data from existing systems were considered to lack accuracy to some degree in all systems. Simplicity in five of the six systems and flexibility in four of the six systems were described as problems. In each of the later four systems, there were no routine mechanisms for review and adaptation of the systems to reflect the changing needs of decision makers. Local decision makers and data providers reported that the systems were unresponsive to local needs. Teams reported that most were designed to meet the information needs of vertical programmes or to satisfy the requirements of external donors. Few allowances were observed for the information needs of health workers at sub national levels and in none of the national systems. There was a perception that data were collected to satisfy political and social considerations rather than the technical needs of the ministry of health.⁸

2.3 The Ethiopian situation

The Ethiopian HMIS is implemented by the Federal Ministry of Health (FMOH). Meanwhile, the Central Statistical Agency (CSA), a division of the Ethiopian government, manages “population – based health information sources” - censuses, ad hoc surveys, and registering vital events. The HMIS was established to “support informed strategic decision-making by providing quality data that help managers and health workers plan and manage the health service system.”¹⁵

In an effort to improve the performance of the HMIS, Ethiopia contracted with the consulting firm John Snow, Inc. (JSI) in 2006 to perform an evaluation and redesign of the HMIS. As the HMIS is predominantly paper-based, this project was to culminate in the design and deployment of an electronic HIS, following reform and revision of the existing paper-based system. As of 2008, a

comprehensive electronic HMIS has been developed in conjunction with doctors associated with Tulane University and is now being deployed to health facilities in several regions of the country, with an eventual nationwide rollout eventually slated to occur.¹⁵

In addition to the 2006 reform of the HMIS, Ethiopia completed an assessment of the HMIS under the auspices of the Health Metrics Network HMN in 2007. This assessment found the HMIS to be “cumbersome and fragmented.” Among the major HMIS challenges and weaknesses were the absence of an implementation strategy and guidelines; the shortage of human resources and high staff turnover; inadequate skills for gathering and analyzing data among health care staff at lower levels; unsatisfactory quality of data in the reports, resulting in a compromised ability to make informed decisions; fragmented information flow, including parallel reporting system channels causing increased workload. It would appear from the HMN assessment that the 2006 reform of the HIS, while perhaps effective to some degree, did not address all issues necessary for an effective national HIS. The 2006 reform addressed only minimal changes to routine practices in the health system, namely, reduction of indicators and redesign of forms. However, the reform failed to encourage behavioral changes amongst managers and administrators in the HMIS, a result that would have required substantially more resources and a more coordinated effort.¹⁵

Even though very little is documented, Ethiopian national HIS are often too disease-specific, fragmented, and delinked from strategic program plan. Staffs particularly at the periphery levels lack adequate skills in data collection and analysis. In a survey conducted for HMIS workers composed of junior and senior staff, 72% of them were found to be able to make a bar graph, but only 14% could detect an obvious trend shown in the graph.¹⁴

In a study conducted in hospitals in A.A, about 78% of the interviewed data management staff reported that they don't receive any feedback from the higher management bodies. Even who reported the presence of feedback agree that the feedback is not timely.¹⁶

A research conducted in 2009 in health facilities in Addis Ababa states lack of appropriate inputs to the system, lack of Health Information System manipulation skill, lack of incentives, lack of feedback, lack of technical support, low attitude of health workers, lack of management commitment and awareness centralized decision making, absence of information culture, and non participation of

Health Information System staff in the planning process as factors affecting the use of HIS at facility level.⁹

Moreover, the information flow is fragmented including parallel reporting system with no integration among the various subsystems, resulting in redundant and conflicting reports. This ultimately lead to poor quality of data in terms of accuracy and timeliness thereby preventing information users from effectively utilizing information in decision-making and research.³

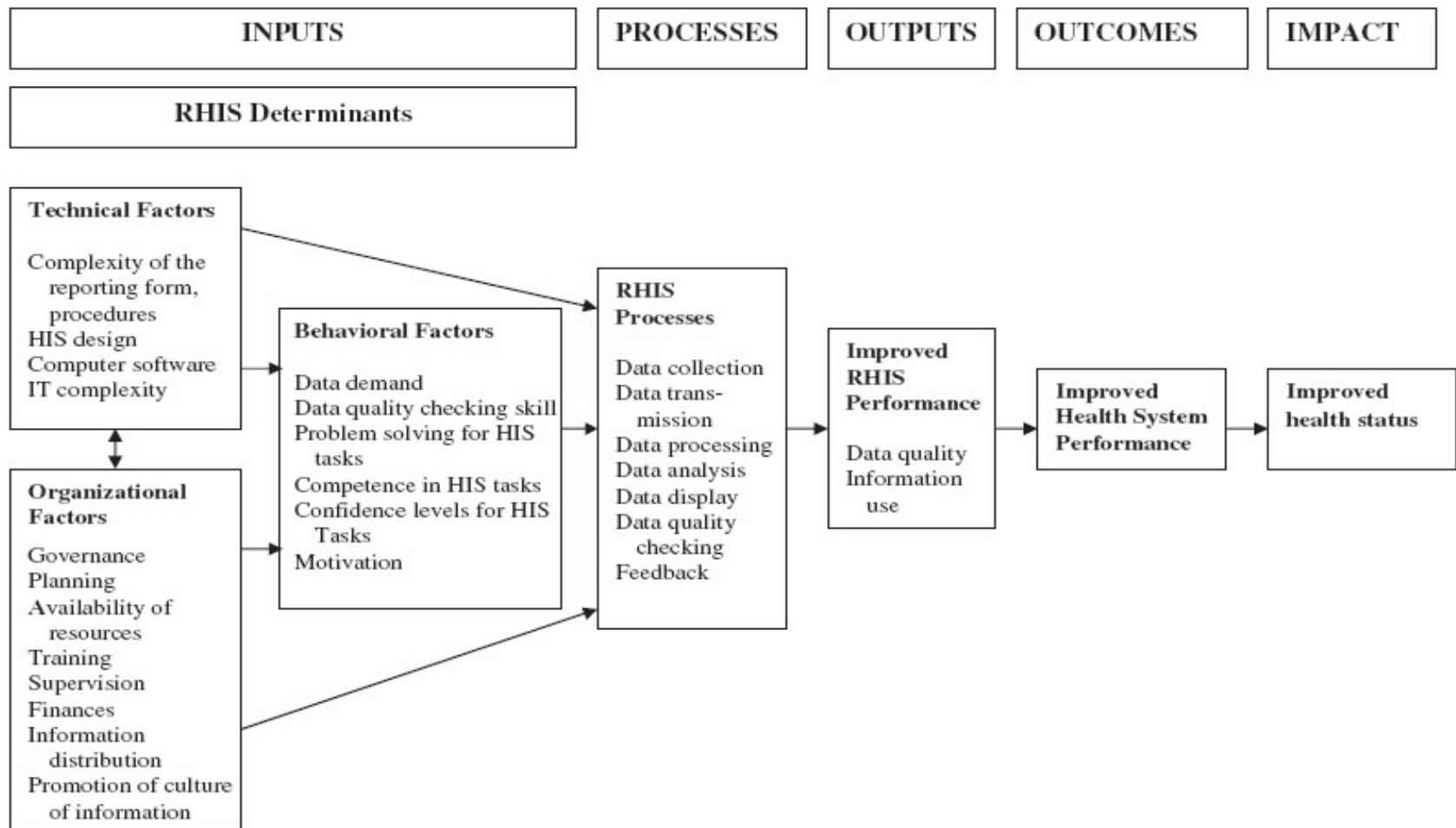


Figure1:PRISMframework¹

III.OBJECTIVE OF THE STUDY

- ***General Objective:***

- To assess the problems and prospects of the RHIS in the health system of government health facilities found in Addis Ababa.

- ***Specific objectives:***

- To identify the problems in the RHIS processes;
- To evaluate the RHIS performance (data quality and use of information); and
- To identify the factors that can influence the performance of RHIS of government health facilities found in Addis Ababa.

IV.METHODOLOGY

Study area and period

This study was conducted at 19 government owned health institutions (10 Health centers and 9 Hospitals) in Addis Ababa between the months of January and May 2010. Addis Ababa is the capital city of Ethiopia and was established by Emperor Menilik II in 1886. It is geographically located at the center of the country. It is situated in the center of a well drained plateau and surrounded by hills and mountains. The altitude ranges between 2000 and 3000 meters above sea level. Addis Ababa is the economic and social center of the country where large proportion of the country's health and social services are found. There are about 600 health institutions among these 140 of them are government owned, comprising 102 organizational and factory clinics, 26 health centers and 12 hospitals. There are about 2000 health professionals working in these health institutions.

Source population

The source population for this study was government owned health facilities including health centers and hospitals found in Addis Ababa.

Study population

Potential sources of information for this study were staff working in data collection, compiling daily registers, heads of the different departments in the facilities responsible for compiling monthly reports, and staff in HMIS/M&E units of the facilities.

Study design

The study followed a descriptive exploratory cross-sectional study employing quantitative methods that used to assess the factors influencing the performance of the health information system in the facilities. Data quality and use of information were assessed using the performance evaluation tool of the PRISM package conducting an interview and document review; where as a self administered questionnaire was used to assess the knowledge, skill, and attitudes of the staff working in the facilities.

Sample size determination

Sample size for the staff survey was determined using the single proportion formula for sample determination under the following assumptions.

$$\alpha= 0.05$$

$$d=0.05$$

$$p=0.5 \text{ and}$$

$$Z =1.96$$

Using the above formula, sample size was 384. As the total study population was less than 10,000, correction formula, $\frac{No.}{1+No./N}$ was used to compute the sample size. Considering a non response rate of 10%, the required sample size for the study became 354.

Sampling procedures

All government owned hospitals and ten health centers (one from each sub-city) were included in the study. In sub-cities where there is more than one health center, one was randomly selected. Simple random sampling with proportional allocation to size was used to select participants for the study. The calculated sample size was proportionally allocated to each health institution and then to each health profession.

Data collection procedures

Data was collected using interview of key informants with the help of adapted PRISM performance evaluation tool, and self administered organizational and behavioral assessment tool prepared to assess factors that determine the performance of RHIS, including the knowledge, skill, and attitudes of staff working in the respective facilities under study. Study subjects were briefed about the nature and objective of the study and then were asked to fill the questionnaires. Besides, observation of daily registers, compiling tools and reporting formats for data accuracy, consistency and completeness was undertaken using an adapted PRISM check list.

Data collectors

The interview and document review was conducted by B.A holder data collectors who were competent enough to understand and reflect the points on the questionnaire in local language, Amharic, appropriately and were trained for 3 days on the purpose of the study and on how to distribute, collect questionnaires and check them for completeness. The self administered questionnaires were distributed and collected by a staff working in the respective facilities after

being translated into Amharic. The principal investigator was supervising the data collection process at every stage of the study.

Operational definitions

- **Adequacy of performance:** In this research data was taken as highly adequate, adequate, present but not adequate, not adequate, and not functional when the proportion of the score obtained by performing each item under study was 100-80, 79-60, 59-40, 39-20, and 19-0 percent respectively.
- **Completeness:** A report format filled with 90% of the data supposed to be reported is considered as complete.
- **Culture of use of Information:** is considered as present when on average 60% or above of the respondents agree or strongly agree with the presence of it.
- **Timeliness:** reports send to district offices before dead line are considered to be timely.
- **Data Accuracy:** data is taken as accurate if the discrepancy between the daily registers and compiled reports does not exceed 90%.
- **Confidence to perform HMIS tasks:** respondents who rate their confidence as 60% and above are considered to have the confidence to perform HMIS tasks.

Data analysis procedures

Data were entered using EPI 6, cleaned and analyzed using SPSS statistical package version 15. Data obtained by interviewing key informants and reviewing documents analyzed descriptively to depict quality of data and use of information for informed decision-making. Adequacy of quality of data and use of information was determined by the place where the score for each item falls, after classifying the total possible score for each item in to five equal width categories; highly adequate, adequate, present but not adequate, not adequate, and not functional.

Data obtained from self-administered questionnaires was analyzed taking the proportion of both respondents who strongly agree and agree with the items in question as they have positive perception to the items under assessment. In addition, the section to assess HMIS task performance was analyzed considering those who score above 60% as having adequate knowledge and skill. Finally, comparisons on respondents' perception Vs the actual performance of the RHIS and confidence Vs competence of the staff to perform HMIS tasks were made using proportions and charts.

Data quality control

Data collectors with first degree were recruited and trained for three days on how to appropriately collect data. A pilot study was conducted in two health institutions which were not part of the main study. Appropriate changes were made after the pilot study. On-site supervision and feedback were given to them. Data were checked on daily basis for completeness. Data entry was done by the principal investigator after checking for completeness and coding. Ten percent of the data were double-entered to check for the accuracy of data entry. Data cleaning was done by running frequencies for each variable.

Ethical considerations

The study was carried out after getting permission from the ethical clearance committee of Addis Ababa University, Medical Faculty through the School of Public Health and other concerned bodies. It was conducted with the utmost adherence to the ethical standards of the country. Individuals were clearly informed about the objectives of the study and data were collected after getting written consent from the zonal health office and informed verbal consent from all study subjects.

While the study required access to health service information (e.g., daily registers) for the purposes of recounting and cross-checking reported results, under no circumstances was any personal information disclosed in relation to the conduct of the research or the reporting of findings and recommendations. The research team neither photocopied nor removed documents from sites. Anonymity of individuals participating in the interview as well as in the survey was maintained absolutely.

V. RESULT

Demographic characteristics of respondents

The Organizational and Behavioral Assessment Tool (OBAT) of the PRISM package was administered to 354 staff working in the nine hospitals and ten health centers selected for the study. By meticulous involvement of the principal investigator for the questionnaires to be collected back, all questionnaires were returned, of which 341[96.3%] were acceptably completed and were included for the study.

Of the 341 respondents, 194 [56.9%] were females and the rest were males. The minimum and maximum ages were 21 years and 57 years, respectively, with the mean being 32 years. Most [62.5%] were nurses, 17% physicians or health officers, while 15% were paramedics [including X-ray, laboratory, and pharmacy professionals] and 5% data technicians.

Service years of respondents varied from 1-39 years. About half of the respondents had taken HMIS training.

Assessment of the RHIS processes and performance

As recommended by the PRISM framework, RHIS process indicators like data recording, data accuracy checks, data display, data completeness, timeliness, and data transmission, processing and analysis were used to assess problems of the RHIS processes in the institutions under study. Quality of data and use of information were also used as parameters to assess how the HIS is performing. The findings are presented here below.

Data recording/collection:

Three attributes were used to assess the performance of facilities with regard to data recording: keeping copy of RHIS monthly reports sent to districts, presence of all the monthly reports for the last 12 months, and keeping outpatient registers. All the 19 facilities assessed were found to keep copy of RHIS monthly reports sent to districts and the monthly reports for the last 12 months were available in the facilities. On the other hand, 18[94.7%] of them were found to keep outpatient registers. As a result, the average performance of the facilities with regard to data recording was found to be 98.2%.

Data accuracy check:

Data accuracy was checked by comparing data in the register with data in the monthly reports. Only data from ten facilities were found to be accurate making the average accuracy of the 19 facilities 52.6%. Besides, data accuracy checking directives were available in only 22.6% of the facilities.

Data completeness:

Report of the last month before the time of data collection for the study was assessed for data completeness. Results revealed that data were completely filled only in 14 facilities making the overall completeness 73.7 %.

Timeliness:

Submission of reports by an accepted deadline for the last three months before the time of data collection was found to be met only by six [31.5%] of the facilities assessed.

Data transmission/Data processing/Analysis:

Procedures and practices to transmit, process, and analyze data were assessed using six items: existence of data processing procedures, calculating indicators for catchment area, comparisons with district/national targets, comparisons among types of services coverage, comparisons of data over time, and existence of procedure manual for data collection/definitions. As a result, 78.9% of the facilities had data processing procedures in place. In 63% of them, existence of procedure manual for data collection/definitions was a reality.

Calculating indicators for catchment area was being practiced in only 26.3% of the facilities. Furthermore, data comparisons with district/national targets and among types of services coverage were common practices in 36.8% and 26.3% of the facilities, respectively. However, 57.8% of them were found to compare their data over time. The average performance of these procedures for all the facilities under study is, therefore, 47.6%.

Use of Information:

Other than data quality, which is already assessed using attributes like data accuracy, completeness, and timeliness, use of information is the other dimension of performance of health information

system. Use of information was explored taking six main items for which their results are described below.

RHIS report production:

Report production was assessed using six sub items: compilation of RHIS data, compiling report containing RHIS information, number of times report was sent per year when compared with the number of times reports were actually issued, and receiving feedback report from district office. The results showed that 84.2% of the facilities compiled RHIS data while 78.9% of them compiled report containing RHIS information. In 89.4% of the facilities, the number of times report was sent per year was equal with the number of times reports were actually issued. Moreover, 31.3% of the facilities received feedback report from district office on their performance. The average performance of the facilities with regard to report production was found to be 71%.

Display of information:

Facilities were assessed whether they display information in relation to different indicators of health and health services selected for this assessment. Of the facilities assessed, 36.8% were found to display information related to mothers' health, and the same proportion of facilities of 31.5% were found to display information related to child health, facility utilization, disease surveillance, and summary of demographic information. About twenty six percent of the facilities had a map of their catchment area, and in 31.5% of them report on RHIS data which provides guidelines/recommendations for actions were available. On average, 31.6% of the facilities were found to display information related to health and health services.

Decision making based on types of analysis:

Four items were used to assess whether decisions were made based on RHIS information. In 31.5% of the facilities strategies were being reviewed by examining service performance target and actual performance on month-to-month comparisons. With regard to reviewing responsibilities of facility personnel, 26.3% of the facilities used examining service target and actual performance on month-to-month comparisons as the main strategy. On the other hand, 31.5% of the facilities mobilized/shifted resources based on comparison by services, whereas some 10.5% of the facilities advocated for more resources by comparing performance by targets and showing gaps. In general, an average of 25% of use of information for decision making was found in the facilities.

Discussions and decisions on RHIS information:

Facilities were assessed whether they regularly discuss about RHIS and make decisions on them considering eight items. Findings revealed that 89.4% of facilities had routine meetings for reviewing managerial or administrative matters with 63% of the meetings taking place as per the schedule during the last three months prior to the time of data collection. About eighty four percent of these facilities maintained record of management meetings.

Forty two percent of the institutions discussed about issues of management of RHIS, such as data quality, reporting, or timeliness of reporting. Moreover, about fifty two percent discussed on RHIS findings such as patient utilization, disease data or service coverage, and medicine. Nevertheless, only 57.8% of these facilities made any decision based on the above discussions while 52.6% of them had any follow-up action taken place on the decisions made during the previous meetings. Furthermore, 42% of them had RHIS related issues/problems referred to regional/national level for actions. The overall performance of the facilities in relation with discussion and decision on RHIS, therefore, on average was 60.4%.

Promotion and use of RHIS by higher level:

Whether information generated from RHIS of the facilities is used by higher level or not was also assessed. Results revealed that all the facilities received annual/monthly planned targets based on RHIS information. In 63% of the facilities, record of last three months prior to the time of data collection showed that district/senior management issued directives on use of information. About 31% the facilities received district/national RHIS office newsletter/report in last three months showing success stories of use of information. In 36.8% of the facilities, documentation to show use of information for various types of advocacy exists, and in 89.4% the person in charge of the facility participates in meetings at district level to discuss RHIS performance for the last three months. To sum up, the performance of the facilities with regard to the promotion and use of RHIS by higher level was 64%.

Supervision by district health offices:

Assessment of facilities for supervision by district health offices revealed that 78.9% of them had been visited by district supervisor during the last three months prior to the time of data collection. About 47.3% of them reported having been supervised for data quality using a checklist. In 57.8% of the facilities supervisors discussed performance of the health facilities based on RHIS information.

Supervisors helped 47.3 % of the facilities in making decisions based on RHIS information. However, only 26.3% of the facilities got feedback/note from the supervisors on the last two supervisory visits. On average performance of supervision activities by the HIS of the studied facilities found to be 51%.

The overall use of information in the 19 facilities under study based on the results of the six attributes mentioned above has become 50.4%. Generally, the performance of the RHIS explained by data quality and use of information in the institutions assessed is not adequate.

Assessment of factors influencing performance of RHIS

The Organizational and Behavioral Assessment Tool (OBAT) of the PRISM framework was used to systematically assess the status of factors that can potentially influence the performance of RHIS.

Behavioral factors

Data demand and motivation of staff

Respondents were asked about documenting their activities regularly, their commitment in improving health status of the population, responsibility and accountability for what they have done, culture of gathering data to find root causes of problems, developing appropriate criteria for selecting interventions, using HMIS data for community education, developing outcomes of an intervention and evaluating whether targets are achieved. Eighty three percent [83%] of them believe that the stated behavioral characteristics are owned by the staff.

On the other hand, more than half [50.7%] of the respondents have positive attitudes towards data collection while the rest have negative or neutral feeling about it.

Confidence levels for HMIS related tasks:

Majority, 267(78.21%), of respondents perceived that they had confidence on checking data accuracy. The average perceived confidence level to check data accuracy was 78.2%.

Two hundred eighty three [83%] of the respondents reported their confidence in calculating percentages/rates correctly. The average perceived confidence in calculating percentages/rates was 82.1% with middle value 90% and mode 100%. Almost 80% of the respondents believe that they can plot data by months/years. The average perceived confidence of respondents to plot data by months/years found to be 81.73%.

With regard to data interpretation, 74.9% of the respondents expressed their confidence in computing trends from bar charts. The average perceived confidence to compute trends found to be 76.45% with median 80% and mode 100%. Besides, 76.2% of the respondents were confident enough to explain findings and their explanations, with the average confidence level being 78.53%. Asked about their confidence in use of data, 75.7% of the respondents perceived that they can use data for identifying gaps and setting targets. Moreover, 79.2% others had perceived confidence of using data for various types of decisions and providing feedback.

Competence in performing HMIS related tasks:

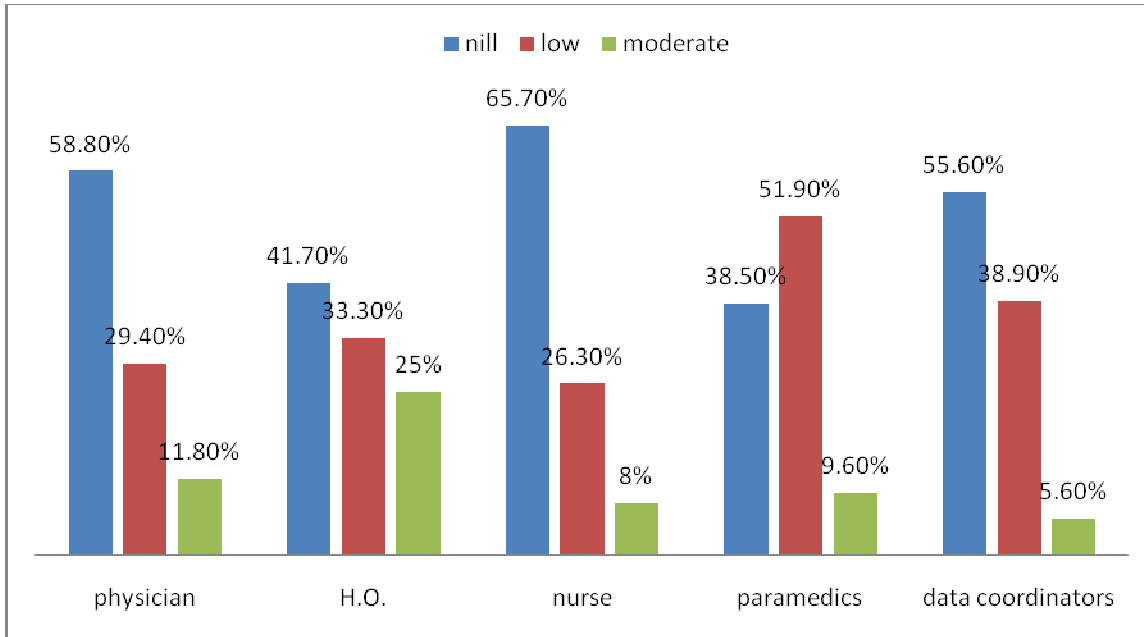
Respondents were asked to demonstrate their skills of calculating percentages, rates and plotting and interpreting information based on given scenarios. As a result, 67.4 %, 20.2 % and 51% of the respondents correctly demonstrated their skills in calculating percentages, appropriately developing bar chart, and correctly explaining findings of the bar chart, respectively. Furthermore, 39.3% others were able to appropriately explain the trend obtained from the data.

Competence was also assessed with previous HMIS training. HMIS trained respondents performed less (20.5%) as compared to those who didn't take HMIS related training [28.2%].

With regard to knowledge of respondents about use of information at different levels, 34.9% were able to provide at least one use of information at facility level; 25.8%, 27% and 24% of the respondents were able to provide at least one use of information at district, policy, and community levels, respectively.

Competence of respondents in performing HMIS tasks was classified into five groups for this study: nil (0-20%), low (21-40%), moderate (41-60%), good (61-80%), and excellent (81-100%). Figure 2 shows HMIS task competence of respondents by their profession.

Figure 2: Competence on HMIS task performance by profession, Addis Ababa, 2010.



Organizational factors

Use of information for decision-making:

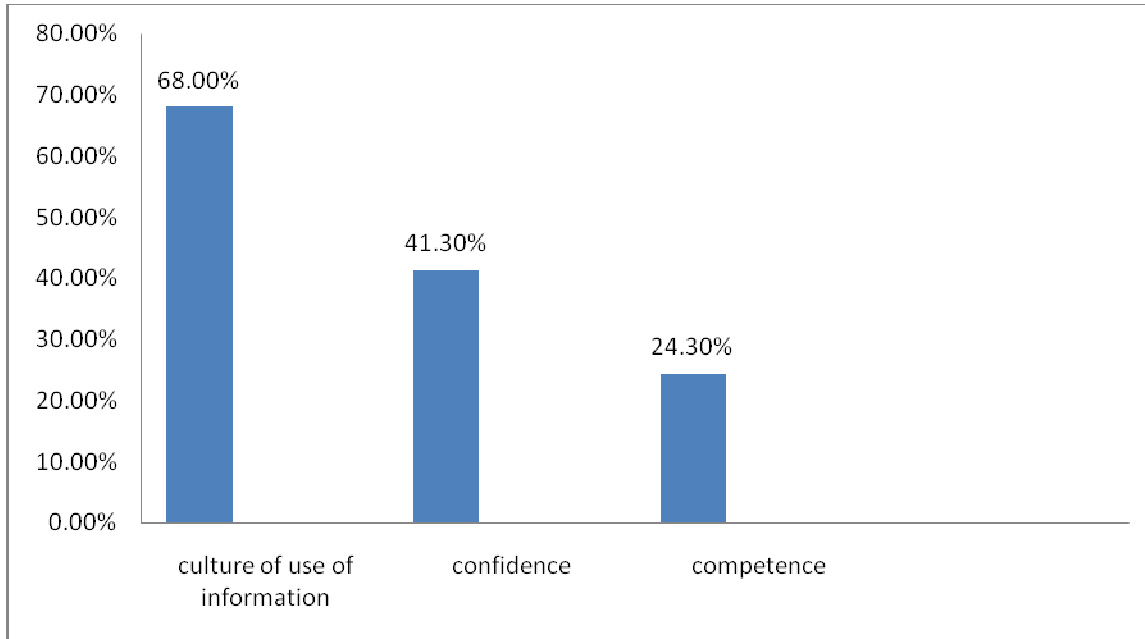
Majority [94.1%] of the respondents reported that decisions are made based on evidence, comparing data with health objectives, based on health needs, and by considering health costs in their respective health facilities.

Promotion of Culture of information:

Seeking information from concerned persons, emphasizing data quality in monthly reports, discussing conflicts openly to resolve them, using HMIS data for selecting targets and monitoring, checking data quality regularly, providing regular feedback to their staff based on evidence, and reporting data accuracy regularly were used to assess existence of information culture. Results obtained revealed that 68% of the respondents reported the presence of the attributes of culture of information in their respective facilities while the rest were with negative or neutral response.

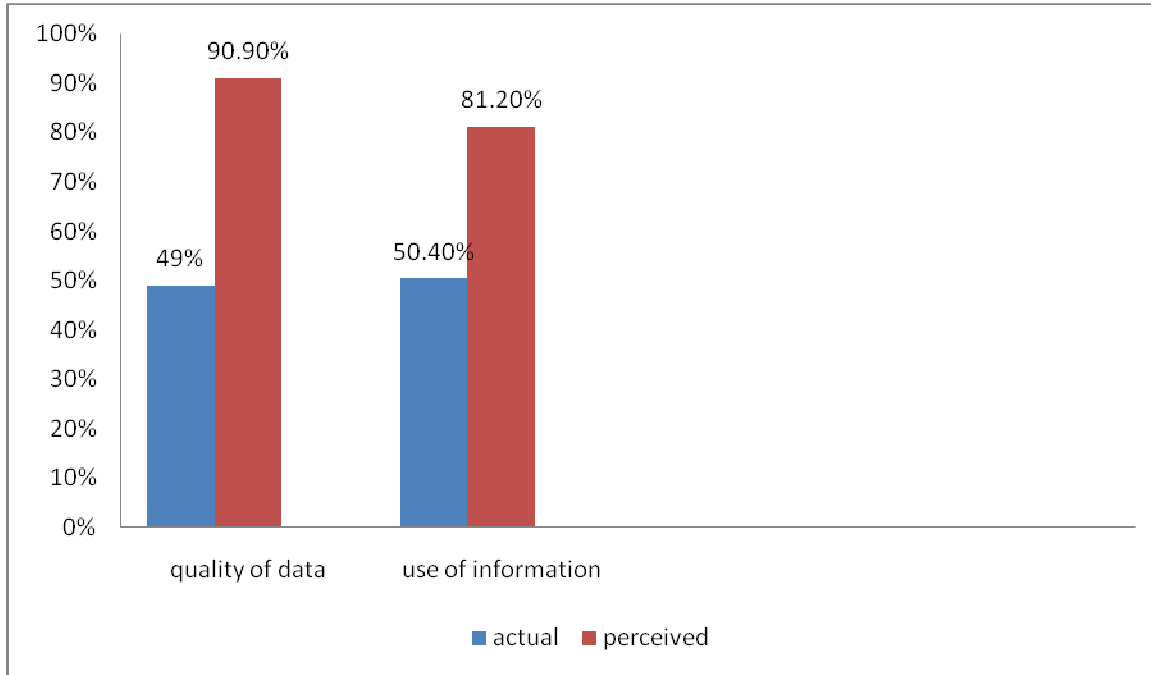
It assumed that culture of use of information determines confidence of staff in performing HMIS tasks, which in turn determines competence of staff to perform HMIS tasks. Comparison of respondents who actually perform the HMIS tasks adequately, who perceived they had the confidence, and perception on promotion of culture of information is shown in the figure below.

Figure 3: Comparison of perceived culture of information, confidence, and actual competence level, Addis Ababa, 2010.



Comparison of perceived data quality and use of information among respondents with the actual values revealed discrepancy. 90.9% of the respondents perceived that there is adequate level of quality of data, while the actual quality of data was 49%. Similarly, 81.2% of the respondents perceive there is adequate level of use of information in the facilities, while the actual use of information is 50.4%.

Figure 4: Actual quality of data and use of information Vs perceived culture of quality of data and use of information, Addis Ababa, 2010.



VI. DISCUSSION

RHIS ultimately aimed in producing quality data and continuous use of information that leads to improved health outcomes. However, the reality is far different from this. This is due to information system development until recently relied mainly on technical approaches from assessing information needs to developing data analysis and presentation tools, and using information and communication technology (ICT). Little recognition was given for the effects of contextual issues about what is happening in health sector organizations.⁵ For instance low management support, weaknesses in the areas of standardized case definitions, quality of reporting, analysis, supervision and feedback were found to be some of the contributing factors for poor performance in Tanzania, where technical factors were given due emphasis.¹⁰ This suggests that for the RHIS to produce its intended results it should address the behavioral and organizational issues also.

Except for data collection (92%), RHIS processes such as data transmission, processing and analysis (47.6%), display of information (31.5%), data accuracy check (22.6%), and feedback (31.5%), which all help for the development of indicators that lead to information use are found to fall inadequate which implies that the level of use of information will also be inadequate. Results of one study conducted in hospitals in A.A goes in line with the results of this study in relation to feedback, about 78% of the interviewed data management staff reported that they do not receive any feedback from the higher management bodies. Even those who reported the presence of feedback agrees that the feedback is not timely.¹⁶ Such kinds of delayance or absence compromises the importance of feedback for problem resolution, regulating and improving performance at individual and system levels, and for identifying opportunities for learning.¹

The PRISM framework states that in an efficient RHIS, different components should be working together harmoniously. For example, to achieve high quality data, it is assumed that staff should have a high level of confidence to conduct data accuracy checks and support from an organizational culture that emphasizes high quality data. If there is a gap in any of these components, data quality would suffer. In this study, irrespective of the high level of confidence to check data accuracy and perception on the presence of culture of use of information, data

accuracy and quality of data were found to be present but not adequate. That is 52.6% and 48% respectively. This implies that a wider gap is found based on whether an organization is perceived to emphasize the need for high quality data or not. This low level of data accuracy also indicates that respondents (organizational members) are unaware of these gaps in the existing information systems, creating an opportunity for interventions regarding better self-assessment, sense of responsibility, ownership and accountability. Similarly a study in Uganda showed a high subjective confidence level (56% and 58% for data interpretation and information use, respectively), as well as strong perceptions that the health department promotes the use of information 79% data quality of 79% and the level of information use of 41% while there is low information use 24%.¹

Besides to confidence level to perform tasks and perception on culture of information use, the RHIS is also influenced by competence of the people to perform HMIS tasks. In this study the participants showed a high subjective confidence level of 76.45%, 75.7% and 79.2% for computing trends, using data for identifying gaps and setting targets, using data for various types of decisions and providing feedback, respectively. Whereas, the competence level was 39.3% for explaining trend obtained from data, 51% for explaining findings of bar charts, and 28% provide at least one use of information. These difference shows that people are unaware of a gap between their perceived and actual competence in performing a task.

For the RHIS to provide the intended results, users of the RHIS needs the management to support them with training, supervision, and feedback. However, those who did not get HMIS training, perform the HMIS related tasks relatively better than those who got the training, which is 28.2% and 20.5% respectively. Nevertheless, this does not mean that training has nothing to do with competency, where as one reason for this is the trainings provided were very short in duration that lasts from 1-3 days. Besides, some staff mainly involved in data coordination were found not to have the training while they needed the training in detail. This inadequate level of training affects the knowledge and skill of the people which intern affects processes and performance of the RHIS. The level of supervision the staff obtained from the management accounts to be 51% in which 26% of these get feedback. Though there is relatively moderate

level of supervision, the low level of feedback deprives the staff from self-assessing their performance.

Though the competency level of all the respondents found to be not adequate, this becomes worse when it comes to the main users of RHIS, i.e., data coordinators/statisticians with a competency of 5.6% and nurses 9.6%. This entails that those users of RHIS need a scientific HMIS training if the RHIS is to provide its intended purpose, i.e. improved health system performance which leads to improved health status.

In general, continuous use of information for decision-making is found at low/present but not adequate level. Nevertheless, the perceived culture of use of information and perceived confidence to perform HMIS tasks was adequate 68% and 41.3%, respectively. Staff competence to compute the HMIS related tasks was as low as 24.3 %. As a result, RHIS users could not process and transform data so that managers can use it for planning and decision.

VII. CONCLUSION AND RECOMMENDATION

The main purpose of this study was to assess strengths and weaknesses of the RHIS and assess factors that contribute to the identified strengths and weaknesses by exploring the organizational determinants, behavioral determinants and RHIS processes such as data recording, data transmission, data processing, data analysis, display of information, data quality checking, and giving feedback.

In recent times of resource constraints, good governance, transparency and accountability have become the mantra of development and consequently more attention is given to strengthening evidence-based decision-making and information systems. With emphasizing management of the health system, developing countries promoted the development of routine health information systems. Studies in many developing countries revealed, use of information for planning and decision making is weak. The same is true for Ethiopia. It is disease specific, fragmented and delinked from strategic programs.

Having the above problems, the paper raises some research questions that are highly related with health information system. It also tries to describe the data that are found from primary and secondary sources. That are stems from quality of data and use of information.

The two out puts of the RHIS, quality of data and use of information are found performing inadequately owing to inadequate level of performance of the RHIS resulted by inadequate level of competence to perform HMIS tasks, low level of management support, insufficient training specially to those highly involved in data management, un-strengthened promotion of culture of information.

Several factors are seen to influence the performance of the RHIS of the Addis Ababa health care system. All these factors fall to either behavioral or organizational groups. Despite the discussed problems, the positive attitude of the staff on the relevance of

data and data collection and the forthcoming HMIS program is an illumination to improve the HIS. In addition to these, there is an increased attention to HIS in developing countries as more effort by governments, international agencies, non governmental organizations, donors and other development partners seek to improve health care as a way to reverse disease trends in these countries. Therefore, considering the assessment obtained from the study, the following recommendations are forwarded:

- Interventions designed to improve the performance of the RHIS should be able to address the behavioral and organizational factors, too.
- Establishing supportive supervision and feedback processes
- To provide a continuous and a regressive training for the staff in handling, managing and interpreting information and data for better planning and decision.
- To introduce different motivating mechanisms that can help data management
- To import best practices from advanced users' of RHIS.
- sharing success stories through existing communication channels to promote the use of information
- Further study to ascertain causal relationships with the factors and assess impact on the health status of the community is recommended.

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IX. ANNEXES

Annex I: ENGLISH STRUCTURED QUESTIONNAIRES ADDIS ABABA UNIVERSITY, FACULTY OF INFORMATICS, DEPARTMENT OF HEALTH INFORMATICS

Problems and prospects of health information system in Ethiopia: the case of government facilities in Addis Ababa

1. Information sheet and Consent form

1.1 Information sheet

My name is _____. I am part of the research team led by Sara Alemayehu, a postgraduate student in the Department of Health Informatics, Faculty of Informatics, AAU, to assess the problems and prospects of RHIS in your facility/health bureau..

Back ground of the study: - Health information is essential for health decision-making at all levels of the health pyramid from the level of individual patient care to the management of specific health programmes at policy level where strategic decisions are made.

Objectives of the study: - To assess the strengths and weaknesses of the health information system and identify the Technical, Behavioral and Organizational factors that contribute to this strengths and weaknesses

Methodology of the study: A cross sectional study employing both qualitative and quantitative methods will be conducted in all government hospitals found in Addis Ababa, RHB and FMOH. Staff working in data collection, compiling daily registers, heads of the different departments in the facilities responsible for compiling monthly reports, staff in HMIS/M&E units of the facilities, staff working in relation to HMIS at sub-city health offices, RHB, and FMOH will be purposively sampled for this study. Standardized PRISM(Performance of routine health information system management) assessment tools are adopted for data collection. and data will be collected by interviewing key informants, reviewing documents and using self administered questionnaires. The study will be finalized by June, 2010.

Benefits and harms : - Has no direct benefit right at the moment but in the long run it will help to improve the health information system by objectively measuring performance and identifying factors that hinder performance. And there are no possible harms that can arise by participating in this study

Confidentiality: - Participant's name is not going to be registered and responses will remain confidential and will not be shared with anyone, except for presented table forms. Besides, the study will not involve patients and patient cards so that there will not be risk of losing confidentiality.

Freedom to withdrawal: - The interview is voluntary; You don't have to talk about anything you don't want to and you may end the interview at any time.

Contact person

Principal investigator

Address: - Tel Mobile: - 0911624821

Email: - heryalal@yahoo.com

Signature _____

Thank you in advance

1.2 Informed Consent Form

You have been briefly informed about the study and clearly understand the objective. Now please tell me if you agree to participate in the interview.

The participant

1. Agree

2. Disagree

Signature of interviewer which indicates that the respondent has consented to the participate in the study

Interviewer name _____

Signature _____

Date of interview _____

Annex II: RHIS Performance Diagnostic Tool

1-Quality of Data Assessment: Health Facility Form

Date of Assessment

Title of person Interviewed:

Facility name

| Data Recording | | | | | |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------|------------------|--------|
| 1 | Does this facility keep copy of RHIS monthly reports sent to the district office? | 1.Yes | 0.No | If no, go to EO5 | |
| FQ 2 | Count the number of RHIS monthly reports that are kept at the facility for the last 12 months | | | | |
| FQ 3 | Does this facility keep outpatient register? | 1.Yes | 0.No | If no, go to EO5 | |
| Data Accuracy Check | | | | | |
| FQ4 | Find any health information for the two months in the outpatient register. If the facility does not keep the copy of the monthly report, obtain the copy at the district office and complete the exercise. Compare the figures with the reports from the computer. | | | | |
| | Item | a. Month | | b. Month | |
| | | # from | # from | # from | # from |
| 4a | | | | | |
| 4b | | | | | |
| 4c | | | | | |
| 4d | | | | | |
| FQ5 | Did you receive a directive from the Senior Management/district office that there will be consequences if you do not follow the instructions? | | | | |
| | 5A. Check the data accuracy at least once in three months? | | 1.Yes, | 0. No | |
| | 5B. Fill the monthly report form completely | | 1.Yes, | 0. No | |
| | 5C. Submit report by declared deadline | | 1.Yes, Observe d | 0. No | |
| FQ6 | Did you receive a directive from the Senior Management/district office that there will be consequences | | | | |

| | | | |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------|
| 6A. if you do not check the data accuracy | 1.Yes, Observe | 0. No | |
| 6B. If you do not fill the monthly reporting form completely | 1.Yes, Observe | 0. No | |
| 6C If you do not submit the monthly report by declared deadline | 1.Yes, Observe | 0. No | |
| Data Completeness | | | |
| FQ7 | What is the number of data items in the RHIS monthly report that facility need to report? Excludes the number of data items for services not provided by this health facility. | | |
| FQ8 | Count the number of data items that are supposed to be filled by this facility but left blank without indicating “0” in the last month report. | | |
| Data Transmission /Data Processing/Analysis | | | |
| FQ9 | Do data processing procedures/tally sheets exist? | 1. Yes, Observed | 0. No |
| FQ10 | Does the facility produce the following? | | |
| A | Calculate indicators facility catchment area | 1. Yes, Observed | 0. No |
| B | Comparisons with district/national targets | 1. Yes, Observed | 0. No |
| C | Comparisons among types of services coverage | 1. Yes, Observed | 0. No |
| D | Comparisons of data over time (monitoring over time) | 1. Yes, Observed | 0. No |
| FQ11 | Does the procedure manual for data collection/definitions exist? | 1. Yes, Observed | 0. No |

Annex III: Organizational and Behavioral Assessment Tool

(To be filled by staff and management)

I. Name of facility

1. Title of the person filling the questionnaire

2. Age of the person -----

3. Sex 1. Male 2.Female

4. Education

1. Grade 10

2. 10+2

3. Professional diploma/degree (specify) -----

4. Master

5. Other (specify) -----.

5. Years of employment -----

6. Did you receive any training in HMIS related activities in last six months? 0.No 1.Yes

I would like to know your opinion about how strongly you agree with certain activities carried out by your facility. There are no right or wrong answers, but only expression of your opinion on a scale. The scale is about assessing the intensity of your belief and ranges from strongly disagree (1) to strongly agree (7) and circle your appropriate answer. Please note that you might agree or disagree with all the statements and you might not have the same intensity of agreement or disagreement and thus variations are expected in expressing your agreement or disagreement. We encourage you to express those variations in your beliefs.

This information will remain confidential and would not be shared with anyone, except presented as an aggregated data report. Please be frank and choose your answer honestly.

| | | | | | | |
|--------------------------------------|--------------------------------------|-----------------------------|-----------------------------------------------|-----------------------------------|--------------------------|-----------------------------------|
| Strongly disagree 1 | Somewhat disagree 2 | Disagree 3 | Neither disagree nor agree 4 | Somewhat Agree 5 | Agree 6 | Strongly agree 7 |
|--------------------------------------|--------------------------------------|-----------------------------|-----------------------------------------------|-----------------------------------|--------------------------|-----------------------------------|

To what extent, do you agree with the following on a scale of 1-7?

| In health department, decisions are based on | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------------------------------------------------|-------------------------------------------------|---|---|---|---|---|---|---|
| 1 | Personal liking | | | | | | | |
| 2 | Superiors' directives | | | | | | | |
| 3 | Evidence/facts | | | | | | | |
| 4 | Political interference | | | | | | | |
| 5 | Comparing data with strategic health objectives | | | | | | | |
| 6 | Health needs | | | | | | | |
| 7 | Considering costs | | | | | | | |

| In health department, superiors | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------------------------|-----------------------------------------------------------------------------------|---|---|---|---|---|---|---|
| 1 | Seek feedback from concerned persons | | | | | | | |
| 2 | Emphasize data quality in monthly reports | | | | | | | |
| 3 | Discuss conflicts openly to resolve them | | | | | | | |
| 4 | Seek feedback from concerned community | | | | | | | |
| 5 | Use HMIS data for setting targets and monitoring | | | | | | | |
| 6 | Check data quality at the facility and higher level regularly | | | | | | | |
| 7 | Provide regular feed back to their staff through regular report based on evidence | | | | | | | |
| 8 | Report on data accuracy regularly | | | | | | | |

| In health department, staff | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------------------|--------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|
| 1 | Are punctual | | | | | | | |
| 2 | Document their activities regularly | | | | | | | |
| 3 | Feel Committed in proving health status of the target population | | | | | | | |
| 4 | Set appropriate and doable target of their performance | | | | | | | |
| 5 | Feel guilty for not accomplishing the set target/performance | | | | | | | |
| 6 | Are rewarded for good work | | | | | | | |
| 7 | USE HMIS data for day to day management of the facility and district | | | | | | | |
| 8 | Display data for monitoring their set target | | | | | | | |
| 9 | Can gather data to find the root cause(s) of the problem | | | | | | | |
| 10 | Can develop appropriate criteria for selecting interventions for a given problem | | | | | | | |
| 11 | Can develop appropriate outcomes for a particular | | | | | | | |
| 12 | Can evaluate whether the targets/outcomes are achieved | | | | | | | |
| 13 | Are empowered to make decisions | | | | | | | |
| 14 | Able to say no to superiors and colleagues for demands/decisions not supported by evidence | | | | | | | |
| 15 | Are made accountable for poor performance | | | | | | | |
| 16 | Use HMIS data for community education and mobilization | | | | | | | |
| 17 | Admit mistakes for taking corrective actions | | | | | | | |

| Personal Attitude | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--------------------------|-----------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|
| 1 | Collecting information is a useless activity or waste of care provider time | | | | | | | |
| 2 | Collecting information which is not used for decision making discourages me | | | | | | | |
| 3 | Collecting information makes me feel board | | | | | | | |
| 4 | Collecting information is meaning full for me | | | | | | | |
| 5 | Collecting information gives me the feeling that data is needed for monitoring facility performance | | | | | | | |
| 6 | Collecting information give me the feeling that it is forced on me | | | | | | | |
| 7 | Collecting information is appreciated by superiors and co-workers | | | | | | | |

SELF-EFFICACY ASSESSMENT

This part of the questionnaire is about your perceived confidence in performing tasks related to health information systems. High Confidence indicates that person could perform the task, while low confidence means room for improvement or training. We are interested in knowing how confident you feel in performing HMIS-related tasks. Please be frank and rate your confidence honestly.

Please rate your confidence in percentages that you can accomplish the HMIS activities.

Rate your confidence for each situation with a percentage from the following scale

0 10 20 30 40 50 60 70 80 90 100

| No. | Description | Percentage | | | | | | | | | | |
|-----|---------------------------------------------------------|------------|----|----|----|----|----|----|----|----|----|-----|
| | | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| 1 | I can check data accuracy | | | | | | | | | | | |
| 2 | I can calculate percentages/rates correctly | | | | | | | | | | | |
| 3 | I can plot data by months or years | | | | | | | | | | | |
| 4 | I can compute trend from bar charts | | | | | | | | | | | |
| 5 | I can explain findings and their implications | | | | | | | | | | | |
| 6 | I can use data for identifying gaps and setting targets | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|
| 7 | I can use data for making various types of decisions and providing feed-back | | | | | | | | | | | | |
|---|------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|

We would like you to solve these problems about calculating percentages, rates and plotting and Interpreting information.

C1. The estimated number of pregnant mothers is 340. Antenatal clinics have registered 170 pregnant mothers. Calculate the percentage of pregnant mothers in the district attending antenatal clinics.

C2. The full immunization coverage for 12-23 month-old children were found 60%, 50%, 30%, 40%, 40% for years 1997, 1998, 1999, 2000 and 2001 respectively.

C2a. Develop a bar chart for coverage percentages by years

| | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

C2b. Explain the findings of the bar chart

C2c. Did you find a trend in the data? If yes or no, explain reason for your answer

2d. Provide at least one use of above chart findings at:

UD1. Facility level

UD2. District level

UD3. Policy Level

UD4. Community level

C3. A survey in a district found 500 children under five years old that were malnourished. The total population of children less than five years old was 5000. What is the malnutrition rate?

C4. If the malnutrition rate in children less than 2 years old was 20% and the number of total children less than 2 years old was 10,000, then calculate number of children who are malnourished.

Annex IV: የመረጃ ሰነድ እና የስምምነት መግለጫ ቅጽ

አዲስ አበባ ዩኒቨርሲቲ፣ የኢንፎርሜሽን ፋኩልቲ፣ የጤና ኢንፎርሜሽን ትምህርት ክፍል የጤና መረጃ ስርዓት ችግሮች እና ተስፋዎች በእትዮጵያ ፡- በአዲስ አበባ የሚገኙ የመንግስት ጤና ተቋማትን ጉዳይ በሚመለከት የተደረገ የዳሰሳ ጥናት፡-

1. የመረጃ ሰነድ

ስሜ ----- ይባላል፡፡ በተቋም/ በጤና ቢሮዎ ያሉትን የመረጃ ስርዓቱ ችግሮችንና ተስፋ ለመዳሰስ በአካዩ፣ በኢንፎርሜሽን ፋኩልቲ፣ በጤና ኢንፎርሜሽን ትምህርት ክፍል የድህረ ምረቃ ተማሪ በሆነበት በሳራ ዓለማየሁ የሚመራው የምርምር ቡድን አባል ነኝ፡፡

የጥናቱ ዳራ፡- የጤና መረጃ በጤና ዘርፍ ሁሉም ደረጃዎች በሚከናወኑ የጤና ውሳኔ አሰጣጥ ተግባራት ማለትም ከግለሰብ ታካሚ ጤና እንክብካቤ ጀምሮ እስከ-ራቴጂካዊ ውሳኔዎች በሚሰጡበት የፖሊሲ ደረጃ ላይ ለሚከናወኑ የተለዩ የጤና ንግግራቶች ወይም መርሃ ግብሮች አስተዳደር ወሳኝ ወይም ጠቃሚ ነው፡፡

የጥናቱ ዓላማዎች፡- የጤና መረጃ ሥርዓት ጠንካራ እና ደካማ ጎኖችን በመዳሰስ ወይም በመገምገም ለእነዚህ ደካማ እና ጠንካራ ጎኖች አስተዋፅኦ የሚያደርጉ ቴክኒካዊ፣ ባህሪያዊ እና ድርጅታዊ መንስኤዎችን ወይም ሁኔታዎችን መለየት፡፡

የጥናቱ ስነዘዴ፡- አሃዝ ነክ (ኳንቲቴቲቭ) የጥናት ዘዴዎችን በመጠቀም በአዲስ አበባ ፣ በክልል በጤና ቢሮ እና በፌዴራል ጤና ጥበቃ ሚኒስቴር ስር በሚገኙ ሁሉም የመንግስት ሆስፒታሎች ላይ ከተለያዩ እይታዎች ወይም ማዕዘኖች አንጻር የሚቃኝ ጥናት (cross sectional study) ይከናወናል፡፡ ለዚህ ጥናት የናሙና አወሳሰድ (ሳምንሊንግ) ዓላማም ሲባል፣ በመረጃ (ዳታ) አሰባሰብ እንዲሁም በዕለታዊ መዝግቦች ማጠናቀር ተግባራት ላይ በሚሰማሩ ሰራተኞች ፣ በተለያዩ ጤና ተቋማት በሚገኙ መምሪያዎች ወርሃዊ ሪፖርቶችን በማጠናቀር እረገድ ኃላፊነቱ ያለባቸው ኃላፊዎች ፣ በጤና ተቋማቱ HMIS/ ክትትልና ግምገማ (M&E) ሥራ ክፍሎች የሚሰሩ ሰራተኞች የዚህ ጥናት አካል ይሆናሉ፡፡ ደረጃቸውን የጠበቁ PRISM (የዕለት ተክለት የጤና መረጃ ሥርዓት አስተዳደር አፈፃፀም) መገምገሚያ ዘዴዎች ወይም መንገዶች (ቱልስ) ለመረጃ አሰባሰብ ተግባር ጥቅም ላይ የሚውሉ ሲሆኑ በዚህም መሰረት መረጃዎች(ዳታ) የሚሰባሰቡት ለአብይ መረጃ ሰጪዎች ቃለመጠይቅ በማድረግ፣ ሰነዶችን በመክለስ ወይም በመመርመር እንዲሁም በራስ የሚዘጋጁ መጠይቆችን (ሰልፍ አድሚንስትራት ኩዌስሽንሪስ) በመጠቀም ነው፡፡ ጥናቱም የሚጠናቀቀው በሰኔ 2002 ዓ.ም ይሆናል፡፡

ጠቀሜታዎች እና ጉዳዮች፡* ጥናቱ ወዲያውኑ የሚኝ ቀጥተኛ ጥቅም ባይኖረውም በረዥም ጊዜ ሂደት ውስጥ ግን አፈፃፀምን በተጨማሪም በመለካት እና አፈፃፀሙን የሚያስተንጉሉ ወይም የሚያበላሹ መንስኤዎችን ወይም ሁኔታዎችን በመለየት የጤና መረጃ ስርዓትን ያሻሽላል፡፡ እንደሁም ሆኖ ፣ በዚህ ጥናት ውስጥ በመሳተፍ ሊከተሉ የሚችሉ ጉዳዮች አይኖሩም፡፡

ሚስጥር ጠባቂነት፡- የተሳታፊው ስም የማይመዘገብ ሲሆን ከዚህ አንጻር የሚሰጡት መልሶች በሚሰጡር ከመያዣቸው ባሻግር በሚቀርቡ የሰንጠረዥ ቅጾች ካልሆነ በስተቀር ለማንም አይነገሩም ወይም አይገለጡም። ከዚህም በተጨማሪ፣ ጥናቱ ታካሚዎችን ወይም የታካሚ ካርዶችን የማያካትት ሲሆን ይህም የሚስጥር ጠባቂነት ያለመኖር ወይም መታጣት አዝማሚያ እንዲወገድ ይረዳል።

መረጃ ያለመስጠት እና ተሳታፊ ያለመሆን ነፃነት፡- ቃለመጠይቁ በበጎ ፈቃድ ላይ የተመሰረተ ነው። መናገር ስለማይፈልጉት ነገር መናገር አይኖርብዎትም። ቃለ መጠይቁንም በፈለጉት በማንኛውም ጊዜ ማቋረጥ ይችላሉ።

በዚህ ጉዳይ ሊያነጋግሩት የሚገባ ሰው፡-

ጥናት አቅራቢው ፡- ሳራ ዓለማየሁ

አድራሻ ፡- ስልክ ቁ. ሞባይል 09 11 62 48 21

ኢሜል ፡- heryala@yahoo.com

ፊረማ ፡- -----

በቅድሚያ እናመሰግናለን።

2. በመረጃ የተደገፈ የስምምነት መግለጫ ቅጽ

ስለ ጥናቱ በአጭሩ ገለፃ ተደርጎልዎት የጥናቱን ዓላማ በግልፅ ተረድተዋል። ስለሆነም፣ እባክዎን በቃለመጠይቁ ለመሳተፍ የሚስማሙ ከሆነ ይንገሩን።

ተሳታፊው

1. እስማማለሁ

2. አልስማማም

መልስ ሰጪው በጥናቱ ለመሳተፍ መስማማቱን ለማመልከት የሚፈረም የቃለ መጠይቅ አድራጊው ፊርማ

የቃለመጠይቅ አድራጊው ስም -----

ፊርማ፡- -----

ቃለመጠይቁ የተደረገበት ቀን፡- -----

Annex V: Amharic version questionnaire

OBAT Amharic Version

(በሰራተኞችና አስተዳዳሪዎች የሚሞላ)

I. የጤና ድርጅቱ ስም _____

1. ቃለ መጠይቁን የሚሞላ ሰው መስርግ _____

2. የተጠያቂው ዕድሜ _____

3. የታ 1. ወንድ 2. ሴት

4. የትምህርት ደረጃ

1. 10ኛ ክፍል

2. 10+2

3. ዲፕሎማ/ የመጀመሪያ ዲግሪ (ይገለፅ) -----

4. ሁለተኛ ዲግሪ

5. ሌላ (ይገለፅ) -----.

5. የተቀጠረበት ዘመን -----

6. ባለፉት ስድስት ወራት ውስጥ ከHMIS ጋር በተያያዘ ስልጠና ወስደው ነበር?

0. አልወሰድኩም 1. አዎ

በድርጅትዎ ከተሰሩት ስራዎች ጋር ምን ያህል እንደሚስማሙ የርስዎን አመለካከት ለማወቅ እንፈልጋለን። በመለኪያው የርስዎን አመለካከት ከመግለጽ በዘለለ ትክክልና ትክክል ያልሆኑ መልሶች የሉም። መለኪያው የርስዎን የአመለካከት ጥንካሬ የሚመዘን ሲሆን ከፍጹም አልስማማም(1) እስከ ፍጹም እስማማለሁ(7) ምርጫዎችን ይሰጣል። አመለካከትዎን በበለጠ ይገልጻል የሚሉትን ምርጫ በ(X) ምልክት እንዲያመለክቱ እንጠይቃለን። ምንም እንኳን ከሁሉም ሃሳቦች ጋር ሊስማሙ ወይም ላይስማሙ ቢችሉም ለሁሉም አንድ አይነት የመስማማትና ያለመስማማት ጥንካሬ እንደማይኖርዎትና ልዩነቶች ሊኖሩ እንደሚችሉ ይጠበቃል። እነዚህ ልዩነቶች ጎልተው እንዲወጡ እንፈልጋለን። የሚሰጡንን መረጃዎች በሚስጥር የሚያዙና ለሶስተኛ ወገን ተላልፈው እንደማይሰጡ ልንገልፅልዎ እንወዳለን። መልስዎን በሀቀኝነት እንደሚሰጡን እምነታችን ነው።

| | | | | | | |
|-------------------|------------|--------------------|--------------------|---------------------|-------------|--------------------|
| ፍፁም አልስማም 1 | አልስማም 2 | በመጠኑ አልስማም ም | ከሁለቱም ያልሆነ 4 | በመጠኑ እስማማለሁ 5 | እስማማለሁ 6 | ፍፁም እስማማለሁ 7 |
|-------------------|------------|--------------------|--------------------|---------------------|-------------|--------------------|

ከሚከተሉት ነጥቦች ጋር በተመለከተው 1-7 መስኪያ መሰረት ምን ያክል ይስማማሉ?

| በጤና ድርጅቱ ውሳኔዎች የሚወሰኑት: | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------|---------------------------------|---|---|---|---|---|---|---|
| 1 | በግለሰቦች ፍላጎት | | | | | | | |
| 2 | በአለቃ ትእዛዝ | | | | | | | |
| 3 | መረጃን መሰረት በማድረግ | | | | | | | |
| 4 | በፖለቲካ ጣልቃ ገብነት | | | | | | | |
| 5 | መረጃን ከታቀዱ የጤና አላማዎች ጋር በማዛመድ | | | | | | | |
| 6 | የጤና ፍላጎቶች መሰረት በማድረግ | | | | | | | |
| 7 | ዋጋን መሰረት በማድረግ | | | | | | | |

| በጤና ድርጅቱ አለቆች: | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------|---------------------------------------------------------|---|---|---|---|---|---|---|
| 1 | ከሚመለከታቸው ግለሰቦች ምላሽ ይጠይቃሉ። | | | | | | | |
| 2 | በወርሃዊ ሪፖርቶች በመረጃ ጥራት ያተኩራሉ። | | | | | | | |
| 3 | ግጭቶችን ለመፍታት በግልፅ ይወያያሉ። | | | | | | | |
| 4 | ከሚመለከተው ማህበረሰብ ምላሽ ይጠይቃሉ። | | | | | | | |
| 5 | የHMIS መረጃዎችን ግቦችን ለማስቀመጥና ለቁጥጥር ይጠቀሙባቸዋል። | | | | | | | |
| 6 | በድርጅቱና ከዛ በላይ ባሉ አካላት የመረጃዎችን ጥራት መጠበቅ በየጊዜው ያረጋግጣሉ። | | | | | | | |
| 7 | በሪፖርት አማካኝነት ለሰራተኞቻቸው በመረጃ ላይ የተመሰረተ ምላሽ በየጊዜው ይሰጣሉ። | | | | | | | |
| 8 | የመረጃዎችን ትክክለኛነት በየጊዜው ሪፖርት ያደረጋሉ። | | | | | | | |

| የጤና ድርጅቱ ስራ-ተኞች: | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------|------------------------------------------------------------------------|---|---|---|---|---|---|---|
| 1 | ሰአት ያከብራሉ። | | | | | | | |
| 2 | የሰሩትን ስራ ሁልጊዜ ይመዘግባሉ። | | | | | | | |
| 3 | የተጠቃሚውን ህዝብ ጤና ለማረጋገጥ ቁርጠኞች ናቸው። | | | | | | | |
| 4 | ተገቢና ሊሰሩ የሚችሉ ግቦችን አስቀምጠው ይሰራሉ። | | | | | | | |
| 5 | የተቀመጡት ግቦች ሳይሳኩ ሲቀሩ የጥፋተኝነት ስሜት ይሰማቸዋል | | | | | | | |
| 6 | ለተሰሩት ጥሩ ስራዎች ይሸለማሉ። | | | | | | | |
| 7 | ለቀን ተቀን የጤና ድርጅቱ የስራ አመራር የHMIS መረጃዎችን ይጠቀማሉ። | | | | | | | |
| 8 | ያስቀመጡትን ግቦች ለመቆጣጠር መረጃዎችን በግልፅ ያሳያሉ። | | | | | | | |
| 9 | የችግሮችን መነሻ ለማወቅ የሚያስችሉ መረጃዎችን መሰብሰብ | | | | | | | |
| 10 | የችግሮችን መፍትሄ ለመምረጥ የሚያስችሉ መለኪያ ነጥቦችን ማስቀመጥ ይችላሉ። | | | | | | | |
| 11 | ከተቀመጡት መፍትሄዎች ሊገኙ የሚችሉ ውጤቶችን መለየት | | | | | | | |
| 12 | የታቀዱት ግቦች/ውጤቶች መሳካታቸውን መገምገም ይችላሉ። | | | | | | | |
| 13 | ውሳኔዎችን መወሰን እንዲችሉ ተፈቅዶላቸዋል። | | | | | | | |
| 14 | ከበላዮቻቸው ሆነ ከስራ ባልደረቦቻቸው ለሚመጡ ማናቸውም በመረጃ ያልተደገፉ ውሳኔዎችና ፍላጎቶች መቃወም ይችላሉ። | | | | | | | |
| 15 | ለሚከሰቱ ደካማ የስራ አፈፃፀሞች ተጠያቂ ናቸው። | | | | | | | |
| 16 | ሀብተ-ሰብን ለማስተማርና ለማነቃነቅ የHMIS መረጃዎችን | | | | | | | |
| 17 | ስህተቶችን በማረም የማስተካከያ እርምጃዎችን ይወስዳሉ። | | | | | | | |

| የግል አመለካከት | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------------------------------------------------------|---|---|---|---|---|---|---|
| 1 መረጃን መሰብሰብ የማይጠቅምና የአገልግሎት ሰጪ ጊዜን የሚያባክን ስራ ነው። | | | | | | | |
| 2 ለውሳኔ የማይጠቅም መረጃን መሰብሰብ ይደብረኛል። | | | | | | | |
| 3 መረጃን መሰብሰብ ደስ አይለኝም። | | | | | | | |
| 4 መረጃን መሰብሰብ ለኔ ትርጉም ያለው ስራ ነው | | | | | | | |
| 5 መረጃን ስለበስብ የአንድን ድርጅት የስራ አፈጻጸም ለመከታተል መረጃ ጠቃሚ እንደሆነ ይሰማኛል። | | | | | | | |
| 6 መረጃን ስለበስብ በግድ እየሰራሁት እንዳለ ይሰማኛል። | | | | | | | |
| 7 መረጃን መሰብሰብ በአለቆችና ሰራተኞቻቸው የተወደደ ነው። | | | | | | | |

የራስን ብቃት መመዘኛ

በሚከተለው ቃለ መጠይቅ እርስዎ የጤና ነክ መረጃዎችን በብቃት በመጠቀም ረገድ ያልዎትን የራስ መተማመን ለመመዘን ይረዳል። ከፍተኛ የራስ መተማመን አንድን ስራ በብቃት የመከወን ችሎታን ሲያሳይ ዝቅተኛ የራስ መተማመን ደግሞ ለመሻሻልና ለስልጠና እድል ይከፍታል። ስለዚህ ከ HMIS ጋር የተያያዙ ስራዎችን ለመከወን ያልዎትን የራስ መተማመን ማወቅ እንፈልጋለን። እባክዎትን በግልጽነትና በሀቀኝነት የራስ መተማመንዎን ይለኩልን።

ለእያንዳንዱ ሁኔታ/መገለጫ የራስ መተማመንዎን በሚከተለው መለኪያ በመቶኛ ይለኩልን።

0 10 20 30 40 50 60 70 80 90 100

| ተ.ቁ. | መገለጫ | መቶኛ | | | | | | | | | | | | |
|------|---------------------------|-----|----|----|----|----|----|----|----|----|----|-----|--|--|
| | | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | | |
| 1 | የመረጃን ትክክለኛነት ማረጋገጥ እችላለሁ | | | | | | | | | | | | | |
| 2 | መቶኛዎችን ማስላት እችላለሁ። | | | | | | | | | | | | | |
| 3 | መረጃዎችን በወራትና አመታት ማስቀመጥ | | | | | | | | | | | | | |
| 4 | ከባር ግራፎች የአከላላት ሂደት መግለጽ | | | | | | | | | | | | | |
| 5 | ግኝቶችና ውጤቶቻቸውን መግለጽ እችላለሁ | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | |
|---|---------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 6 | መረጃን ክፍተቶችን ለመለየትና ግቦችን ለማስቀመጥ ጥቅም ማዋል እችላለሁ። | | | | | | | | | | | | | | | | | |
| 7 | መረጃን የተለያዩ ዉሳኔዎችን ለመወሰንና ምላሽ ለመስጠት ጥቅም ማዋል እችላለሁ። | | | | | | | | | | | | | | | | | |

የሚከተሉትን መቶኛን የማስላት፣ መረጃዎችን የማስቀመጥና የመተረጎም ጥያቄዎችን እንዲመልሱልን እንጠይቃለን።

C1. በአንድ ወረዳ 340 እርጉዝ እናቶች እንዳሉ ይገመታል። የቅድመ-ወሊድ ምርመራ መከታተያ ክሊኒኮች 170 እርጉዝ እናቶች ተመዝግበዋል። የቅድመ-ወሊድ ምርመራ የሚከታተሉ እናቶች በመቶኛ ስንት ይሆናሉ

C2. ሙሉ ክትባት የወሰዱ የ12-23 ወር እድሜ ህጻናት በ1997, 1998, 1999, 2000 እና 2001 ዓ/ም በተከታታይ 60%, 50%, 30%, 40% እና 40% ነበሩ።

C2a. የእያንዳንዱን አመት የክትባት ሽፋን በመቶኛ የሚያሳይ ባር ግራፍ ሰርተው ያሳዩ።

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C2b. የባር ግራፍ ግኝቶች ይግለፁ።

C2c. በመረጃዎቹ ላይ የታዘቡት የአካላት ሂደት አለ? መልስዎ አዎ ወይም አይደለም ከሆነ ምክንያትዎን ያስቀምጡ።

2d. ከላይ ከሳሉት ግራፍ ግኝቶች በሚከተሉት ደረጃዎች ሊሰጡት ከሚችሉ ጥቅሞች መካከል ቢያንስ አንዱን ይጥቀሱ።

UD1. በጤና ድርጅት ደረጃ

UD2. በወረዳ ደረጃ

UD3. በፖሊሲ ደረጃ

UD4. በማህበረሰብ ደረጃ

C3. በአንድ ወረዳ በተደረገ ጥናት 500 እድሜያቸው ከአምስት አመት በታች የሆኑ የምግብ እጥረት ችግር ያጋጠማቸው ህጻናት ተገኝተዋል። በወረዳው የሚኖሩ እድሜያቸው ከአምስት አመት በታች የሆኑ ህጻናት ቁጥር 5000 ነው። የምግብ እጥረት ችግር በምን ያህል ፍጥነት (rate) እየተከሰተ ነው?

C4. እድሜያቸው ከሁለት አመት በታች በሆኑ ህጻናት የምግብ እጥረት ችግር የሚከሰትበት ፍጥነት 20% ከሆነና ጠቅላላ እድሜያቸው ከሁለት አመት በታች የሆኑ ህጻናት ቁጥር 10,000 ከሆነ በምግብ እጥረት ችግር የተጠቁ ህጻናት ቁጥር ያስሉ።

DECLARATION

This thesis is my original, has not been presented for a degree in any other university and that all sources of material used for the thesis have been duly acknowledged.

Sara Alemayehu

June 2010

The thesis has been submitted for examination with my approval as a university advisor.

Dr. Fikre Enqeselasie

June 2010