

*Doctoral Colloquium  
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*Analyzing the role of Health Information Systems for enhancement  
of child health services: A case study from Ethiopia*

**ANALYZING THE ROLE OF HEALTH INFORMATION SYSTEMS FOR  
ENHANCEMENT OF CHILD HEALTH SERVICES: A CASE STUDY  
FROM ETHIOPIA**

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# **ANALYZING THE ROLE OF HEALTH INFORMATION SYSTEMS FOR ENHANCEMENT OF CHILD HEALTH SERVICES: A CASE STUDY FROM ETHIOPIA**

## **INTRODUCTION**

There is a need by the health sector of developing countries to use the limited resource effectively in order to provide an efficient and equitable health service to the communities. This then requires sound management that is based on information, which is crucial at each level of the health service management (Sauerborn and Lippeveld, 2000). Availability of reliable, relevant, comprehensive and timely health information is widely recognized and recounted as an essential foundation for any public health interventions, including child survival activities.

As health systems around the world are being re-structured, the demand for sound information and the skills to manage and use information are increasing considerably. The health information systems are expected to provide health workers and health managers with a systematic tool for decision making. However, different studies showed that the Health Information Systems (HIS) of developing countries are not optimal enough to support decision-based management. To illustrate some, Heeks and Baark, (1999) stated that HIS development and implementation in developing countries has proved to be difficult due to organizational complexity. Littlejohn et al, (2003) mentioned unrealistic ambitions, and more generally due to the problem of sustainability. The studies conducted in Ethiopia also reinforced these facts (Damtew, 2005 and Mengistu, 2005).

The objective of this study is to identify the mechanisms that strengthen using of information for action locally by peripheral level health workers, and also by their higher levels. The focus of my study is on the child survival activity. As mothers and children are the most vulnerable groups, strategies that mainly focused on them have developed globally such as Millennium Development Goals and nationally such as Health Service Extension Program (FMOH, 2005). Ethiopia is one of the countries agreed to fulfill Millennium Development Goals in 2015. One of the strategies designed to accelerate the achievement of these goals is presence of apt health information for different health services given to mothers and children. The rationale for selecting the HIS of child survival activities is to contribute for the achievement of these goals.

## **RESEARCH QUESTIONS**

- What are the opportunities and challenges in order to use information for improvement of child health?
- How can be possible to utilize the best practices and tacit knowledge of health workers and the community for betterment of HIS in the existing information infrastructure of Ethiopia specifically and in other developing countries generally?

## **CHILD SURVIVAL INTERVENTIONS**

Child survival is a field of public health concerned with reducing child mortality. Child mortality is high in developing countries, including Ethiopia. Most of these deaths occur from

few preventable and curable diseases and conditions. Ethiopia placed sixth among the countries of the world in terms of the absolute number of child death as about 472,000 Ethiopian children die each year before their fifth birthday (FMOH, 2005). Currently substantial efforts are being undertaken in order to minimize the problem. Child survival interventions are designed to address the most common causes of the estimated 11 million child deaths that occur each year.

In order to combat the problem, every region in the world has made own effort in reducing the under-five mortality rate. The Government of Ethiopia has launched a new program in 2005 for “Accelerated Expansion of Primary Health Care Coverage” with the Health Extension Program. Health extension program is considered to be a major vehicle to take most of the maternal, neonatal and child health key interventions to the community. It is assumed that about 60 to 70% of the health problems at community level could be averted by effective intervention at grass-root level through health extension program (FMOH, 2005).

The basic assumption for these approaches is using small geographic and demographic areas as the unit of focus in order to achieve effective communication with both the higher levels of the administration and the community (FMOH, 2005). This framework has direct implications on the HIS for enabling the local use of information, and consequently for strengthening the HIS at all levels of management. My research interest is concerning data quality and information use starting from the grass root (the community level by health extension workers) to higher level in the health care system.

## **INFORMATION USE**

Several factors influence use of information for action. According Sauerborn (2000), the major factors that affect information use include the characteristics of the data quality in terms of relevance, reliability, level of detail and timeliness, characteristics of the required decision, organisation or structural characteristics, cultural differences and communication gap between data people and decision-makers. Chaulagai et al. (2005) also mentioned resource constraints, lack of a shared vision, management skills, appropriate incentive and motivation of the staff as a major impediment. Heywood and Rohde also stressed that local use of information can help to improve the data quality as correction can be made easily at this stage (Heywood and Rohde, 2002). In addition, use of information at the site where it is collected helps health care providers and managers to monitor their performance.

Several efforts are being undertaken in order to enhance use of information and to minimize the existing problem of HIS of developing countries. HIS researches play crucial role to substantiate these efforts. Avegerou (2007) described the information system research in developing countries, the nature of its research concerns and on-going debates are poorly understood beyond a circle of specialists. However, as stressed by Avegerou, understanding of the information system research in developing countries is necessary in order to proceed from basic to more elaborate and in-depth research accounts of information system phenomena not only in developing countries, but in the world at large in the era of globalization.

## **RESEARCH METHODS**

The research approach is based on the principles of case study, using qualitative research methods. A case-study, when associated with qualitative approach, is a pertinent strategy for the researchers to explore in-depth a program or individual(s) using a variety of data collection procedures over a sustained period of time (Creswell, 2003). I will use a mixed

method approach for data collection. These include interview, observation, document analysis and focus group discussion. I used those qualitative data collection methods during my preliminary field work and I collected data on the target setting and use of information for immunization services of Ethiopia.

The preliminary work helped me to explore the facts and factors that hinder using of local information for planning and target setting. The formal and informal institutional rules that surround the health care setting were sought through the analytical tools from institutional theory. To gain a better understanding of the phenomena, I continue to visit both the health offices and a number of health facilities.

## **RESEARCH SETTING**

The study will be conducted in Ethiopia. It is situated in the horn of Africa. The total area of the country is around 1.1million square kilometre. The population of Ethiopia is around 81 million, with more than 85% live in rural areas. Like other developing countries, Ethiopia faces serious constraints related to poor physical and communication infrastructure, including the health service facilities. Besides, researches conducted on health information system status of the country showed that the health data being reported are not optimal enough to support informed decision-making (Damtew, 2005).

Although the majority of Ethiopian population reside in rural areas, most of the health facilities were concentrated in cities that result in unequal access for essential health services. Currently, health extension program is initiated in order to improve access and equity to preventive essential health interventions provided at the community level.

## **PRELIMINARY WORK AND EXPECTED OUTCOME**

My preliminary work is focused on the data collection process and information use at the lower (community) level. The data gathered from the primary health care units are expected to be the first hand information and one cannot deny that quality of data at these levels is a determinant of the quality throughout the reporting system up to the national level. In addition, using the information at the place where it is generated is the best way to have good quality of data, as corrections can be made easily from the available sources (Campbell 1997). However, using of the available information at local level is mostly ignored due to different reasons. For example, my first paper, which is written in collaboration with my supervisor, showed that the in put of lower level health workers in target setting (planning) for immunization services was not practically considered (Damtew and Kaasbøll, 2008).

In the study, we analyzed the two types of target setting processes for immunization; these include the target given to health facilities by the district health offices and the number of eligible children enumerated by health workers. The plan of district health offices depend on the population data projected from census. Health extension workers, on the other hand, enumerate the number of population in their respective localities. Despite the fact that health extension workers know the number of eligible children for immunization in their respective locality, they were expected to follow the target given from district health offices, which is high in most cases. Thus, as mentioned by most peripheral level health workers, it was difficult for them to reach to the designed goal mainly due to the inflated target provided from wereda health offices. It means, despite their tremendous effort to provide immunization for every child, their achievement would be lower while calculating the performance with the

inflated denominator (target). This in turn affects the incentive given, thus, has implication on job satisfaction and performance (Damtew and Kaasbøll, 2008).

I continued data collection in relation to the HIS of child survival activities from different levels in the health care system of Ethiopia. I tried to investigate how the lower level health workers and the community volunteers were collaborating in the information gathering process and rendering health services. They were using their local knowledge and different improvisation techniques in order to accomplish their tasks. These peripheral level health workers and the community volunteers acquired this knowledge while they are living in a given locality and also from their work experience. My second paper is intended to show the value of tacit knowledge and locally improvised ways of doing things that may produce better outcomes than those ways that were formally mandated (Clegg, 2005).

Logically, instead of collecting data and passing it along in a report, data need to be converted to information at the level where it is generated, so that it is available for use in decision-making. This is then followed by reporting to the upper levels and getting feedback, thus, a management information system moves in a vicious circle (Campbell 1997). However, as mentioned by different HIS researchers, this doesn't hold true in the HIS of many developing countries. To reveal this fact Heywood and Rohde pointed out that even though every health worker collects data routinely, most of them never use it to improve the health services (2002).

In the context of Ethiopia, there are different opportunities to improve the HIS, such as high attention given for HIS as one tool to achieve the Millennium Development Goals and increased community participation for their own health services, including information gathering. There are also challenges that hinder use of the available information for action, for example institutional rules and principles (Damtew and Kaasbøll, 2008). I, therefore, would like to illustrate different challenges and opportunities for using of health information to make evidence based decision. I also would like to show the value of community participation and peripheral health workers potentials in order to improve the HIS. Accordingly, I can answer the research questions for the study. I hope the practical and theoretical inputs achieved from this study will contribute to the efforts of establishing appropriate HIS in Ethiopia and other countries. Furthermore, the experiences and facts that will be explored while accomplishing this task will contribute for the international efforts of child survival.

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