ASSESSING THE MANAGEMENT AND UTILISATION LEVEL OF HEALTH INFORMATION MANAGEMENT SYSTEMS IN WEST MAMPRUSI DISTRICT.

BY

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DECLARATION

I declare that this project work was carried out by me, Ibrahim Rashida, in the Department of Computer Science and Mathematics in Kwame Nkrumah University of science and Technology Kumasi, Ghana under the supervision of Mr. Kwaku Agyepong Pabbi. Related works by others which served as a source of knowledge, have been duly acknowledge or reference.

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DEDICATION

This work is dedicated to my mother who have made me what I am, to my husband Yussif

Fataw and daughter Rahma Yahaya who encouraged and supported me to pursue this

Masters Programme

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I am grateful to the Almighty God for He is my source of inspiration.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ANC – Ante Natal Care

AIDS – Acquired Imuno Deficiency Syndrome

BCG – Bacilli Calmette Guerin

CHPs – Community-based Health Planning Services

CHW – Community Health Worker

CPOE – Computerised Physician Order Entry

CPR – Computer-based Patient Records

DDHS – District Director of Health Services

DHIMS – District Health Information Management Systems

DHIS – District Health Information System

DHMT – District Health Management Team

EPI – Expanded Programme on Immunisation

EMR – Electronic Medical Record

GHS – Ghana Health Service

GNP – Gross National Product

HC – Health Centre

HIV –   Human Immuno deficiency Virus

HIMS –   Health Information Management Systems

HIS –   Health Information System

HSD –   Health Sub District

HMCs –   Health Management Committees

ICT –   Information Communication Technology

IPT –   Intermittent Preventive Treatment

ITN –   Insecticide Treated Net

MIS –   Management Information System

MoH –   Ministry of Health

M &E –   Monitoring and Evaluation

NAC –   National HIV/AIDS Council

NDA –   National Drug Authority

NDOH –   National Department of Health

NGO –   Non Governmental Organisation

NHC/MIS – National Health Care Management Information System

NHIS –   National Health Insurance Scheme

x

NIDS –   National Immunisation Days

OPD –   Out Patient Department

PAAB –   Patient Administration And Billing

PPAG –   Planned Parenthood Association of Ghana

PCV –   Pneumoccoccal Conjugate Vaccine

PDC –   Parish Development Committee

PHC –   Primary Health Care

RCH –   Reproduction and Child Health

TB –   Tuberculosis

TBA –   Traditional Birth Attendant

WHO –   World Health Organisation

ABSTRACT

The study is designed to investigate and analyse the management and utilization of Health Management Information Management System (HIMS) in West Mamprusi District. The objectives are to establish the type of health data/information generated at the health units and how it is processed and stored; describe the levels of utilization of health data/information; assess the level of flow of data/information to and from the health unit; study the main factors and constraints that influences the effectiveness of HIMS in West Mamprusi District; and make recommendations on how to improve HMIS.

This study adopted both qualitative and quantitative research paradigms. The study was conducted in the two Health Sub-Districts (HSD) in West Mamprusi. Data collection methods employed are: documents review, key informant interviews and a Semi – structured questionnaire.

Findings indicate that most health units inherited a very fragmented paper-based information system. Despite interest in HIMS, Clinics and Drug Shops did not have HIMS in place. Data is collected at the health facility level. All the private practitioners and drug shops expressed interest in HIMS. A computerised HIMS database is being used in the DDHS‟s office. Flow of data from the health units to the district level was improving. All the health units that were visited did not have a resource centre and therefore poor storage of data. HIMS records were used for one or all of the following: reference, management and planning, research surveys, monitoring and evaluation. Major constraints facing HIMS in the District were: unavailability of computerized health information systems, general lack of stationery, inadequate and unskilled manpower, lack of transport, poor motivation and no proper storage facilities and that lead to misplacement of records.

From the findings, it is concluded that the management and utilization of the HMIS is still inadequate. Majority of the reporting health units were government owned implying that private practitioners were not represented and yet they have a significant role in health care delivery. Health workers did not appreciate the importance of HIMS.

Based on the above issues the study recommends that: there is need to establish record offices/resource centres at all health centres; HIMS focal persons should be stationed at each sub district and provided with computer and transport to facilitate the collection of data and use of simple excel to collect and analyse data for the health facilities under the sub district; the government should take the initiative to recognise and include private practitioners in the HIMS; and Health workers including those in private practice should be trained in data management.

CHAPTER ONE

INTRODUCTION

1.0 Background

Health Information and Management Systems are highly becoming significant for assessing and improving the quality and coverage of health services. Globally, there is a change in health seeking and delivering behaviours such as from curative care to preventive care, from hospital care to community and public health care, from centralised to decentralised health care, from an explicit project approach to an all-inclusive sectorial approach and this has called for the reforms of the fragmented health information management systems into a single and an all-inclusive health information management systems. Reformation of health information management systems is fundamental in the whole world especially for developing countries since the adoption of primary health care as a global strategy is critical for achieving the „health for all" goals (Campbell 1997).

Health Information Management Systems (HIMS) is a new system designed to help in the collection and management of Health Information and it as well provide support to health managers at all levels of health services for management purposes and decision making.

HIMS is known to be "a set of mechanisms and techniques organised for the purpose of producing data that can positively influence decisions made by management at all the health facilities for the betterment of health care provision" (Lippeveld, Sauerborn, and Bodart 2000). HIMS is very vital to Ghana Health Service (GHS) and the Ministry of Health (MOH) since it is an important part its data Resource Centre. HIMS comprises of collection, storage, analysis and usage of the health data that is collected to address

1

noticeable concerns as show in the data or system. Usually, health information data is collected from every health facility and this was initially collected and compiled before being submitted to the District Health Administration (DHA) to the Health Information Officer who then compiles it together with other reports from all the other health facilities in the district and then forward to the Regional Heath Administration for review and planning purposes. Ghana Health Service and for that matter the Ministry of Health(MOH) accords so much significance to the establishment and maintenance of an HIMS that generates, on a consistent basis, accurate, complete and significant data for the management of health establishments at all levels of the health care delivery system. The new model of HIMS ensures that the data collected should be used to advance the efforts of health facilities in providing standard preventive and curative care.

The HIMS functions at different levels: that is at MOH, GHS (National, Regional, District, Community Level). Below are some requirements at the district level

 i. Collect, compile, analyse, use and disseminate data to relevant bodies, ii. Submit regular reports on sub districts and the District as a whole, that is on monthly, quarterly and annual basis; iii. Provide feedback to reporting Health facilities in the district and to the Region as well; iv. Introduce and explain the indicators to administrators at the District Assembly

     (DA) with regular and timely reports for immediate actions;
 v. Review and follow up with individual health units for clarifications; vi. Input data into the computerised DHIMS 2;

vii. Budget for DHIMS activities; viii. Conduct frequent supportive monitoring and coaching visits to improve development and maintenance of the DHIMS in the district.

Technical determining factors for the effective implementation of HIMS include quality of data, design of the system and availability and efficient use of information technology. However, these are not the only determining factors that affect smooth implementation of HIMS, these are: organisational and environmental factors that refers to the country"s information principles, the model of the DHIMS, the roles and responsibilities of the different actors and the available resources for DHIMS implementation, and the behavioural factors which refers to the knowledge and skills, attitudes, values, and motivation of those involved in the production, collection, collation, analysis, and dissemination of information (Lafond and Field 2003).

Some preconditions are required to be in place to enable HIMS to function effectively and efficiently. These include:

• **Country specific Available Information policies:** this refers to the country"s available and functional legislative and regulatory framework policies on acquisition and standards of use of information for both public and private providers.

• **Financial Resources**: this refers to the investments needed to be made in the processes for the production of health information (collection of data, collation, analysis, dissemination, and use)

• **Human resources**: this refers to adequate and efficient recruited and trained personnel at all levels of the health facilities to ensure appropriate use

- **Communication infrastructure**: this refers to adequate communication channels such as computers, electricity and internet and national framework for transmission and management or storage of information.

- **Coordination and leadership**: this refers to mechanism systems to effectively and efficiently lead and coordinate HIMS.

The overall goal of any HIMS is to enable health facilities make decisions in a more transparent and efficient approach, based on evidence with the objective of producing timely, relevant and quality information to support decision making .

There has been a strong acknowledgement for the need of quality data right from the beginning of initiation of sector reforms; this is an essential part of the planning, management and policy development of the health system processes that were being introduced. With emphasis on performance, there is the need to create an integrated and efficiently functioning health information system. Investments in terms of communication infrastructure and human resource for management and utilisation of heath information however remain limited and uncoordinated.

In recent years there have been thorough activities in the area of health information management in Ghana. This is partially in response to the overall changes in the development-planning arena. The current Poverty Reduction Strategy (GPRS II), which represents the Government"s development agenda, aims at transforming Ghana into a Middle Income Country by 2015. Within this framework, health care as well as protection of the vulnerable within a decentralised, democratic environment has been given a new boost. The Monitoring and Evaluation framework demands information from diverse areas

4

of health care delivery and systems development. The strategic objectives of the GPRS II are also anchored in the Millennium Development Goals and thus demands specific data and reports on health sector activities aimed at meeting the set targets. There has been an effort by the Ghana Health Service to improve data collection, entry and access with the introduction of DHIMS 2 where information if entered from the Sub District, can be view at the national level as compared to the DHIMS 1.

1.1 Problem Statement

Availability and reliability of health data is a challenge in Ghana, this negatively affects planning and development of effective health service activities in Ghana. The aim of HIMS is to ensure that data collected at the health facility is being utilized at the health facility for monitoring, evaluation and redesign of their services before it is being submitted to the District Health Administration for compilation, storage, use and dissemination; however this is not the situation on the ground. Reports submitted to the District Health Administration indicate that only Government owned health facilities submit on regular basis with just a few private health facilities reporting though not on regular basis even though they offer health care services to a good fraction of the district population. However, the quality of these submitted reports cannot be determined.

The study therefore seeks to assess the management and utilization level of HIMS in West Mamprusi District. This will be done by assessing existing, other available and significant data sources in the district that can possibly be integrated into the District Health Data for thorough planning, decision and policy making.

1.2 Objectives of the Study The

study seeks to:

I. Assess the type of health data and information collected at the health facilities and the methods of processing and storage.

II. Assess health data utilization level in the facilities as well as the district.

III. Assess health data flow to and fro the health facility and the district

IV. Study the main elements and constraints that affect the relevance, efficiency and effectiveness of HIMS in West Mamprusi District.

1.3 Research Questions

To accomplish the above objectives, below are the questions that need consideration:

I. What type of health data is usually collected at the health facilities?

II. Who is or are responsible for data collection, processing and storage at the various health facilities?

III. Who uses the HIMS and for what?

IV. What are the limitations health facilities face in the implementation of HIMS?

1.4 Justification of the study

As the world shift to a society which is more dependent on data, the significance of readily available health data is crucial to the health and well-being of a country‟s population. In this environment, questions raised are: is there available minimal health information for the population and what role does the DHA and DHIMS play in ensuring the availability of information with the limited available resources. This minimal information include

information considered to be crucial for district based health promotion and or disease prevention efforts including those associated with major health issues or widespread communicable disease challenges.

It is therefore necessary to highlight the significance of HIMS in addressing the health care needs of the population in any given community/country. The research will support districts to identify which areas of the DHIMS needs to be strengthened and supported and also how to harness all data sources in the district for utilization and improvement of the system

1.5 Scope of the Study

This study was conducted in two sub districts namely the Janga and Walewale Sub districts as well as the District Health Administration. The study examined the type of HIS that are available and also the type of data that are routinely entered. The study also assessed the level of accessibility of the information available.

1.6 Organisation of Study

The study is arranged into five main chapters. The first chapter constitutes the background of the study, statement of the problem, objectives of the study and research questions, the scope as well as the significance of the study is and organization of the study concluded the chapter. Chapter two covers literature review on the theoretical and empirical works of previous researches. In chapter three, the method used to conduct the study as highlighted in the research design, study area, study population and the sampling procedures, data collection procedures, instruments, the field work and data processing and analysis were

also discussed. The presentations, interpretations and analysis of data were the main focus of chapter four. Chapter five, which is the concluding chapter, focused on the summary of salient points, conclusions drawn from the results and recommendations for the research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Background

This chapter explores both conceptual and empirical literature on the utilization of Health Management Information Systems globally but specific reference to developing countries. It provides an introduction into the conceptual underpinnings of global commitments to develop and implement efficient Heath Management Information Systems. More specifically, the chapter reviews literature on the implementation and utilization of health information systems as it pertains in developing countries. It explores the various concerns in the implementation of HMIS in terms of the reason for the development of HMIS system, the successes and challenges in the implementation of HMIS, The utilization of HMIS and Country experiences in the utilization of HMIS.

2.1 Commitments in the Implementation of Health Information Systems (HIS) in

Developing Countries

The designing and operationalization of Health information systems is not new (Lippeveld et al., 2000). Indeed literature on health management highlight various early efforts by both the developed and developing countries to design and implementation of HIS (Lippeveld et al., 2000, Ludwick and Doucette, 2009). Reasons for these commitments are easily traceable in literature. Trends shaping health care in the developing world over three decades ago brought along the need for countries to rethink ways in which their health sector could be properly managed. While various trends have been explored in literature (Iakovidis, 1998, Haux, 2006), three important trends are widely acknowledge. First, the increase in the demand on health care systems triggered the need for health information systems that assured new health related information sources (Rivers, 1999).

Second, the wave and growth of private-sector health care in the last three decades also meant that the availability and access to new and improves health information was important for private practitioners and facilities as they needed to be in good competition with public health providers (Brignall and Modell, 2000).

Third, the spate of modernization and development brought along with it a change in the life styles of people, a condition that has made people prone to new profile of disease challenges where chronic and infectious conditions still remain a threat. Within these developments, also came along the need for further health research and information that allowed for pandemic risks information to share between the developed and developing countries as well support disease surveillance programmes that track outbreaks of diseases (Casalino et al., 2003).

The trends above among other important factors have shaped health management in developing countries and awakened commitments to address these challenges. Among various measures to address these challenges was the development of health systems that assured reliable data on the performance of different parts of the health system. This was important because such consolidated pool of data necessary for the planning, implementation, tracking and sustaining health interventions (Chaudhry et al., 2006). The need for relevant, timely and accurate information on the performance of the health sector in developing countries triggered the need for health information systems that provided this kind of information (Lippeveld et al., 2000). The design and operationalization of HIS has thus been existent for some time now with records of successes and failures.

Indeed, while earlier HIS achieved some successes in terms of coordination and sharing of health information, the failures and inefficiencies of earlier systems are quite well explored in literature (Ash et al., 2004, Yusof et al., 2008). In terms of successes, earlier HIS were quite notable in their support of research, follow ups and anti-retroviral drug campaigns. There were also records of remarkable reductions in emergency evacuation times and costs in various health institutions with the support of HIS among others (eg. Hillestad et al., 2005). With respect to failures, most HIS operations tended to be used in only public health facilities. This meant that such health facilities only captured and shared information from interactions within the public health facilities with no opportunity to learn from the research and innovations of private health facilities that seemed more advance in terms of health care delivery (see Yusof et al., 2008). Another notable drawback of earlier HIS was the sense of fragmentation and duplication in data collection that characterized the operationalization of such systems. According to Odhiambo-Otieno (2005), this condition

is even more entrenched under conditions where governments, donors, health institutions and various other stakeholders had little incentive to collaborate on data collection, data sharing or leveraging common infrastructure. In a related concern, Cassels (1995) notes that many developing countries had more than one and often parallel independent health information systems that were often not integrated. This condition for him significantly reduced the ability of health institutions and providers to share information, increase the efficiency of operations, hindered accurate analysis and decision making. Recent exploration of health information systems suggests that developing countries are now moving from the traditional forms of HIS that dwelt much on the usage of paper-based administration of health information to a more information technology based HIS (Cho et al., 2008).

2.2 Movement toward an Efficient HIS Administration in Developing Countries

Indeed, recent years have seen an increase in the use of health information systems globally, with developing countries increasing commitments to design and operationalise effective health information systems that ensure efficient delivery of health care. For some scholars (Lippeveld et al., 2000, Berg, 2001), this evolution is not surprising especially within the changing landscape of health care management in Africa and other developing countries. Health systems in developing countries have experienced significant changes in the past decades. The regime of centralised healthcare management that hitherto characterised healthcare systems in developing countries is now given way to a more decentralised system with effective coordination and information sharing (Gladwin et al., 2003). The hierarchical practise of healthcare management where decisions and information flow followed a top down approach has seen significant restructuring. Healthcare governance in

developing countries are now much more decentralised with significant changes in management and decision making (Haux, 2006). Many developing counties now operate a model of health system where there is a Ministry of Health (MOH) that oversee and monitor national and district health units through the implementation of Health Management Information Systems (HMIS). With this restructuring, national, district as well as community heath units are given some level of independence to operate (Miriovsky et al., 2012) and as a result health units now have much more mandate more and responsibility to handle health care issues.

2.3 The Concept of Heath Management Information System (HMIS)

In general terms, Heath Management Information System (HMIS) derives from efforts establishing a health information system with the aim to improve upon the ability of health institutions and providers to collect, store as well as analyse health data (Lippeveld et al., 2000). In addition, health information systems helps health institutions to deliver appropriate health service, improve data searching and accuracy, build an effective regime of health intervention as well as increase accountability and learn about trends in health issues (Ibid). There is agreement that a properly managed HMIS can help health institutions record health related activities as well as check the quality of service delivery at different levels of health delivery chain (Odhiambo-Otieno, 2005, Miriovsky et al., 2012).

For many scholars (see Chaudhry et al., 2006, Miriovsky et al., 2012), the use of Health Management Information Systems have become important especially within the need to coordinate, share information and improve on the quality and coverage of health services. Given the recent trends in the improvement in health care delivery such as the shift from curative to preventive care, from hospital care to community and public health care and

from a centralized to a more decentralized health care delivery system, the strategy as it exists in many healthcare systems in developing countries is to restructure and consolidate fragmented health information systems into a comprehensive health management information system. As Heywood and Campbell (1997) note, this restructuring process highlights commitments to adopt primary health care delivery strategies for achieving the „health for all" goals.

Health Management and information Systems has become an effective information tool used in the management of health information various levels of health care delivery chain. The definition of HMIS is quite diverse and in most cases dependent on sociopolitical, environmental and geographic context. In a publication by the World Health Organization in 1971, HMIS was defined as "a system designed to produce information to be presented to the management to assist in decision-making and to enable it to ascertain the progress made by the organization in the achievement of its major objectives"[1] Lippeveld et al (2000) define HIMS as "a set of components and procedures organized with the objective of generating information which will improve health care management decisions at all levels of the health system". Today, HMIS is widely seen as a modern public health services information tool that supports the delivery of quality and reliable health care. With the promulgation and implementation of HMIS, health systems in developing counties now benefit from timely health research and consolidation of information, efficient and timely reporting and dissemination of information on new, and dangerous diseases, investigations and management of outbreaks, trends in the growth and cure of diseases, monitoring of risk factors etc (Ibid). The implementation of HMIS has made the management of healthcare effective because the system builds a database of relevant and reliable information on

which important decisions are made (Bukenya et al., 1997). HMIS helps healthcare institutions keep and use up to date information from various sources at the point-of-care.

2.4 Modes of Administering Health Management Information Systems

Within Health Information literature, HMIS is operationalised through a number of ways. While it is difficult and a subjective effort to attempt to state which of the ways are most effective, the use of ICT to facilitate communication, process and transmit information and the sharing of knowledge by electronic means is increasingly been acknowledged (WHO, 2008). Indeed the use of electronic equipment such as computer, televisions, phones, radio etc to store, analyse and disseminate health information has gained much endorsement in many health facilities globally. Chetley et al. (2006) for example underscore how the use of ICT in the administration of health information has helped to improve health care delivery. They highlight three main ways ICT has facilitated the operationalization of HMIS. The first is the use of telemedicine. According to the authors, telemedicine is a new technology in healthcare delivery with the aid of digital equipment. They intimate that telemedicine has helped health facilities improve upon their diagnosis and treatment of specific health conditions. With telemedicine, it is possible to share patient information through email and other internet mediums to specialists in more advanced health facilities for analysis.

In Chetley et al"s (2006) observation, the second, e-health has become an important discovery within the scope of health information management. E-health entail the information and communication technology such as the internet to do health research, investigations and disseminate health information. For the Chetley et al, e-health has assisted health institutions manage and deliver health services and information through the use of the internet and other communication and information technologies. E-health has particularly been of significant help health workers in remote areas with little or no opportunity access to up to date information through personal interaction and experiences with colleagues. Health information can now be assed via the internet without physical presence with sources of information. Increasingly, the use of PDAs, IPADs and even mobile phones has become a useful resource for health workers in remote areas as they are able to access, store and share health information to improve upon their practice and their caring for patients.

The third way ICT can be used to administer health information systems according to Chetley et al is through Health Systems. This according to the authors entailed all activities in the management and delivery of health that support, promote and sustain healthcare. In recent healthcare management and provisioning endeavours, health systems encapsulates various health care initiatives such as preventive, curative and palliative health services through a complex collection and analysis of heath data. Health systems have particular been important in modern initiates such as the automation of patient records which in most cases requires the translation of medical vocabulary into simple and understandable instructions, the categorisation of biomedical data and the arrangement of health activities and processes. Health systems are particularly useful in the classification and organization

of large data form different sources with different characteristics. Health systems have also been useful in the understanding and interpretation of sophisticated and complex health data for use in health centres. Some of these data may often include patient records, tracking of the state of prevalence of a disease, monitoring drug supplies, etc. (Chetley et al 2006).

Despite this acknowledgement of the use of ICT to administer HMIS however, the use of non-electronic technologies such as paper-based text for communicating, processing, transmitting and sharing of knowledge and information on health is wide (WHO, 2008). Indeed given the cost involved in the use of ICT and its related equipment, most developing countries struggle to provide the structures that supports the rolling out of HMIS through the use of ICT. This is particular true in rural areas of developing countries. Given this reality, there is still a wide use of non-electronic modes of gathering storing and dissemination of health data. However, regardless of the modes in which HMIS is rolled out, the general agreement is that it helps health governance institutions to collect, generate, distil and distribute information to consumers in a timely and efficient manner (Cortez et al., 2004).

2.5 The Utilization of Health Management Information System in Developing Countries

There is increasing recognition within literature on the health information landscape that many developing countries are moving from the traditional paper-based administration of both national and district health information to a more digital information based administration where health information is used to improve healthcare delivery at the point of service as well as inform policy reviews (Haux, 2006). As captured in the preceding

reviews, many developing countries now see the need to move toward health information systems that are of greater scope, scale, and sophistication in health admiration as this assures a more interactive and quality delivery of healthcare. In Braa et al"s (2004) view, health information systems are categorised under five dimensions. These include: data collection and data flow, data integration and utilization, resources and capacity, scope, and scale. For, him these categorizations were hitherto absent and accounted for the sense of fragmentation and poor coordination of health information in the. In recent times this categorization highlight the evolving coordination and integrative way health information is been handled. For example, in recent times, healthcare information systems such as computerized physician order entry (CPOE) and computerbased patient records (CPRs) are now been implemented in various health facilities and have largely enhanced the quality care for patients as well as improved the efficiency and safety of health services (Rahimi and Vimarlund, 2007).

Despite this recognition, the experiences in terms of utilization of HMIS in both primary care and hospital settings as it pertains in many developing countries have been mixed. A number of research reports discuss the extent to which poor political commitments, lack of funding and poor management regimes have been a challenge to the implementation of HMIS (see Van Der Meijden et al., 2003, Pare and Elam, 1998). Most of such research endeavours suggests that developing countries differ in the usage of HMIS in the management of health care delivery. Some developing countries are reported to be using more paper-based HMIS, other use both traditional and ICT based HMIS whilst other use ICT based HMIS

2.5.1 Paper Based HMIS and Health Information Management

According to Kimaro and Nhampossa (2007) many developing countries still use paperbased health information systems with notable successes and achievements. In Tanzania for example, even with the recognition and use of ICT resources, the health sector still uses to a large extent paper based information systems to collect, store and disseminate information (Kimaro and Nhampossa, 2005). Health institutions and providers in the country are able to address key issues HMIS administration such as data quality, data accuracy and time efficiency largely through the optimization of the data collection processes and the type and quantum of data collected. Thus, in the absence of or in complimentary to ICT based HMIS, developing countries make good use of their paper based HMIS through the optimization of their existing paper-based national and district health information systems (Ibid).

In Heeks" (2006) view, paper based health information systems are still relevant to the management of health information even in the developed world. He sees the use of paper based HMIS as a stage in the overall rolling out of HMIS than it is a preserve of poor and developing counties with little resources to develop and use ICT based HMIS. He however notes the challenges associated with paper based HMIS in terms of difficulties in optimizing processes is quite eminent in most developing countries. Usually without country commitment to see through that paper based processes are effective in reducing inefficiencies and duplications as well as commitments to reforms and changes in the registers and log books in all health facilities within a country, paper based HMIS can undermine efforts to improve health data quality and an efficient HMIS thereof (Ibid).

2.5 2 Electronic collection and storage of health data

There is considerable indication of the extent to which many developing countries have moved beyond paper based HMIS to incorporating a system of electronic collection and storage of health information (Fraser et al., 2005). According to Williams and Boren (2008), this move is important because it introduces the health systems of countries into a system where health data collection accurate and timely and of better quality. Despite this acknowledgement of the importance of this evolution form paper based HMIS to a more electronic HMIS, many developing countries struggle to put in place structures that support this evolution because of issues with funding and political will (Fraser et al., 2005). Given this situation, it is not uncommon to see a gradual implementation of electronic HMIS where initiatives are rolled out in a few districts and gradually extended to cover many parts of the country.

According to Williams and Boren (2008), the alternative within the challenge of resource constraint is to design and operate a hybrid system where there is a mixture of paper based and electronic based HMIS. Within this situation, paper based information or data are completed at the specific health facility level and subsequently entered into a computer at the district and national levels. In India for example, there has been a national initiative upgrade all paper-based HIS with electronic based ones (Kalpa, 2012). With this commitment, there have been a number of efforts to boost computer literacy in the country, especially targeting health related educational institutions, health workers, rural health workers and managers etc. this effort has been followed by concerted efforts to provide as much information technology equipment and internet to health facilities at both district and national levels (Ibid). In Uganda, a hybrid system of HMIS is been used. Paper based

initiatives are used at the more rural and lower levels for reporting. This information is then subsequently entered into a central HIS at the national level (Gladwin et al., 2003).

Indeed many country examples show the extent to which electronic systems utilization in the operation of HMIS makes health data collection, processing, analysis and reporting more flexible and efficient. Given this recognition, many health systems in developing countries prioritize computer literacy, technical support and data processing programmes within efforts to create the structures for a well-functioning HMIS. Yet, despite these efforts, the concern usually exist that the lack of coordination and consensus among health workers may hinder the smooth operation of a well-structured HMIS (Berg, 2001). This concern has usually prompted managers and decision makers of health agencies to undertake consensus-building across relevant actors in the health sector. The importance of consensus building within efforts to design and implement a good HMIS is that it lays the foundation for future coordination cooperation and use of the system as well as sustaining it.

2.5.3 Integrated Collection, Storage, Analysis and Reporting of Health Data The utilization of HMIS within this approach is increasing gaining recognition as a more advance and modern approach. Various authors (Haux, 2006, Blumenthal, 2009) have referred to this approach as fundamental and significant shift in HIS strategy that requires more experience human resources and modern structures. This integrate approach in HMIS moves beyond the conventional system of data collection and reporting that usually entails a separate data collection process, independent of the entry of the data so collected and the actual delivery of health services. The integrated initiative captures and organises health

indicators from data from routine activities within the health demand and supply chain. Some of such routine activities include: laboratory services, pharmacy services, outpatient department (OPD) services, human resources, finance and admiration etc. these operations often serve as a pool of sources where health data can be captured to operate an HMIS.

The integrated HMIS is used in some developing countries to manage health care at the point of service. For example, SIGA Saúde system in Sao Paulo"s is recognised as a good integrated HMIS operated from the regional to the district level. The system operates a unique patient identification system with the help of its national identity. The system also operates EMR-based solutions in all public health facilities in Sao Paolo (Costa et al., 2007). Given the integrated nature of the system, patience seeking health care are able to access these services at various locations and levels in the health system using their cards. Health workers and managers are also able to access health information and reports using the system.

There are visible benefits in the use of this integrated HMIS in terms of efficiency and improvement in data quality. However, there are considerable costs in the design and operationalization of this system. As indicated earlier, there is the cost of putting in place the structures as well as designing and implementing software applications to the cost of training the human resource to operate the system. Countries that have tried to operationalise this system have often had to invest much in computer literacy for end users as well technical support for people who will be operating the hardware component of the system so as to make sustainable. Given this challenge, this integrated system have tended to be used in more urban areas and less in rural areas where relatively poor people live without access to health care (Blumenthal, 2009). The argument here is that while the

system may be effective, accessing it is remains a challenge. The extent to which it supports health care delivery especially in developing countries have been questioned and remains a subject of discussion.

2.5.4 Fully Integrated and Comprehensive System of HMIS

Recent literature on the subject of HIS detail the design and operationalization of a more comprehensive and integrated MHIS where all important sources of health data are available and fully integrated into a system that is efficient and sustainable over time (Mwanyika et al., 2011). Reports in the implementation of this system is quite scant perhaps because of the limited number of countries that operationalise this system. Close country examples often sighted is the example of Belize on the eastern coast of Central America (see Bohmer, 2011).

Reports suggest that this country has largely been able to implement this system because of its small and relatively homogeneous population. The country is also and wealthy and hence makes the achievement of this level of comprehensive and integrative HMIS possible (Ibid). Bohmer notes that there is strong government commitment and support for the system. There is also a regime of a stable funding source, an efficient policy and regulatory environment, a remarkable evidence-based decision making culture that helps in the management of the health system of the country and a very high degree of automation, all which lay the fertile structure for the operationalization of this system (Ibid). The challenge here again is the extent to which developing counties can implement this system.

2.6 The Utilization of Health Management Information Systems in Zambia

By the year 2000 Zambia largely operated a paper based HIS system. Heath Information was recorded and stored on paper. The result according Bossert and Beauvais (2002) was incomplete health records of patients, difficulty to process and analyse health information, poor usage of health information for diagnosis and treatment to mention but these. Information flow and sharing between health units and the district health information office was poor because health data was incomplete and not readily available. Health workers sometimes had to re-entered data a number of times before it was shared with the district health information office and into the government Health Management Information System (Ibid). Even attempts at streamlining the process yielded little success because of poor supervision and coordination of the process. This condition of the poor availably of health information affected health delivery in the country. Coupled with the HIV/AIDS epidemic that hit Zambia around the same year, various stakeholder commitments emerged with the goal of devising strategies aimed at combating the epidemic (Ibid). This saw among other strategies the passage of legislation that allowed the Zambia‟s National HIV/AIDS Council (NAC) to apply for the international funding to fight HIV as well as secure funding to create the Smart Care Electronic Health Record System (Mutemwa, 2006).

In Mutemwa‟s (2006) view, the Smart Care initiative was meant to enhance the delivery of health care in Zambia. The goal with the introduction of this initiative was to provide each citizen access to a convenient electronic health record cards that enabled them to access timely and quality health care. As Chanda and Shaw (2010) puts it the smart care initiative largely ensured that citizens had a comprehensive electronic health record that guaranteed them timely, accurate and sustainable health care services with quality and

confidentiality as some of its hallmarks. The electronic card stored the health records of patients that made it possible for the Zambian health sector to improve health management information for the purposed improving health services.

According to Chanda and Shaw the smart care initiative among other things sought to achieve four main goals: the first was continuity in the provision of health care through a conscious and systematic design of a complete patient health record system. The ability of the system to synchronize health records across all health providers a patient visits made reconciliation of patient health records easier and informed medical practitioners the appropriate health service to administer to the patient. Essentially, the Smart care initiative guaranteed the citizenry a complete, up-to-date, and confidential health record system wherever they went to access health care.

The second goal was to assure privacy of sensitive medical information. This was done by transferring paper health records of patients to the Smart Care database and the subsequent issuance of a Smartcard. Health records are then secured by a role-based security system that could be accessed by only people who provided health services for patients. The third goal was to reduce the burden of paperwork on health units in Zambia. With the introduction of the electronic data base of heath records of patients, the staff of health, units did not have to manually collect and store heath data. A fourth goal of the smart Care initiative was to Improve the quality of health information collection and storage and decision support at the patient level with the aim to make available to health workers a complete patient health record database. With a complete and comprehensive record of patients, health providers had a full picture of the medical history of patients and hence

empowered them to make appropriate decisions with respect to the provision of health service to patients.

To date, the implementation and utilization of the Smart Care initiative is quite encouraging (Ibid). The system has had considerable coverage in terms of implementation with about 60% of the population enjoying the usage of Smart card. With the significant elimination of duplication of patient health records and how this has helped improve health care delivery as well as to raise the quality of such systems, many Zambians enjoy and improved health care system with the current operationalization of the HMIS (Mutemwa, 2006). Despite the considerable achievements, the smart Care initiative still faces some challenges. A major challenge relates to resources for effective training of personnel to administer the system (Ibid). In addition, there seem to be a current imbalance between the importance of the collection of enough data that assures a complete patient health database and the capacity to use such information to improve health care delivery (Ibid).

2.7 The National Health Care Management Information System of South Africa

The benefits of an integrated and efficient HMIS systems has long been recognised in South Africa with the introduction of the National Health Information System/South Africa (NHIS/SA) committee in 1994 by the South African Ministry of Health. The main aim for the establishment of this committee was to creating a strategy to develop a national health information system in South Africa (Garrib et al., 2008). The committee comprised a number of stakeholders including the government, multinational donors, the academia and the private sector. By 2005, a comprehensive modalities were presented by the committee for the implementation of the South African, national health information system NHIS.

Since then South Africa has enjoyed a relatively efficient NHIS that serves as a heath data pool from which health facilities access health information to provide health services for the citizenry (Braa and Hedberg, 2002). This has largely been the case because of the NHIS projects of the National Health Care Management Information System (NHC/MIS). The NHC/MIS is a complete and comprehensive data base of health information that includes, health standard models and measurements, patient registration, telemedicine, information based on the geographic characteristics of patients, the district health information system etc.(Hanmer et al., 2007).

The NHC/MIS has seen significant utilization by the National Department of Health NDOH and provincial departments of health. Tasked with the responsibility for the provision of public health services, these agencies with the aid of the NHC/MIS have improved on the extent to which they deliver on their mandates (Ibid). One significant innovation within the operationalization of the NHC/MIS has been the introduction of the e\health programme by the NDOH (Ruxwana et al., 2010). With a strong national commitment for its design and implementation, the eHealth has achieved significant successes in terms of digitalizing the health related interactive systems in South Africa (Mars and Seebregts, 2008). The eHealth system has facilitated the implementing a central information system that provides a unique patient Identity Card for patients, a pharmacy system, digital radiology, etc. (Ibid). Notable successes are recorded from the extent to which e Health has served as a useful platform to roll out the District Health Information System DHIS under the NHC/MIS (Garrib et al., 2008). The DHIS system has been instrumental in terms of the collection and storage of data about all facility services as well as infrastructure and human resources.184 within the health sector in

South Africa (Ibid). Other health system developed under the NHC/MIS include the National Electronic TB Register, the Patient Administration and Billing (PAAB) and PADS which is a web-based patient registration and billing system (Hanmer et al., 2007). While NHC/MIS with all the other integrated HIS in South Africa have contributed to the improvement the delivery of health care, considerable challenges remain. In terms of access, not all provinces in South Africa have the benefit of using all components of the NHC/MIS. According to Hanmer et al.(2007) just about three provinces in South Africa have the benefit of using EMR systems. There seem to be a poor coordination and integration between the various NHC/MIS types in use and the problem of internet connectivity remains a major problem in South Africa (Mars and Seebregts, 2008).

2.8 Implementation and Utilization of Health Management Information System in Ghana

Commitments to various health sector reforms in Ghana underscores the recognition by the government of Ghana for the need to implement an effective HMIS (Adjei, 2003). Earlier reforms in Ghana took the form of institutional restructuring and the reorganization of the Ministry of Health (MOH) in terms of building the capacity of the Ministry to design and implement a decentralized health care system. Within this decentralization reform process, operational autonomy and responsibilities was given to the District and Regional Health Service Directorates to manage their respective health delivery responsibilities (Ibid). To give this reform process a strong institutional base, the National Health Insurance Scheme (NHIS) was developed with the aim of collecting, storing, analysing and reporting better health information across health providers across the country.

The NHIS is an integrated system of relevant and functional health information database. This system is used by health unit within the district, regional and national levels for the purposed of planning, managing and evaluating the Health Care Delivery System in Ghana (Mensah et al., 2010). Since 2005 the National Health Insurance Scheme (NHIS) has seen implementation in almost all districts in the country, given the citizenry access to some sense of technology driven delivery of health care (Ibid). The NHIS has seen some encouraging utilization since its implementation in 2005 with access growing from 38% in 2006 to 55% in 2007 (M.OH, (2007). Currently, it is estimated that access is about 60% (M. O. H, 2014). To give a boost to the NHIS, the Ministry of health and various stakeholders in the health sector developed various programs to effectively manage the health information system in the country. Notable among these has been the integrated Health Management Information System developed to provide a platform where health information is collected, stored and analysed and use at all levels of the health care provision chain (Heywood and Campbell, 1997).

Complementary to this integrated HMIS was the development of the District-wide Health Information Management System (see Gobah and Zhang, 2011). This was an automated system developed for use at districts levels. The main aim for the development of the DHIMS was to improve the use of health information for health related decisions and treatments (Ibid). Among other things, The DHIMS collects and stores health data, provides an avenue for the integration of electronic patient records at the district hospitals and helps hospital administrators in billing as well as in general hospital management (Ibid). The system has choked notable achievements. There is currently the operation of an electronic data storage and transmission system at the national and regional levels. The

system encounters minimum disruptions and is rolled out in a relatively stable internet connectivity (Ibid). Despite these successes however, the DHIMS still face a number of challenges. The lack of capacity in terms of knowledge and utilization of the system coupled with a seeming dearth of qualified members of staff at the district hospitals to operate the system limits the impact of the system. To add, the issues of inadequate funding affects the maintenance of the system in terms of replacements in infrastructure and equipment.

2.9 Challenges in the Implementation and Utilization of Health Management Information Systems

As the above review has shown, there is considerable development and usage of HMIS globally with many developing countries harnessing commitments at developing and implementing HMIS in order to improve upon health care delivery. At the same time however, HMISs in many developing countries still face some challenges (Littlejohns et al., 2003, Kimaro and Nhampossa, 2007). One major challenge is the poor organizational and management regime that exist in developing countries. In countries where political and social institutions are weak, there is often the tendency to lay a weak foundation for the HMIS structures that can operate effectively. With this reality many developing countries struggle with the implementation of HMIS (Kuhn et al. 2001). Another major problem has to do with weakness in information support systems in many developing countries. Indeed in many developing countries, ICT infrastructure and information systems are poor or non-existent. Within such circumstances it become difficult to implement the HMIS system.

According to Gladwin et al. (2003), while developing countries are making efforts to strengthen or upgrade their ICT infrastructure and national information systems, such efforts have barely yielded improvements making the implementation of HMIS difficult if not impossible in these countries.

In some countries that have managed to develop and implement HMIS under a regime of parallel HMISs, the consequence is often a duplication of data (Kimaro and Nhampossa, 2007). It is not uncommon in such situations to find health workers overwhelmed with work as they have to prepare reports using overlapping and sometimes conflicting health data. In situations where these parallel systems are not integrated, a considerable amount of time is spent on the collection of redundant information because the data are not crossreferenced between different the systems (Ibid). Given these challenges, there is the need for developing countries to commit to the development of practical health information systems through policies and political decisions that are binding. Such commitments can be instrumental to achieving an efficient HMIS at all levels of the health supple chain.

2.10 Conclusion

The above review highlights the increasing recognition by developing countries to develop and implement health information systems that cans serve as a source of integrated health information that can be used to improve health care delivery. The review further highlights how this recognition has prompted commitments by stakeholders in developing countries in terms of the development and implementation of HMIS with aim to improving health outcomes in developing countries. The chapter has explored the empirical literature on the utilization of Health Management Information Systems in developing countries. It has

examined the conceptual underpinnings of global commitments to develop and implement efficient Health Management Information Systems. The chapter has also reviewed literature on the implementation and utilization of health information systems in developing countries, making use of country experience in the implementation and utilization of HMIS. The chapter has explored the various concerns in the implementation of HMIS in terms of the reason for the development of HMIS system, the successes and challenges in the implementation of HMIS.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

The chapter focuses on the procedures employed in carrying out the research work. It deals with population of the study and their background information, the scope of the study, the research design, sampling procedures, and collection of data, instruments used for the research and data analysis and presentation.

3.1 Research Design

The method used for this research study was the descriptive type of study. Creswell (1994) described descriptive study as a method of research that is used to collect information and data on present existing condition of a situation. The emphasis is on description rather than judging or interpretation. The descriptive method is quick, easy and useful when conducting research with little or no available financial resources and also collecting first hand data from respondents.

The researcher used this research method due to its appropriateness in obtaining the desired first hand health data and information from health care providers and data managers who are the respondents in the study in West Mamprusi District. To assess the effectiveness of the DHIMS, available DHIMS was a critical factor considered. To be able to categorise the levels at which various health facilities health information systems are, evaluative analysis was the method used for assessing the HIMSs in the district.

Lastly, the flexibility of the descriptive method to either use qualitative or quantitative data or both, makes it helpful and also offering the researcher many preferences in choosing the instrument for data-collection.

3.2 Study Population

The research was conducted in the West Mamprusi District of the Northern Region. The target population for the study was made up of all the health facilities in two sub districts of the West Mamprusi District. These include six government facilities and two nongovernmental facilities. The study included all those who handle and manage data. These include: health facilities in charges, enrolled nurses, and community health nurses, midwives, doctors, registered nurses, Health Information Officers, record assistants and the Chairpersons of the Health Units Committees (where they existed) or their representatives. Questionnaires were administered as well as interviews.

3.3 Sampling Procedures

All health facilities made up of both private and government facilities in two sub districts were selected from the entire district. Also, two drug stores were also selected. A simple random and purposive sampling were used. Though the health facilities taken part in the study were few, they gave a representation of 100% of health facilities in the district. In Walewale sub district, health facilities visited include: Walewale Hospital, Kparigu PPAG Health Centre, Our Lady of Rocio Health Centre, Gbeo CHPs and Newmann Nelson Mandela Hospital. Janga Polyclinic, Yaama CHPs and Nasia CHPs were the facilities visited in Janga Sub.

A few drug shops were also randomly selected since all the drug shops have the same chances to be selected as a sample. The District Health information officer was interviewed due to his indebt knowledge about the HIMS.

3.4 Data Collection

Two types of data namely primary and secondary were collected for this study. Primary data appropriated the design of questionnaires and key informant personal interviews both of which were open and close ended questions. To gather data from in charges of health facilities, the district health information officer and any other health staff who is involved in the HIMS process at the health facility and district level, the designed questionnaires were administered to them. For in charges at HIMS libraries where available and focal opinion leaders in the district and community levels, key - informant Interviews were used to gather data.

Vital Information was obtained from secondary data by reviewing literature of other literatures of published documents which are of relevance to this study. The study also used qualitative and quantitative methods combined as a result of the administration of survey questionnaires and literature review. This enabled the researcher to obtain an advantage of the two approaches and also overcome their limitations.

To enable the researcher to be isolated from the study, the researcher employed the use of quantitative methods of data collection, this is because this methods are able to measure associations between variables as well as forming associations between measured variables. This also ensures that the final output is context free. Quantitative methods also involve measurements, numerical data and statistics and as such, there is need for clear

description of data collection and analysis procedures. This methodology is predominantly inferential reasoning, it does not require a complex explanation and it provides statement of statistical probability. The quantitative approach is more on the detailed description of a phenomenon. It basically gives a generalization of the gathered data with tentative synthesized interpretations. Quantitative approach is useful as it helps the researcher to prevent bias in gathering and presenting research data. The quantitative data gathering methods are useful especially when a study needs to measure the cause and effect relationships evident between pre-selected and discrete variables. The purpose of the quantitative approach is to avoid subjectivity by means of collecting and exploring information which describes the experience being studied. Variables, both dependent and independent, that are needed in the study are clearly and precisely specified in a quantitative study. In addition, quantitative method enables longitudinal measures of subsequent performance of the respondents. Fryer (1991) noted that qualitative researchers aim to decode, describe, analyse and interpret accurately the meaning of a certain phenomenon happening in their customary social contexts. Instead of using statistical analysis, the qualitative approach utilizes content or holistic analysis; to explain and comprehend the research findings, inductive and not deductive reasoning is used.

3.5 Research Instruments

To acquire data and information on the Management and Utilisation level of HIMS in West Mamprusi District, the major tools that were designed are the questionnaires and the key informant interviews guide. To enable the researcher determine the kind of HIMS infrastructure, type of storage method and if posters and graphs of data generated from HIMS are displayed, the researcher had to employ observational skills during visits to

health facilities. Questionnaires were divided into two parts which includes a background and the actual survey. The background contains characteristics of the respondents such as age, sex, name of facility and title/position of respondent background. The actual survey includes assessment of HIMS, particularly on its availability, management and utilisation. In designing the questionnaires, adequate measures were taken to ensure that good, unbiased, non-leading and accurate questions were developed. In order to achieve this, questions that required a „YES" or „NO" response had follow up questions to reflect research questions and objectives of the study. To ensure that maximum qualitative data was collected during key informant interviews, the questions used to measure the processing and utilization of information were structured as such. This afforded an improved understanding of the subject. To establish the management and utilization level of HIMS in West Mamprusi District, the research instruments were designed and desired to generate four key responses.

3.6 Data Analysis and Presentation

Both qualitative and quantitative techniques were used in analysing data, with the qualitative method used for the secondary data and primary data obtained through interview of staff that handle and manage data. To process the data generated, questionnaires and key informant interviews where thoroughly checked and reviewed. Also, data observation was used but this was in manageable proportions. This was done using content analysis and logical analysis to outline patterns in the data. Primary data obtained from questionnaire administered to staff was entered into EPI-INFO software for easy. EPI-INFO was used for data analysis to determine frequency distribution tables" correlation between variables

and percentage distribution rates of respondents. In addition to EPI –INFO, Microsoft Excel was used to generate diagrams from tables obtained.

3.7 Limitations of the Study

This study covers the management and utilization levels of DHIMS in West Mamprusi District and due to financial and time constraints, not all sub districts could be considered. Two out of the three sub districts were investigated and this might have an impact on the study.

Notwithstanding the above limitations, the findings give a strong bases for generalization.
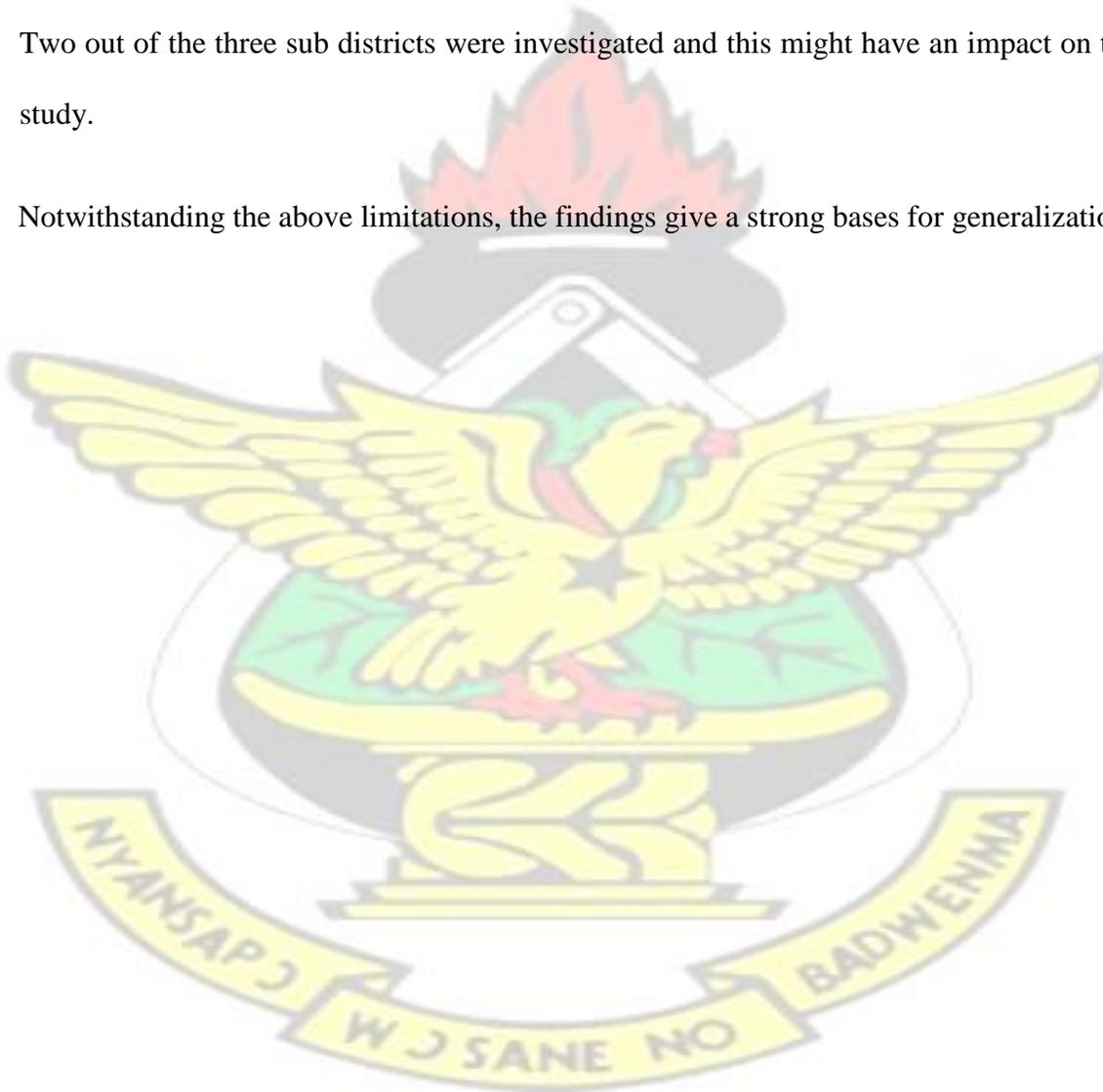
CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

This section of the study presents the findings of the questionnaires administered to staff who manage and collect data as well as focus group discussions and interviews conducted. Assessing the management and utilisation levels of the Health Information Management System in West Mamprusi District is the main goal of the research and as such, all Health facilities comprising of government and non-government and some few drug stores were included and assessed in the study. Assessment was done on the procedures and methods health facilities use to process and store health information and data at the various levels. The research also studied the limitations confronting the effective implementation of HIMS in the West Mamprusi District.

The study discovered the actual standing of how the District Health Information Management System (DHIMS) process, generate, store and retrieve data and information within a decentralised setting.

This section is divided into three parts. The first section discusses the preliminary analysis conducted on the data collected while the second section discusses further analysis conduct on the data after the preliminary analysis was done. The final sections will outline some of their challenges.

4.1 Characteristics of Area of Study

To ascertain the methods and strategies employed during data collection, processing, generation and storage of health information and data, data was collected from all the health facilities in two sub districts in the District. All the Government Health facilities in the two sub districts were included in the study. Out of the 44 respondents in the study, 28 (63.6%) were males while 16(36.4%) were females. This implies that most of the respondents in the study were males.

With regards educational status of respondents, out of the total of 44 respondents, 26 (59.1%) were diploma holders, 12(27.3%) with degrees and 6(13.6 %) were junior technical staff. This implies that most of those who handle data have minimum levels of education and as such, they are not able to understand the forms and use the DHIMS system effectively hence the low utilisation of the DHIMS 2 system in the district.

Out of the total number of 44 respondents, 8 (18.2%) were between the ages of 20-25, 12 (27.3%) were between the ages of 26–30, 20(45.5%) were 31-40 years and 4(9.1%) were 40 and above.
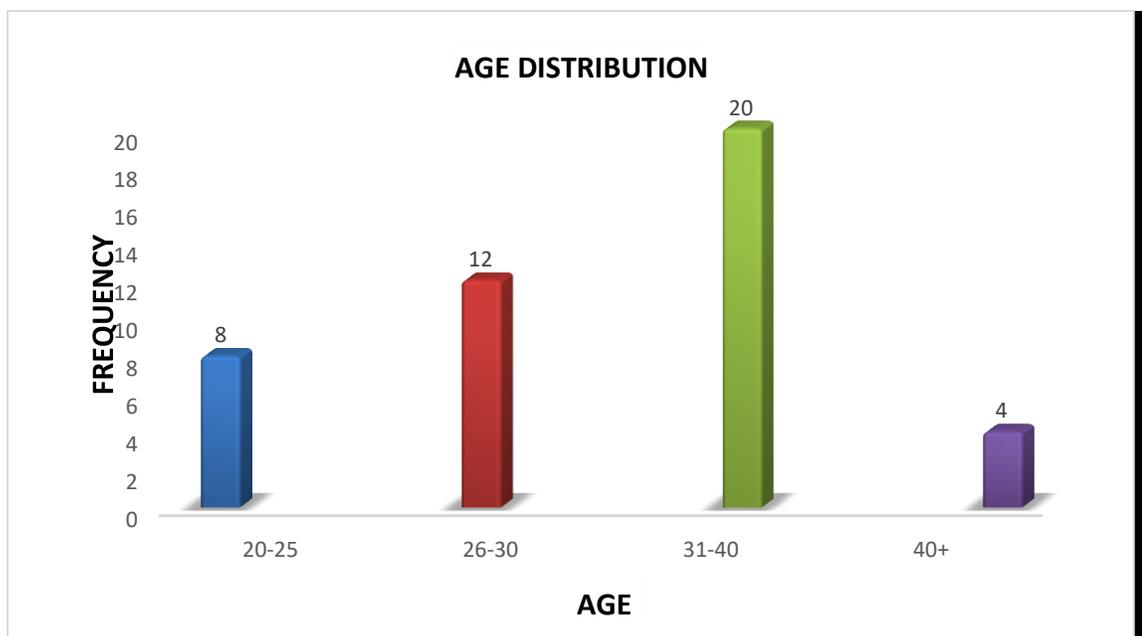
Figure 4-1: Age Distribution of Respondents

Figure 4-1 shows that most respondents handling and managing data are above 30 years of age. Studies have shown that there is a decline in confidence and computer usage as one ages and this is evident in this research since most of the facilities do not use computer for their data entry and analysis because most of them are above the age of 30 and find the usage of computer tedious and burdensome. This is negatively impacting the effective and efficient use of DHIMS 2.

Table 4-1: Type of Health Facilities visited

Characteristics	Percentage
Government Health Facilities	6 (60%)
Private Health Facilities	2 (20%)
Drug shop	2 (20%)
Total	10 (100%)

Out of the ten facilities visited, 6(60.0%) were government health facilities with private health facilities and drug shops being 2 (20.0%) each. Most of Facilities had been in existence for five years or more. This clearly show that most of the health facilities in the district are government owned as shown in Table 4-1.

Table 4-2: Services Offered by Health Facilities

Characteristics	Percentages
Out Patient Department (OPD)	8 (80%)
Ante Natal Clinic (ANC)	8 (80%)
Maternity Services	5 (50%)
Admissions	3 (30%)
Family Planning	4 (40%)
Dental Services	1 (10%)
Laboratory Services	3 (30%)
Drug Dispensed	8 (80%)
Outreach services	6 (60%)
Immunisation	6 (60%)
Counselling	6 (60%)
Nutrition Rehabilitation	1 (10%)

Table 4-2 display the types of services offered by the health facilities. These include: OPD services, antenatal services, maternity, admissions, family planning, dental, laboratory, drugs dispensing, outreach immunisation, counselling, nutrition rehabilitation etc. Dental, Laboratory and nutrition rehabilitation services were not commonly offered by the health facilities, only one facility offered one type of those services. This could possibly be due

to the capital intensive nature of those services as well as the need for specialised human resource. Consultations in drug stores were in the form of what drug to buy for a specific health condition and family planning services are provided in form of selling condoms, emergency contraceptives and contraceptives pills. OPD is where the highest services are offered, this implies that most of the data are collected at the OPD, unfortunately this unit least utilise the data they generate except for financial and drug reorder purposes.

Table 4-3: In charge of the Health Facilities

Characteristics	
Doctor	2(20%)
Medical Assistants	3(30%)
Enrolled nurses	3(30%)
Dispenser	2(20%)

Out of the ten facilities visited, 20% were managed by doctors, 30% by Medical Assistants, 30% by enrolled nurses and 20% managed by dispensers as displayed on Table 4-3. Per the Ghana health service protocols, Doctors are supposed to manage facilities but in actual fact, most of the facilities were managed by medical officers and senior registered nurses or midwives. The qualification of a manager in a facility determines the level of data utilisation. This is evident in this research since the level of data utilisation is low at the district level because of most facilities being managed by junior health staff.

Figure 4-2 shows the availability of HIMS in place and functioning, out of all the ten health facilities in West Mamprusi District, only three representing 30% facilities have functional HIMS in place. This accounts for the low utilisation of the DHIMS 2 system in the district

since more than half of the facilities do not have the system in place and functioning and are largely depending on a paper based systems to collect and store data.
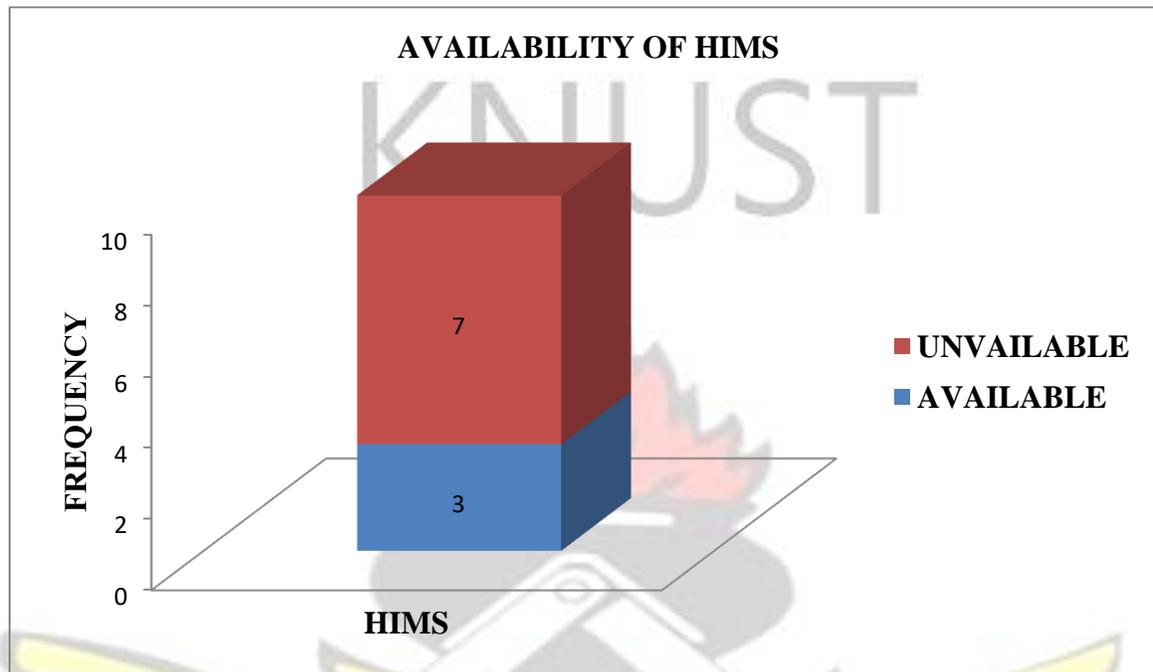
Figure 4-2: Availability of Health Information Management systems (HIMS)

Out of the ten facilities visited, different categories of staff were found to be those who directly handle and manage data, these were mostly health records assistants. Seven facilities representing 70% had their data handled and managed by Health records assistants, two facilities representing 20% by doctors and one representing 10 % by Health information Officer. This accounts for the poor filling of forms and compilation of reports since the record assistants do not have adequate education to understand most of the technicalities involved in filling of forms for easy compilation of reports. This is illustrated in Figure 4-3.
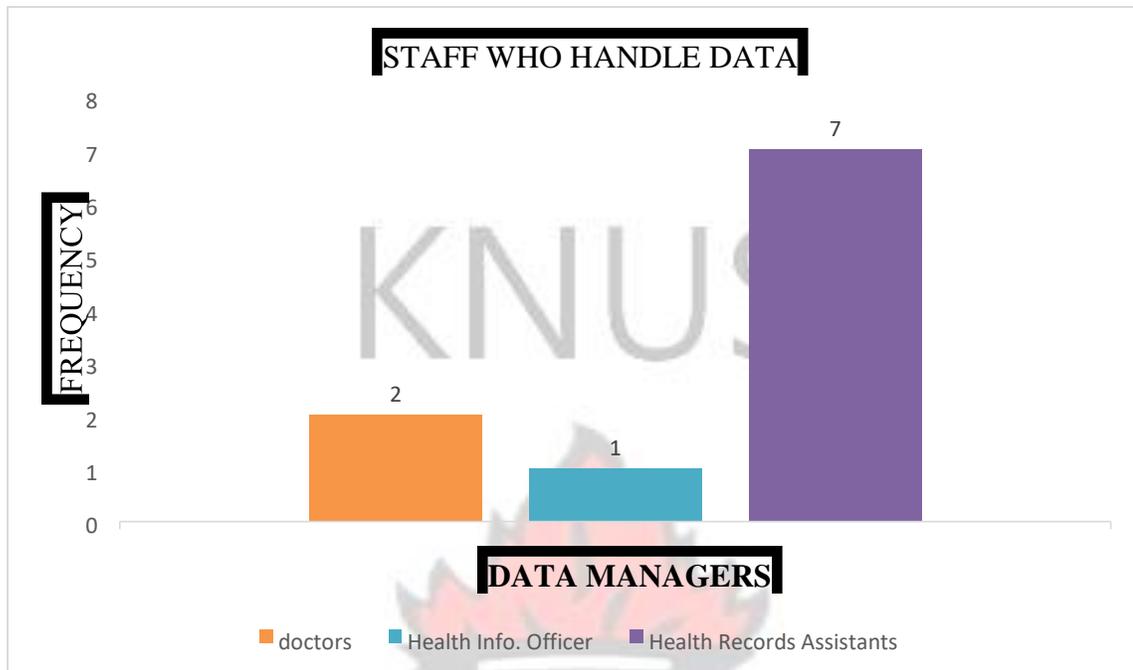
Figure 4-3: Distribution of staff who handle and manage Data

Out of the ten facilities visited, it was observed that five (5) facilities representing 50% did

not had well organised data, two (20%) facilities having their data well organised in both

hard and soft copy and three (30%) with only hard copy. The method of

documentation of data at the health facility affects utilisation of the system especially in

decision making since the quality of the data cannot be ascertained hence making it

unreliable. This means that most of the facilities do not use the data the collect to make

informed decisions for the improvement of service delivery. This is shown in Figure 4-4

below.
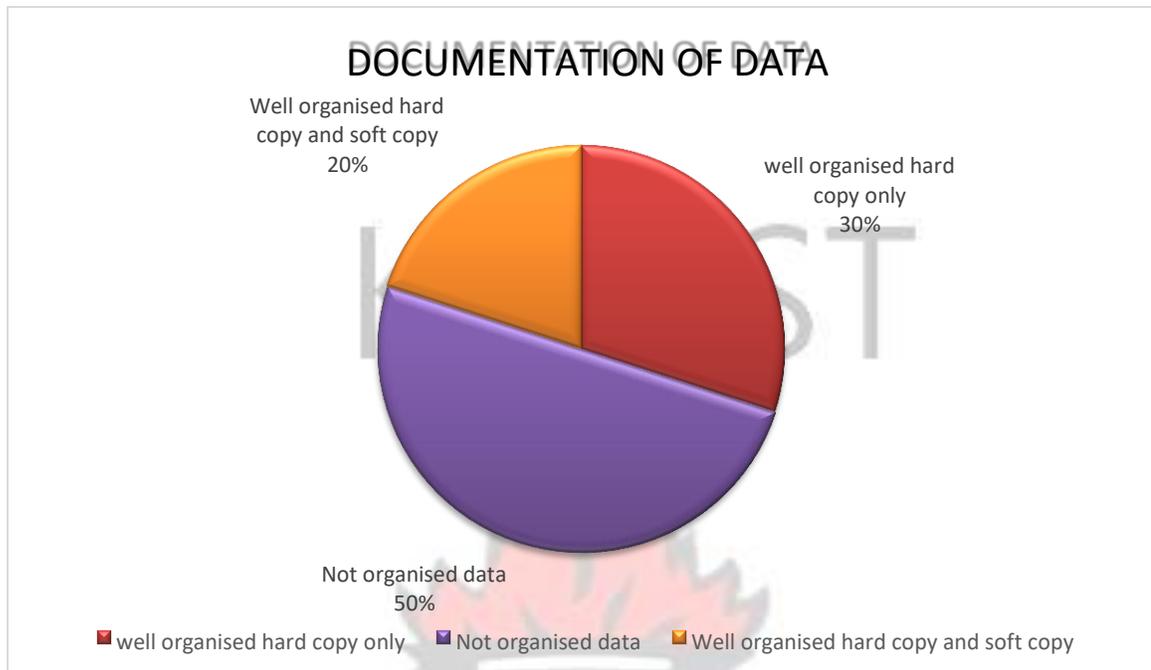
Figure 4-4: Documentation of Reports and Registers in the Health Facilities

Figure 4-5 illustrates results from the research which showed that out of the 10 facilities visited, 3 representing 30% were utilising their data and 7 representing 70% were not utilizing the data they collected and collated for any sort of planning and decision making. This was also visible in the facilities as most of the facilities did not have any form of displayed graphs from analysed data.
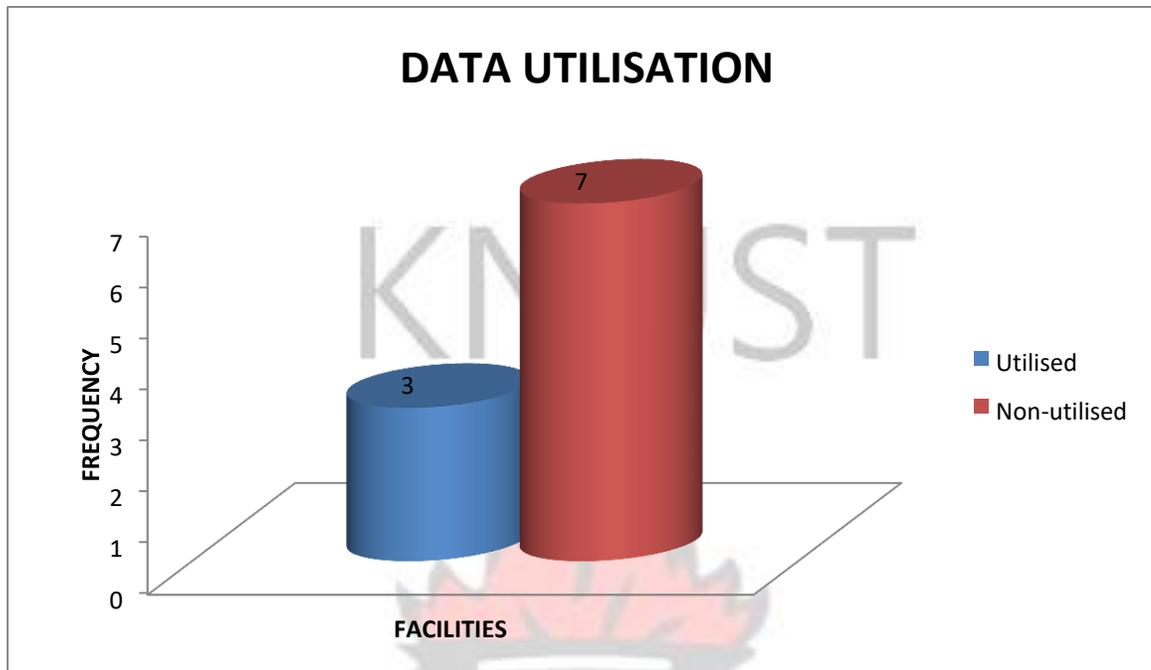
Figure 4-5: Facilities Utilising Data

4.2 Perceptions and Definition of HIMS

Respondents in the interviews had different understanding of what HIMS is. These understandings varied from a system where data is collated, system that supports data analysis to identify gaps and make decisions, a system that stores data and a system that shows how the facility or district is performing in terms of national indicators. Some respondents also perceived HIMS to be "CCTV camera set up to spy the districts".

"HIMS is a Ghana Health Service National recommendation by In-charge of Kpasenkpe Health centre

''HIMS is a type of system where data collected on paper can be inputted and saved in the Ghana Health Service" by In charge of Kparigu Polyclinic

In-charges of Walewale Hospital and PPAG Health Centre, described HIMS as a comprehensive data system for the health sector which collates data from the lowest unit (CHPS) to the highest unit (Teaching Hospital) for submission to the district, regional and national levels. It is also a standard tool that has been developed to ensure effective data management

Below are some quotations from some respondents which support the above statement:

"It is a holistic tool for data collection data in a prescribed fashion from client personal data to financial records.

"HIMS is a data managing tool that supports in planning of health activities with reference to Ghana Health Service Standards and protocols, according to in-charge PPAG Health Centre.

"This is a system that aids in the compilation of health information records and storage of standard data especially in the facilities by records assistants Nasia CHPS.

Only a few of the respondents classified HIMS as a system which helps them utilise data for effective planning, monitoring and decision making.

"HIMS is a tool that helps us to get our data in a more organised form for both storage and later day use" by in charge Walewale Hospital

"It supports us to get up - to date records and to also search for data that can be used for planning purposes" in charge Kparigu Polyclinic

4.3.1 Collection of Data

Out of the total of 44 respondents, 8(18.2%) were observed to have filled report formats and registers appropriately and completely. The rest of the respondents attribute their inability to fill the reports correctly due to lack of training or coaching on the forms and the fact that the forms and register are confusing.

Most Health Facilities in Walewale District operates with a fragmented paper-based information system in line with the principles of GHS Information Systems Guidelines. Most of the health facilities were not accessing the DHIMS in place to provide processed information for use. The DHA has an urgent need to collect the data which is used to assess how all health indicators, access to health service and general population health status are performing so as to ensure that management are able to make proper decisions with regards to resource allocation.

The private facilities visited stated they had heard about the system and occasionally submit some form of data to the DHA, though not on regular basis. The two drug shops visited however stated that they have not heard of such a system but stated that they are interested in such a system since it will help them see their contribution to the health sector. These drug shops did not have any form of summaries to show who buys what drug and for what ailment.

All the health facilities except the private facilities and the drug stores visited collected, filled and submitted Monthly report forms. During the month, health facilities of all types collect data mostly on the following: demographics, ANC attendance and deliveries,

OPD attendances; disease condition/diagnostic, Admissions, family planning acceptance; immunisation coverage (EPI monthly reports), nutrition rehabilitation clients. The system is designed to capture facility level data on services offered. These include community population, EPI coverages, inventory on staff and equipment, and monthly, quarterly and annual reports. From this study, the findings were more focused on the routine reporting system at the health facility level.

Most of these data are gotten from records of patients at the OPD department, Consulting rooms, Dental room; Laboratory, Maternity unit, In-patient Wards, Paediatric Wards; ANC clinic; TB Clinic; Dispensary and Outreach clinics and data are normally filled in patient folders, tally cards/sheets, registers, report and summary forms.

4.3.2 Data Processing

Information recorded in the registers (OPD Registers, In-Patient registers, EPI register, tally sheets, outreach registers, maternity registers, Laboratory Registers, dental registers etc.) are compiled and filled in the various summary or report forms . Various summary or monthly forms from all departments are then collated to get the facility level report for the month and subsequently for the quarter or semi-annual or annual.

The Health Facilities can manually or electronically analyse their data and derive charts from them. Data can be entered at the facilities/sub district/District level into the computer using the DHIMS2 software, this software does not need to be installed on a computer and it works independently from the operating system of any personal computer.

It is expected that on every fifth of the ensuing month, a copy of all monthly reports from the facility must be submitted to the DHA, this is however not always the situation due to certain constraints later explained in this chapter. Data however is still submitted to the DHA though at a slow pace hence it was impossible for these data to be analysed or used for decision-making purposes for the coming month. During this assessment, it was found that, 2(20.0%) facilities of District reported within their schedules.

4.3.3 Data Storage

The study assessed how all the health facilities and the DHA keep their data and records . Out of the total 10 observed facilities, 3(30.0%) facilities were observed to have kept their reports and registrations in the form of hard copies and these were well - organised. 5 (50.0%) facilities though the hard data in hard copy form, these were not well organised and 2(20.0%) facilities had secured their data in both hard and soft copy form and well organized.

All the health facilities that were involved in the study did not have a Library/Resource Centre. It was observed that facilities still had poor storage systems of databases and remaining monthly report forms.

4.4 Utilization of the HIMS System

From the total of 44 respondents interviewed from facilities and the DHA on their knowledge of data generation and utilization, 25(56.8%) responded that there was inadequate training and technical support for HIMS implementation while 19(43.2%) responded to unavailability of computer and skills to operate the computer.

The level of utilization of health data collected by health facilities was realized to be 3(30.0%). Most of the respondents stated that data analysis and its utilization is at the higher level such as regional or national to help them in decision making.

In the facilities that had HIMS in place, it was noted that the system was under-utilized and most of the managers lacked the skill to use the system to analyse data for decisionmaking purposes.

Secondly, some of the health records assistants who were employed by GHS on permanent bases to manage the information system, lacked the skill in health information management. There is therefore the need to urgently organise training on how to effectively use the HIMS for all frontline staff who use the HIMS.

The integration of the DHIMS into the current health system though is essential to the district; it has not received the needed attention from facility managers due to the limited resources such as human resource and HIMS infrastructure of the district.

Walewale district, which had no electricity in most of its towns and villages, is working hard and has put in place a number of initiatives to get all completed monthly summary or report forms from the facilities at the DHA by fifth of every ensuing month to ensure that these reports are entered into the DHIMS by the tenth of every ensuing month

With regard to data and report processing, the study found out that there has been some challenges with regards to resources, that is in terms of human resources and logistics and as such, little is being done in terms of processing.

The responses from some respondents in some health facilities indicated that data was occasionally used for one or more purposes, these include: references, management, planning, research, surveys, soliciting for funds and monitoring and evaluation.

Responses from the private facilities indicated that data was mostly used for accountability purposes to assess how much was invested and how much the facility yielded. The In charge of Nelson Mandela Hospital stated that their facility depends on the data to be able to tell their progress and also compare with previous months in terms of gains and losses. Our lady of Rossio on the other hand uses the data to ascertain the yields and level of patronage of their services at the facility.

Mostly, communities are given health information through health education on how to protect themselves from infections and diseases, how to attain and maintain good hygiene and sanitation practices, importance of sleeping under treated insecticide nets. Also health education is given on outbreaks/epidemics and immunizations that is (polio, measles). This is done either by the community health volunteer of the heath staff. Feedback from the communities is mostly form of appreciation, questions and complaints. Outbreaks or epidemics were mostly seen and reported by the community health volunteers to the health facilities for action.

The District as well as the sub district are responsible for alerting health facilities of the possible epidemics and as well organize training, workshops and seminars to build their capacities in managing the epidemics. The facilities also receive supervision feed backs, program progress reports, and schedules concerning National immunization Days (NIDS) from the sub districts.

The facilities also in turn share this information with the community health volunteers and Health Management Committees (HMC) (especially the chairman) who supports and monitors the health activities within the health facilities.

Respondents were asked to state exactly how they have utilized data collect for the past three month it was found out that some of the facilities were utilising the data though not to their maximum benefit. Some of the respondents did not realise that some of the decisions they were making were based on the data they generated until they were asked a question like, "How do you determine the quantity of vaccines needed by your health facility for a month?

Below are some specific purposes respondents answered to have used data for:

i. To determine the patronage of health care services in the facility ii. To monitor performance of facility against set indicators iii. To know when and how much to reorder in terms of drugs, vaccines and patient

folders.

iv. To assess the facilities financial gains in terms of income and expenditure

v. To determine EPI coverage vi. To report on communicable diseases that require immediate intervention in terms of vaccinations and community sensitisation vii. For planning and implantation of health activities such as PHC activities, RCH etc. viii. To set targets in the coming year"s work plan

On uses of the data to managers, 64.0% of the facilities and drug stores were either utilising data for review of financial standing or profit assessment. Interestingly, 30.0% of facilities

submitting monthly returns and reports thought that data was just one of the routine requirements.

Out of the six government facilities visited, 40% of them had their in charges being those who compile the data forms and registers, this is due to the fact that most of the staff in those facilities indicated they had no knowledge on how to complete and compile these forms, as for the remaining facilities, all staff have been filling these forms and registers for onward compilation.

The private facilities did not see the entry of these forms for onward submission to the DHA since this did not have a positive effect on their generated income and as such, they do not submit reports continuously.

There is the need for a feedback mechanism such as an M&E system to health facilities to ensure that facilities are receiving feedbacks from the district so as to enable them plan to ensure that they are meeting the targets being set by the facility as well as the DHA.

Developed HIMS have a great impact on the development of the district hence there is the need for increased support to the district to review the quantity and quality of data and information collected and to improve the local use of information for epidemiological and public health purposes.

4.5 Constraints faced by the HIMS

The findings of the study depict that there are some weaknesses in terms of completely filling of forms in a timely manner and submitting of reports on time, as well as usage of HIMS, these are due to various constraints.

Generally, the problems faced by the health facilities in the implementation of the HIMS include: lack of information and communication infrastructure, inadequate and unskilled human resource, inadequate logistics such as stationary, storage or filling cabinets and transportation. This accounts for data forms being poorly kept in empty boxes, on tables or on shelves as well as poor filing system since all forms for different forms of data are mixed up together. Other major constraints that was also observed was the unavailability of registers and monthly reporting forms and this served as a basis for some facilities not to submit reports as well as the unavailability of library or resource centre where data and reports submitted to the DHA.

The in charge of Kpasenkpe Health facility stated that, "almost all the staff in the facility do not have adequate skills neither have they been trained in the use of HIMS especially in interpretation of the graphs'.

Almost all the facilities including the sub districts lacked the computerized HIMS and this poses a challenge to the facilities especially in data analysis since most of the staff are not able to manually analyse the data.

Another constraint realized was the inadequate and unreliable transport system

specifically for the facilities that are so distant from the district capital but need to submit their hard copy reports to the DHA since they do not have the computerized system, this highly contributed to the late submissions or sometimes no submissions at all to the DHA.

One of the biggest constraint reported is the poor coordination between departments on the data collected and reports submitted. This greatly led to duplication of efforts by the departments since some departments ended up collecting data on the same data sets and as such, led to huge financial losses to the facilities and also burdening the already burdened few staff.

During the study, it was revealed that the minimum number of forms that are compiled and submitted by the facility to the DHA at the end of the month is twelve most of which are overlapping, this led to staff being overwhelmed causing inconsistency and omissions in compiling of the reports.

The channels involved in data collection, compilation, analysis and transmission is mostly delayed, most often facilities making decisions without considering the information/data input since the feedback report most at times delayed. This has adverse effects in the planning of health activities and leads to ad hoc decision making at the facility level. This also makes it harder for decentralized decision making.

In the West Mamprusi District, the HIMS has not been able to provide adequate support to the health facility, the health facilities have the obligation of submitting huge amounts of data especially on patients and diseases even though the most of the times do not receive feedback. This has accounted for most respondents stating that the system is more data driven than action driven.

There is a structural and general weakness of the public sector in the district and these continues to be the main hindrance to establishing functional health information management infrastructures. The health information management infrastructure has paper-based being the largest although GHS in collaboration with Oslo University has developed a decentralized software known as the DHIMS2.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This is the last chapter which contains deductions and assumptions drawn from the research as well as recommendations for the study. Included are areas for further research.

5.1 Conclusions

The research of assessing Management and Utilisation level of the Health Information Management System (HIMS) in West Mamprusi District highlighted very significant issues. These include:

i. Lack of skilled personnel and training for data system

personnel ii. Unavailability of HIMS iii. Poor record keeping

and filing system of reports iv. Poor utilization of data.

The implications of the above include poor decision making, poor prioritization and design of irrelevant health intervention which negatively affects efficient health care delivery.

5.2.1 Precision of perception and understanding of HIMS

Respondents had diverse opinions and understanding of the HIMS theory and this clearly indicates that the system and its significance in the health sector has not been communicated properly to managers as well as staff in the health sector hence the care free attitude of some staff towards the system. Health staff must be oriented on the system and its significance in the health care delivery system so as to clear misconceptions about the system and also facilitate health facilities to collect relevant data for proper utilization and storage.

5.2.2 Ignoring of Private health facilities and Pharmacy shops

From the findings, one can conclude that private non-governmental facilities as well as drug shops have been forgotten and this has affected their contribution negatively.

The facilities that are mandated to submit reports all belong to the government and this stresses the argument that the HIMS is a government of Ghana/GHS system.

There is the need for data to be collected from all private facilities and pharmacy/chemical/drug shops since these facilities are mostly patronised by clients in the communities, these will help in effectively designing and restructuring of the health care system for better health care delivery.

5.2.3 Non appreciation of the importance of HIMS

Most respondents did not appreciate the significance of the system, they perceived the system as a GHS system therefore it was not necessarily an important component of the health care system hence their lack of interest in the system.

The findings of the study also revealed that some respondent could not identify persons who are responsible and accountable for facility data, every department in the health facility collects and keep their data and reports. This has led to the facility unable to account for all data collected and also often than not affected the reliability and validity of the data the facility submits.

5.2.4 Poor Management of Data Sheets and Registers

Due to the absence of library or resource centres in the health facilities, facilities had to find their own ways of storing and safe guarding their data sheets and registers as well as

copies of submitted reports. It was observed that most facilities stored their data sheets, reports and registers either in unlocked drawers or lying on the tables without any form of filing and this accounts for the poor management and storage in most facilities.

5.2.5 Utilisation of Data

All though most facilities were not efficiently utilizing their data, some health facilities in one way or the other were using HIMS data to determine the number of services they were able to offer most importantly, the number of children who are receiving immunization as against those who should be receiving and this prompts facilities to do mop ups to attain the required coverage. This is the initial step and health facilities ought to be further encouraged to use the data.

5.3 Recommendations

Per the deductions and assumptions of the study, below are some recommendations made:

i.   Each sub district should be provided a health information officer to enable them collate data from the health facilities in the sub district for analysis and onward submission to the district.

ii.   Heath facilities should be supported by health information officers to design and use simple excel to easily collect and analysis data instantly even before submitting to sub district.

iii.   DHA needs to offer and support training as well as on the job coaching to health facility staff on how to fill and compile data sheets and registers so as to ensure that reports compiled are valid and reliable.
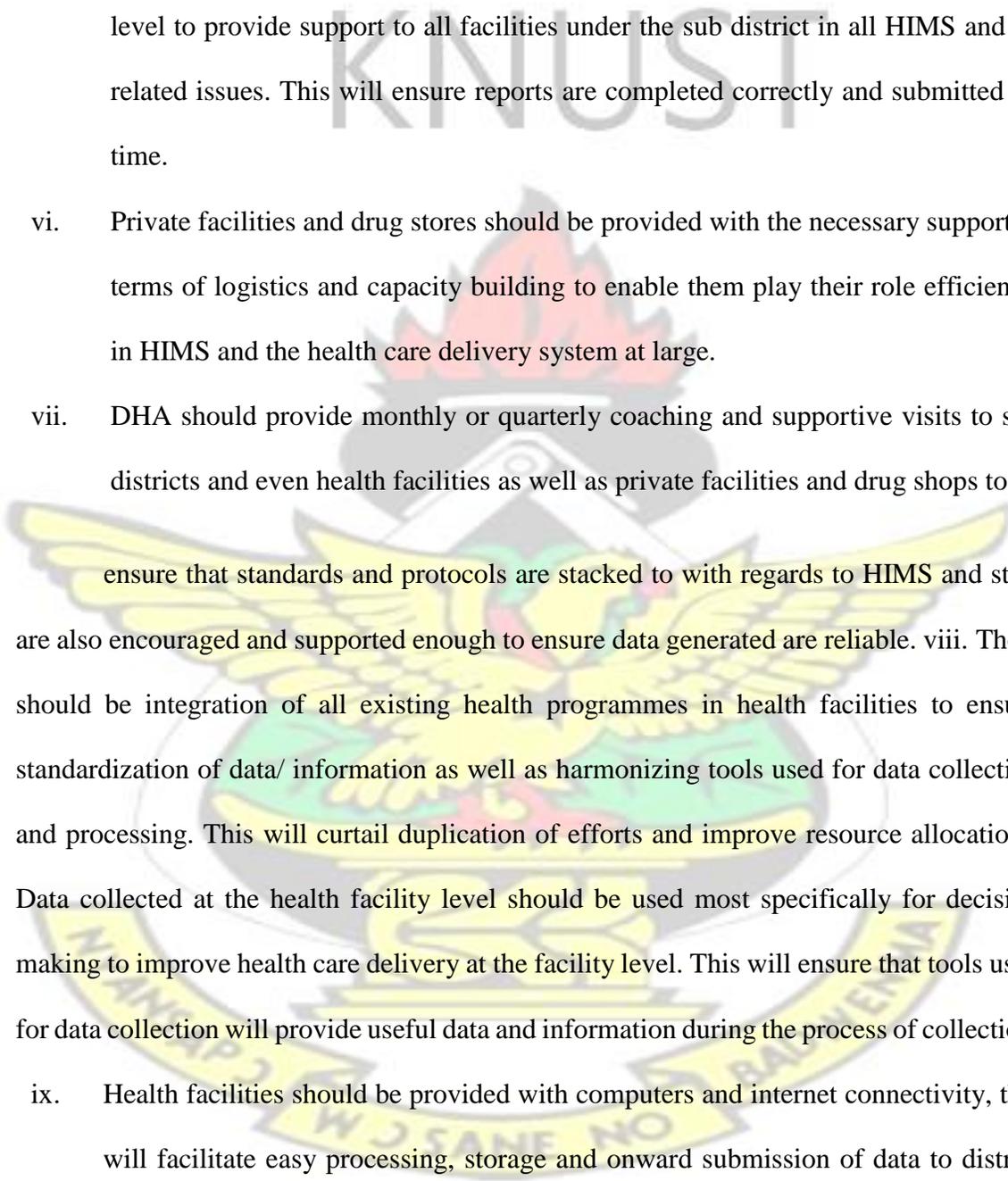
iv.   There is the need for provision of secure spaces such as library or resource centre and cabinets to ensure that all registers are kept for life.

v.   Trained and skilled HIMS personnel should be situated at least at the sub district level to provide support to all facilities under the sub district in all HIMS and its related issues. This will ensure reports are completed correctly and submitted on time.

vi.   Private facilities and drug stores should be provided with the necessary support in terms of logistics and capacity building to enable them play their role efficiently in HIMS and the health care delivery system at large.

vii.   DHA should provide monthly or quarterly coaching and supportive visits to sub districts and even health facilities as well as private facilities and drug shops to

ensure that standards and protocols are stacked to with regards to HIMS and staff are also encouraged and supported enough to ensure data generated are reliable. viii. There should be integration of all existing health programmes in health facilities to ensure standardization of data/ information as well as harmonizing tools used for data collection and processing. This will curtail duplication of efforts and improve resource allocations. Data collected at the health facility level should be used most specifically for decision making to improve health care delivery at the facility level. This will ensure that tools used for data collection will provide useful data and information during the process of collection.

ix.   Health facilities should be provided with computers and internet connectivity, this will facilitate easy processing, storage and onward submission of data to district level then to regional level, where computers and internet connectivity are

unavailable, facilities should be provided with means of transport to facilitate timely submission of data

x.   Facilities should be networked to enable easy sharing of experiences.

xi. A simple but basic website/portal where standard operating procedures are kept should be set up to facilitate and ensure that health staff easily understand and use the HIMS.

5.4 Areas for further research

Health Information Management Systems is quite a new and multifaceted area, due to time and resource constraints, not all areas of HIMS could be researched and as such, there is the need for more detailed studies in the areas below to enable policy makes and all stakeholders in the health sector appreciate the nationwide status of the system. These other areas include:

i. Evaluation of the current DHIMS2 software to ascertain its usefulness to GHS ii. Analysis of type of data generated and its actual utilization level in the development of health interventions.

iii. Assessing of tools used for health data collection and reporting formats to ensure that these are simplified enough and also collect relevant health data.

iv. Analysis of the cost of HIMS and its effect on the provision of health care to the population.

v.   Lastly, an investigation of communication linkages within the HIMS.
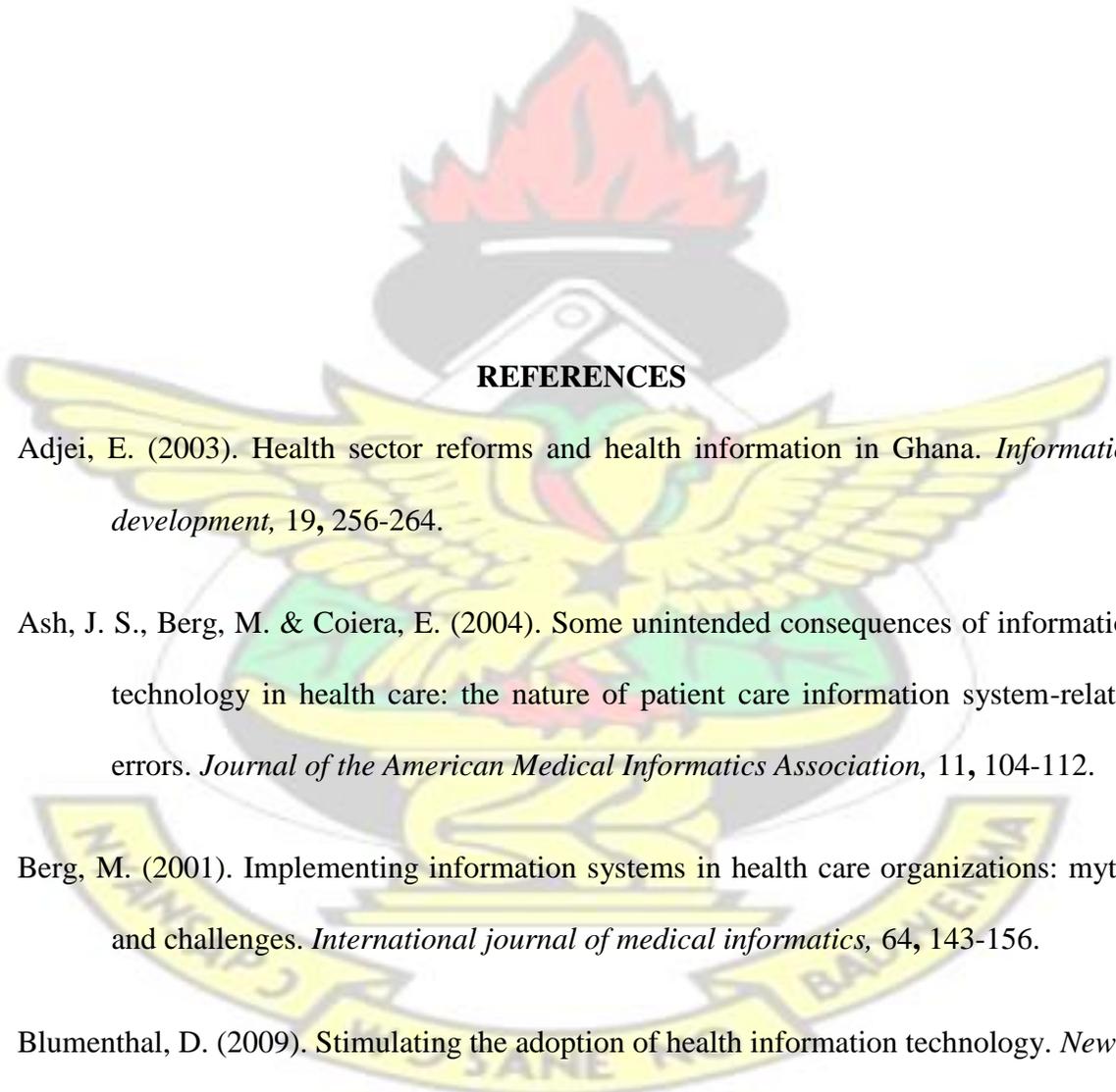
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KNUST

APPENDIX

QUESTIONNAIRE FOR MANAGEMENT AND UTILIZATION OF HIMS

FORM NO. ……

Background information

Date: ………………..

Name of health unit ………………………….

Name of Health Sub-District …………………

Location ……………………..

Title of respondent ………………………

Sex ………………………………………..

NB: The information collected and used for purposes of this study shall be treated with utmost confidentiality by the researchers and will not be availed to any other person outside the purposes of this study. No names except only initials where relevant, shall be anywhere on this form.

A. HEALTH CENTRE

Code number …………………………..

1) Type of unit [   ]

1. Hospital   2. Government   3. Private health unit   4. Drug shop

2) How long has this unit existed [   ]

1. Less than a year   2. 1-3 years   3. 4-6 years   4. More than 6 years

3) Owner or in-charge of health unit [   ]

1. Doctor   2. Registered Nurse or Midwife   3. Enrolled nurse or midwife

    4. Clinical officer   5. Dispenser   6. Nursing Aid   7. Non–Medical personnel

4) Age of owner or in-charge [   ]

5) Sex of owner or in-charge [   ]

6) Who sees or serves patients [   ]

1. Doctor   2. Nurse   3. Clinical officer   4. Nursing Aid 5. Non-Medical personnel

7) Who else works in the unit [   ]

1. Doctor   2. Nurses   3. Midwife   4. Clinical officer   5. Nursing 6. Non medical

B. TYPE OF RECORDS AVAILABLE

1) No of patients who attend daily [   ]

   1. 10-20   2. 21-40   3. 41-60   4.61-80   5. 81-100   6. Over 100 2)

What services do you offer at the unit:

OPD 1. YES   2. NO [   ]

ANC 1. YES   2. NO [   ]

RCH 1. YES   2. NO [   ]

   Maternity Services   1. YES   2. NO [   ]

   Admissions   1. YES   2. NO [   ]

   Family Planning   1. YES   2. NO [   ]

   Dental Services   1. YES   2. NO [   ]

   Lab. Services   1. YES   2. NO [   ]

   Drugs Dispensed   1. YES   2. NO [   ]

   Others

(specify)……………………………………………………………………………

3)   Availability of records for above services 1. YES   2. NO   [   ] If answer

          to Question 3 above for any of the services is YES:

4)   What   kind   of   information   is

collected?...……………………………

……………………………………………………………………………………………

5)   Presence of Stock Cards   1. YES   2. NO [   ]

6)   Presence of Financial Statements   1. YES   2. NO   [   ]

7)   Availability of Data base sheets 1. YES   2. NO [   ]

If Answer to Q7 is YES;

8)   What type of database sheets are available

………………………………………………………………………………………………

9)   Are Data base sheets up to date?   1. YES   2. NO [   ]

10)   Is all the necessary data collected? 1. YES   2. NO [   ]

11)   If NO which data is not collected

…………………………………………………………………………………………………

……………………………………………………………………………………………..

12)   Who fills the database sheets?

………………………………………………………………………………………………

13)   Who uses the information?

………

14)   How do you utilize the information? Please tick as appropriate

1. Review, Planning, and monitoring at health units [   ]

2. For returns to DDHS office [   ]

3. Tax assessment [   ]

4. Review of financial statement [   ]

*15) what is the state of data at the units?

    1. Well managed   2. Fairly managed   3. Poorly managed 16)

How is the data stored?

………

C. RESOURCE CENTRE/LIBRARY

1) Is there a resource centre/library at the health unit? 1. YES   2. NO [   ]

If Answer to question 1. Is NO, please skip to SECTION D 2)

What type of resource centre is there?

3) What are the qualifications of the in-charge of the resource Centre?

4) Do you send copies to the Resource Centre?

1. YES   2. NO [   ] 5)

If yes how often?

   1. Monthly   2. When we feel like   3. Irregularly [   ] 6)

How are the record sheets managed?

   1. Bound   2. Catalogued/classified   3. Enter into a computer

    4. Other (Specify)…………………………………………………………….

7) Who uses the resource Centre?

    1. Staff   2. Researchers   3. Public 8)

For what purpose is the data used?

    1. Research   2. Planning   3.Others (specify)…………………… 9)

How willing is de custodian ready to share data?

    1. Very willing   2. Willing   3. Not Willing [   ]

10) Any advice for the resource centre

………………………………………………..……………………………………
…………………………………………………………………………………………

D. DATA MANAGEMENT

1) How is the information collected?

2) Who collects the information and how often?

3) Who supervises the information collection?

4) What problems if any are encountered in data collection?

5) What do you do with the data collected?

6) How is the information processed? _____

   1. Manual   2. Computerised   [   ]

 If Computerised:

(a) How many and what types of computers are available?

(b) What computer accessories are available?

(c) Capacity of computers:

* Hard disk space

* Random Access Memory (RAM):

(d) What data / files back-up procedure is available?

(e) What software and versions available?

* Word Processing

* Spreadsheets

* Database Management

* Statistics analysis programs

* Accounts programs

(f) What is the experience in usage of the computers?

1. Bad   2. Low   3. Medium   4. High

(g) Are the computers protected and maintained?

* Security of computers? (Anti-virus etc.)

* Burglary proofing?

* Cleanliness of computers 1Bad 2Good

* Budget for Computer services and software?

7) How is the data analysed

8) What problems are encountered in data analysis?

9) How is the data interpreted?

10) What problems are encountered in data interpretation?

11) Is there any capacity building effort?

E. DATA UTILIZATION

1) How is the information utilized?

1. Planning   2. Policy   3. Reference in resource centre

4. Other (Specify)…………………………………….

2) Who utilises the information

1. In-charges at the Health units

2. The Health Sub-district

3. The DDHS office

4. Ministry of Health

5. Other (Specify)……………………………………………

3) Do you send returns to the following?

a) Community level 1. YES   2. NO [   ]

b) Health Sub District 1. YES   2. NO [   ]

c) DDHS‟s office 1. YES   2. NO [   ]

d) Ministry of Health 1. YES   2. NO [   ] 4) If yes how often:

* Community: 1. Monthly   2. When we feel like   3. Irregularly [   ]

* Health Sub-District: 1. Monthly   2. When we feel like   3. Irregularly [   ]

* DDHS''s office: 1. Monthly   2. When we feel like   3. Irregularly [   ] * Mohr:

  1. Monthly   2. When we feel like   3. Irregularly   [   ] 5) Do you get feedback from

the:

- Community

- Health Sub-District

- DDHS''s office

- MoH

6) Where do you finally put the data sheets?

1. Stores   2. Destroy   3. Sell off   4. Enter into a computer 7)

How willing is the custodian ready to share data?

1. Very willing   2. Willing   3. Not Willing [   ]

8) In the past 3-months/ one year, state exactly how the data has been used with definite

   examples

………..………………………………………………………………………………………

………………………………………………………………………………………………..

9) Any advice to the District Health office

………………………………………………………..…………………………………………

………………………………………………………………………………………………..

Guide Questionnaire for Key Informants

1) What do you know about HMIS and the related records?

2) How is data collected at the health units?

3) What problems do you encounter in data processing (collection, analysis and interpretation etc)

4) What suggestions do you have to minimize these problems?

5) Do the records kept have any use to you?

6) Is there information that you would like to share and how can this information be shared?

7) Is there some information that you normally receive from the community, health sub district, district health office and the ministry? If Yes, what information is this?

8) Is there information that you normally send to the community, health sub district, district health office and the ministry? If Yes, what information is sent?

7) Who else do you share information regarding health facility with?

- Why do you share information?

- What suggestions do you have on how data can be utilized?

8) How can we improve utilization of the HMIS process?

- how can these suggestions be incorporated ?

9) In the past one (1)year /3 months state exactly how the data has been used with definite examples.

10) What other sources of data are there and how can they be tapped.

11) Any appeal or advise ……………………………………..

Observation Guide

1) Is there an HMIS office?

2) Assess the levels of cleanliness of the Office and infrastructure?

3) What storage facilities are in place?

4) How and who compiles and records the data?

5) Is there an operational HMIS computer?

6) Are there Posters or analysed data displayed from the HMIS?