UNIVERSITY OF THE WESTERN CAPE

USE OF HEALTH INFORMATION FOR OPERATIONAL AND STRATEGIC DECISION-MAKING BY DIVISION LEVEL MANAGERS OF KAMPALA CITY COUNCIL HEALTH DEPARTMENT

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DECLARATION

I do declare that *"Use of Information for Operational and Strategic Decision-Making by Division Level Managers of Kampala City Council Health Department* is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Sarah Asiimwe Date: December 2002

LIST OF ABBREVIATIONS

DMO	Division Medical Officer
FGD	Focus Group Discussion
HMIS	Health Management Information Systems
HSSP	Health Sector Strategic Plan
IMR	Infant Mortality Rate
KCC	Kampala City Council
MCH	Maternal and Child Health
MOH	Ministry Of Health
PHC	Primary Health Care
WHO	World Health Organisation

ABSTRACT

In keeping with the goal of the World Health Organization to achieve Health For All and reduce inequality, particularly with regard to resource allocation, health information generated by health information systems must be communicated to and utilized by decision makers. After all, a key indicator of the effectiveness of a Health Information System is the use of the information it generates.

When it was introduced in Uganda in 1996, the Health Management Information System (the data collection tool for Uganda) was said to replace all existing forms of data collection. In the year 2000, it was revised to make it more user friendly with the hope that it would meet the needs of the decision maker at all levels in the health structure, by providing timely, relevant, and accurate information, for use in decision-making. Since its revision however, it has not yet been documented whether the HMIS as the sole data collection tool has been able to meet the needs of the decision makers at all levels of the health system. This study was therefore carried out to provide valuable insights, based on the perceptions of the decision maker, on how accurate, timely, complete and relevant, information obtained from the HMIS is for decision makers, at the local level.

The study was a qualitative case study to determine the use of health information by decision makers of the health department of the Kampala City Council (KCC) for operational and strategic decision-making. This is because this department has an obligation to provide health care for more than two thirds of the capital's population, especially the poorest communities. In-depth interviews and one Focus Group Discussion were used to gather information from managers at the division level, and from a public health committee of one of the divisions, respectively, who are responsible for decision-making at this level of the KCC health structure.

It was found that even though the HMIS tool provides relevant information for decision-makers, this information is incomplete, untimely and inaccurate. In addition, it provides much less information than required by KCC management, because it provides only facility based-data. Nonetheless, the use of this minimal information available for decision-making was found to be very limited, and there was no evidence to show that KCC management is committed to ensuring a continuous flow of accurate, complete and timely information to support management decisions. Therefore even if the lacking information was available, there is no guarantee that KCC management would utilize it to make more informed management decisions. The KCC managers rely mainly on "soft" and "observational" information for decision-making, which is greatly influenced by political interests. Thus allocation of scarce resources is highly likely not to be carried out according to need but serendipitously benefits the population because they are needy regardless. The efficiency, effectiveness and equity of health services to achieve the goals of primary health care (PHC), will arise from meticulous allocation of scarce resources for health. This needs to be based on concrete evidence that can be provided by health information, use of which was one of the major things that was found to be lacking within the KCC health department.

It is hoped that the results of the study: 1). Prompt health planners at national level to strengthen local use of information generated by the HMIS to improve the health status of the population served by health service. 2). Managers at local level will develop standard means of collecting the required but lacking information with assistance from the national level, and will put into place, data and information accuracy checks.

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1. INTRODUCTION

Information is not an end in itself but a vital means to improve decisions around policy designs, health planning, management, monitoring and evaluation of programmes and services (WHO 1994 and Sauerborn 2000) thus contributing to improved overall health service performance and outcome. Investments in information and the management of information are driven by the desire to improve decisions; with the value of information depending on how much it contributes to the decisions to be made (Feldman, & March, 1981). That is why WHO states that:

"District health profiles, indicators and final reports as the final products of information are meaningless if they are not communicated to and used by the decision makers. If information systems do not contribute to health improvements, its hard to justify their expense" (WHO, 1994). However, in order to influence decisions, information must be relevant, reliable, accessible and user friendly to the decision maker in a timely fashion. Unfortunately, the availability of high quality information does not guarantee its appropriate use in the decision making process (Sauerborn, 2000).

The conference in Alma Ata of 1978 established health for all (HFA) by the year 2000 as a major goal for all member states of the World health Organisation (WHO, 1978) and also stated that a key challenge for global community was reducing inequalities in health status (Baum 1995) To achieve HFA at any national level, a health information and reporting system is important for policy and planning particularly with regard to

allocation of resources and evaluation of health programmes to assess their impact in improving health status and achieving greater equity (Taylor 1992, Omar & Pinto 1994).

In countries where health care is wholly or mainly financed by the state, health information systems tend to be designed at and imposed from the top. This usually means there is a need for a central analytical bureau to process data and transform it into information (Opit, 1989). Furthermore, it is common for databases requested from the top to have little value for local health care action or monitoring. Moreover the time lag between collection and analysis is far too long because data collected by current health information systems goes through a tedious process of transmitting, compiling, and analyzing, so that by the time the information is available for use, it is markedly obsolete and decisions are therefore by default made without any information (Sauerborn, 2000). Therefore, even if information is of high quality, if it is outdated, it is of low value to the decision-maker. It is also common in top-down systems, that those who provide care and automatically carry out data collection are not interested in or are alienated from the HMIS and its use, and for this reason, data collection is simply considered as a useless bureaucratic task (Opit 1989). Because of the lengthy time lag between data collection and dissemination of health information together with the negative attitudes that top-down systems induce in those who collect the data, potential users of this information often consider it unreliable, irrelevant, inaccurate and out dated. Furthermore it is not accessible in a form that promotes its use. Consequently, its use in decision-making is inevitably limited and in many instances non-existent.

In Uganda, in order to improve on its operation in health care delivery, the government restructured organizations and departments. In line with the poverty eradication action

plan, the Ministry of Health (MOH) came up with a policy that defines the framework of work (operation) and health investment in the health sector for the next 10 years. The health policy was operationalised about 2 years ago by both government and other stakeholders, coming up with the health sector strategic plan (HSSP) for the next 5 years. One objective of the HSSP was to strengthen health organisation and management systems. In line with the new HSSP, performance indicators were agreed upon at district and national levels, and the Health Management Information System (HMIS) was to provide the bulk of data and information required for monitoring indicators on which decisions and actions would be based. One strategy therefore was to strengthen and ensure support for the HMIS at all levels of the health structure. All of this was carried out in line with the health sector reform of decentralization of social services to improve the effectiveness of health services delivery. The decentralization of health services therefore led to the establishment of the health sub district, which was defined as a self-contained subsystem within the district health system (MOH 1999), in which planning, implementation, monitoring and supervision of all basic health services would be undertaken. Therefore the operational responsibility of health service delivery was devolved to the health sub district, headed by a resident doctor. To achieve the objectives of decentralization of services to the health sub district, information for decision-making was to be provided by the HMIS.

The Health Management Information System (HMIS) was developed at national level with some participation of district and health facility managers (MOH 1996). After its implementation, it was said to replace all preexisting routine reporting instructions for health units and districts. In 2000, the HMIS was revised (Mukooyo, personal

communication) to meet the needs of the HSSP within the framework of some concepts, namely: that information collected is relevant to the policies and goals of government and health professionals at the level of collection, that information collected is functional and is to be used immediately for management decisions (MOH 1996).

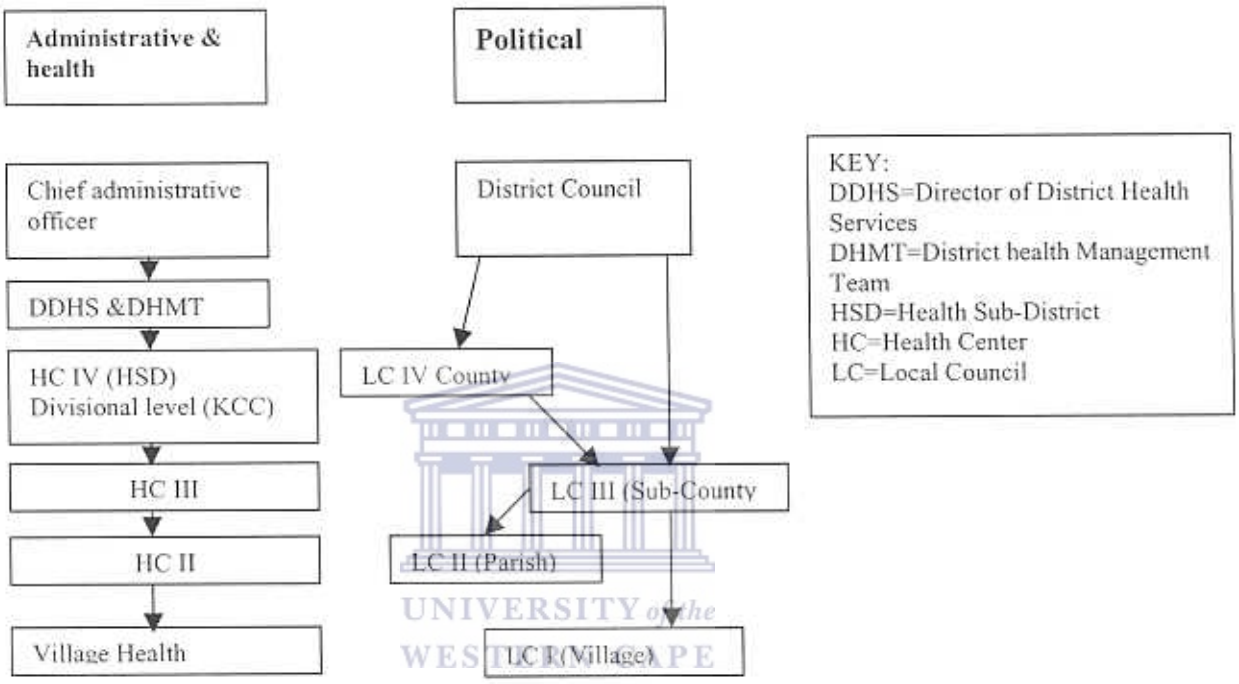
1.1. Background of study area

Kampala district hosts Kampala city, the capital of Uganda. It covers a total of 189 sq.km of which the land area is 117.6 sq km. The population of the district is estimated at 1,138,134 a projection from the 1991 population census at an annual growth rate of 4.7%. The IMR is estimated at 81/1000 live births (UDHS, 1995).

The district is divided into 5 administrative divisions: Central, Kawempe, Makindye, Nakawa and Rubaga divisions. In Kampala district, the functional subdivision (health sub district functions) of the district health system is at the divisional level, headed by a divisional medical officer (DMO). The government health facilities, save for the national referral hospital, are under the responsibility of Kampala City Council (KCC) public health department. KCC has an obligation to provide health services to over 1m population of Uganda's capital. Being a government service, the health department of the council is a social sector with no direct tangible profits and suffers from under funding with an allocation of 8% (Waira personal communication) of the whole KCC budget. With limited resources, the little available has to be used appropriately and efficiently for maximum health benefits. Information about allocation of resources between health activities can help to monitor service delivery. It has been noted above that the use of health information is important for planning health resources. It is therefore essential to determine the use of health information for strategic and operational

decision-making by management in this department, which is responsible for providing health care to a big fraction of the population of Uganda's capital, who are among the poorest.

Fig.1. DISTRICT STRUCTURE FOR HEALTH CARE DELIVERY



1.2. A note on health structure levels

A health unit is place where people go to seek health services from health workers of any cadre and they (patients) are examined, may be given laboratory services (if available), and then treated.

In Uganda, health facilities are classified according to the levels of service provision:

Level 1-health unit post where patients are examined and given treatment on clinical basis. The highest cadre that one can find is an enrolled nurse, but often times it is headed by nursing assistant, particularly rural health facilities. At this level, they may refer patients to any of the higher levels without following any hierarchical order. The services

offered here are mainly primary health care (PHC). Normally the number of staff here is at most 3, i.e. an enrolled nurse with 2 nursing assistants. In Kampala district the number is at least 4.

Level 2-they offer same services as 1, but here the lowest cadre that can head this level is an enrolled nurse. In Kampala district however, a registered nurse heads this level. Number of health workers in Kampala health units at this level is at least 6.

Level 3, these can be headed by any cadre of health worker from the level of enrolled nurse upwards, but in Kampala, even a Medical officer can be found at this level. They offer laboratory services as well, which allows them to do offer diagnostic services e.g. malaria diagnosis. Minimum number of all staff is 13

Level 4-is the highest level, with a theatre for minor general surgical and obstetric operations. Following the health sector reform, this is normally a health sub district, which should invariably be headed by a medical officer.

Health inspector-This is a person in the division or at the district, who is responsible for inspection of premises to determine the level of hygiene and sanitation. This person does not possess basic medical training i.e. is not a health worker but has training in sanitation and hygiene.

Private clinics.

These are of two kinds:

1) NGO's--these are the ones that collaborate with KCC i.e. the KCC, subsidises some of them in terms of e.g. immunisation equipment, or sometimes they get direct funding from the KCC. This means that KCC will have to consider them in their (KCC) planning.

2) Purely privately owned clinics which are licensed to operate by the KCC, but are never funded by KCC. The range of services provided varies according to the availability of resources and thus equipment in these clinics. Some offer simple clinical diagnosis and treatment while others offer lab, x-ray and even surgical interventions.

1.3. Problem statement

Since the revision of the HMIS to meet the needs of the decision-maker at all points of the health structure, it has not been ascertained how relevant, accurate, up to date and accessible the information derived from HMIS is for decision makers for planning, managing and evaluating health care delivery. This is particularly so at the health sub-district (division level in the case of Kampala) where PHC activities are planned for and funds are allocated to health facilities therein; a key objectives for its (HMIS) development (MOH 1997). Only anecdotal evidence exists where by it is assumed that managers and planners of health systems do not utilize information to make decisions because information is outdated, inaccessible, or does not meet their needs decision-making. Yet a key indicator of the relevance, accuracy, and timeliness of this information and hence the effectiveness of the HMIS is the use of the information it generates. It is therefore important to determine the use of information in decision-making by managers at local levels. It is also essential to determine the constraints pertaining to use of information for decision-making and make recommendations to enhance information-based decision-making.

1.4. Justification for the study

When the study is completed it will provide valuable insights based on the perceptions of the decision makers, on how accurate, up to date, accessible and relevant information obtained from the HMIS, is for operational and strategic decision- making, at the local level. The study will also establish the information requirements of the decision makers. Since the HMIS was designed at national level, this study will also establish whether there is a mismatch between information requirements for decision makers at the local level and the information requested from management at national level. This will allow health planners at national level to gain a better understanding about the extent to which information obtained from the HMIS is utilized for decision-making, and the factors that influence its use or lack thereof, so that the gaps discovered can be addressed. It is envisaged that all of this will prompt revision of, or strengthening of the use of the HMIS as a sole data collection tool, for providing information for better and information based decision-making.

1.5. Aim of the study

To determine the extent to which managers at the local (division) level of the KCC health department are able to utilize health information for strategic and operational decision-making and to assess the inhibitors and promoters of information use.

1.6. Objectives of the study

1). To determine what information division managers have for decision-making.

2). To establish what information division managers need for decision-making.

3). To determine what information division managers use for decision-making.

4). To assess the mismatch between the information management have and the information they need for decision-making

5). To ascertain whether completeness, accuracy, timeliness and the format in which information is presented to the division managers promotes its use for decision-making.

6). To determine whether there is a mismatch between information requested from national level and information required for decision-making at the local level.

7). To highlight the factors that influence use or non-use of the health information for decision-making

8). To assess the perceptions and attitudes of the division managers on use of health information in decision-making.

2. LITERATURE REVIEW

2.1. Information in decision-making

Information is crucial for decision-making at all levels of the health services. Policy makers need information for better allocation of scarce resources, planners for the design of more effective programmes, district managers will want information relating to performance indicators for monitoring and evaluation of the health facilities under their responsibility, health unit managers to ensure the community equitable access to the services offered and most of all, care providers to provide quality care to their clients (WHO 1993 & Lippeveld and Sapirie, 2000). In general therefore, information is required to monitor the impact of health related activities and interventions of different sectors and having appropriate information is one key element for the improvement of planning capacity (de Kadt 1989, Hartevelt 1993). Effective information systems are an essential component of effective health services, which in turn should contribute to significant improvements in the overall status of the populations they serve (Hanmer, 1999).

On one hand, information systems function on the underlying assumption that the availability of good data will yield useful information which will influence decisions and that these information-based decisions will lead to more effective and appropriate use of scarce resources through better programmes and policies (Sauerborn, 2000). As a result, management teams at all levels are constantly exposed to a flood of data in a range of formats, yet ironically on the other hand, this overabundance of data or good quality information, is not necessarily used to contribute to more informed management

decisions (Sauerborn 2000, Gordon 1998 and Sandiford et al, 1992), as most collected data is not used in the decision process (Smith, Hansen and Karim 1989). Feldman and March (1981) have stated that even though organizations, managers or decision makers have adequate information at the time of making a decision, they continue to seek more information merely as a symbol of rational decision-making and thus competence, rather than for its use in the decision-making process. Newbrander (1994) also goes ahead to add that often it is not solely an issue of lack of data or poor data (Avgerou 1993), but rather the failure to make use of the information that is available for planning and management decisions. This could be a consequence of regarding information as an end in itself rather than as a means to better decisions (WHO 1993, Opit 1987, Sauerborn 2000 and dekadt 1989). Chambers (1994) describes the whole process from data collection to information use in a daunting manner when he says that "much of the material remains unprocessed, or if processed unanalyzed, or if analysed not written up, or if written up not read, or if read not used or acted upon. Only a miniscule proportion, if any, of the findings affect policy and they are usually a few simple totals"

For improvements in information to result in improved health, strategies must be adopted which will ensure that information routinely informs decisions and is seen as a means to an end in improving health and not an end in itself (WHO 1994, Sandiford 1992, deKadt 1989, Opit 1987). Information will only be able to contribute to improvements in health by influencing decisions, which affect the funding, efficiency, effectiveness and equity of a health system with the underlying assumption that uninformed decisions are less likely to impact health (Sandiford 1992).

2.2. What influences information use in decision-making

2.2.1 Health information systems

Irrespective of the level of inappropriate use of information, be it nonuse, under use, misuse, premature or even rarely if at all overuse, to be able to influence decisions, information should be reliable, relevant to the decisions to be made, available and accessible to the decision maker in a timely manner (Sauerborn 2000).

A health information system structure should permit the generation of information allowing rational decision-making at each level of the health services from the center to the periphery in order to serve growing populations with scarce and declining resources (Oranga and Nordberg 1993 and Lippeveld, Sauerborn and Sapairie 1997).

The problem with current information systems is their approach; current information systems are data-led, generating data with the notion that all data is inherently useful and therefore provision of a wide range of health information to planners and managers is a useful and necessary activity; yet, according to WHO (1994) and Sandiford et al (1992), information systems should be action-led so as to focus on health information that will support management decisions that are necessary to improve services and programmes directly. According to the action-led approach, poor quality data is viewed as a consequence, not a cause of underutilization. The other problem leading to poor quality of information generated by current information systems is treating information as useful in and by itself, in disregard of the process for the collection, analysis and feedback that determine its effectiveness in planning and implementation (WHO 1993, and WHO

1994). There is thus a reluctance to use data and this frequently derives from a lack of confidence in its quality and from how it should be processed.

2.2.2 Characteristics of the data

Poor data quality affects organizations by increasing operational costs, and impinging on decision-making; data quality problems are caused by inaccuracies, inconsistencies, untimeliness, and incompleteness of data (Redman 1998, Sauerborn and Lippeveld, 2000). The poor quality, incompleteness and lack of timeliness of the data being generated by record based HIS are a common complaint for lack of its use (Smith, Hansen and Karim 1989)

Much of the information recorded by health workers is not relevant to the tasks they perform, yet a large proportion of their time is spent on completing forms (Lippeveld, Sauerborn and Sapirie 1997 and Garner et al 1992, Hull 1994), which makes the accuracy of the data collected doubtful and thus affecting its use in decision-making. A WHO expert committee (1994) has pointed out that many of the data recorded and reported by health service staff are not needed and data that are needed are frequently not collected. However, Opit (1987) mentions this as a result of top-down systems, which alienate from the information systems, those who provide care and automatically initiate data collection. He also adds that top-down systems request data that are of little value for health care action at the local level.

Another point that has been mentioned to contribute to underuse of information by managers is the aggregation of data (Opit 1987, deKadt 1989). According to Gordon et al (1998), heavily aggregated reports are made available to managers as a system byproduct,

but this approach does not take the managers' real needs into account, although it may provide useful data "serendipitously".

Hibbard et al (2002) and Redman (1998) further suggest that research indicates that the way in which information is presented affects the way in which it is interpreted and weighted in decisions, mentioning that performance reports are not utilized because the information is presented in a manner that is difficult to use. They suggest that generation of these reports should be designed to support decision-making. WHO (1994) also reaffirms that health information would be more widely used if it were presented more clearly and comprehensively.

Lack of training in how to use the available information, or not receiving feedback on information they provide to other levels of the health system, has also featured as a reason for lack of use of information (Newbrander 1994, WHO 1994). DeKadt (1989) states that current HIS do not examine the training, which would enable those producing or collating the information to incorporate it into their work.

Another important influence on information use is the role of experience. According to a study done on marketing managers (Rao and Perkins 1990), experience affects the prior step in which information is acquired, and determines the amount of information sought.

DeKadt (1989) wraps it up by saying that some of the current inadequacies with the health information systems include; overload imposed on health workers by the demands of the over sophisticated information sought, overcentralisation of information systems, the failure to analyse the available information adequately or use it for planning or feedback, the aggregation of data at higher levels which masks inequalities on which action should be taken, and the failure to build bridges to other sectors.

2.2.3 Management use of information

It is often said that managers seldom utilise information at their disposal for management decisions and one of the major problems identified for the wide spread lack of reliable data was the general lack of appreciation of the utility of data by management for better management decisions (Wilson 1989). In their article, Feldman and March (1981) cited 3 examples in which managers and organisations sought information either before making a decision, during the decision-making process and even after the decision had been made, and even then did not utilise the information obtained.

In an experimental study done toward the customization of IS, Yaverbaum and Sherr (1986) found that the information-gathering process did not appear to be linked to the characteristics of the information user.

2.3. How can information use be enhanced

In order to enhance information use in decision-making, health information systems must pay close attention right from the stage of data collection to its use in decision-making. Since information tends to be used significantly more when decision makers are convinced of its reliability and validity (Sauerborn 2000), these have to be improved on. Success or failure of HIS will ultimately depend on those who initiate data collection, who actually record and those who report data; therefore it is important to involve field staff in the development of HIS (WHO 1993, and Opit 1989). A sense of ownership must be fostered among all potential users of information and this can be achieved by involving them in all phases of the HIS from design to inception.

2.4. Information systems and primary health care (PHC)

The WHO has "identified health information systems as crucial for achieving health for all by the year 2000" (Hartevelt 1993), stating that "the weakness of information support is acknowledged by most member states as a persistent obstacle to vigorous and objective management" (WHO 1994). However, deKadt (1989) has criticized WHO, that even though the organization proclaims the importance of intersectoral action for primary health, the organization obviously underestimates the inertia of health information, and the true revolution needed in these systems to provide the data necessary for the monitoring of intersectoral action for health and feedback.

The role of information systems in primary health care is in achieving equity, effectiveness and efficiency by helping to identify who is to be served; what their needs are; to identify problems in implementation to monitor progress; to show whether the programme is having any effect, including impact on health status and show the cost of providing the service (Husein K et al 1993, Hartevelt 1993)).

Opit (1987) maintains that "the creation of information in PHC is both preliminary to and a product of its real functions and wherever primary care is a reality, information is generated and can be used and problems of information systems in the developing world represent failures of PHC as a social reality". In spite of the differences between the comprehensive and selective approaches of PHC, a common ground that has emerged from the debates is that limitations in the availability of information impede on the evolution of PHC programmes founded on the principles of equity, efficacy and

efficiency, as information is seen as one of the keys to ensuring a rational allocation of resources and setting of priorities (Sandiford et al 1992).

2.5. Decentralisation and information systems

Decentralisation of health services can be simply described as the transfer of responsibilities for the provision of health services from the national departments of health to districts or provinces (Composs-Outcalt 1991, and WHO 1994) or the devolution of part of the overall political power to districts or provinces (deKadt 1989). This is done in the attempt to achieve equity by bringing health services management and decision-making nearer to the people for whom the health services are supposed to serve. Information systems are influenced by the outcomes of the processes of decentralisation where provincial and district health teams should have greater freedom of decision-making to take account of different circumstances (deKadt 1989). Otherwise, the more centralized the control of decisions and the more inflexible the allocation of resources, the more likely it is that information systems will generate information not required at particular levels of the health system (Opit 1987). This is because information needs vary with the degree of decentralisation; at national level, the requirements of policy formulation and strategic planning should be met, at the regional level, information should contribute to the technical and logistical support of districts and strategic midterm planning, whereas at the district level, the primary consideration is to satisfy operational needs for measuring the functionality of the district health system (Bodart and Sapirie 1998 and WHO 1994). These different information requirements at different levels therefore spell out the importance of devising a form of decentralized management, with consolidation and use of information at the local level and a comparatively limited flow

to the center of data relevant to management control and planning (Garner, Harpham and Annet 1992). However, a district health information system should be a part of the national health information system, but should be able to act on its own (WHO 1994), but this means better matching of the information generating process to meet requirement needs at all these levels.

2.6. Research of information systems

Interpretive research has been found to be a valuable approach to studying information systems in organisations (Walsham 1995) and according to Galliers (1992)), 'has won academic acceptance both within the IS field and within the larger domain of academic management studies". This is particularly so because interpretive research can help information systems researchers to understand thought and action in social organizational contexts and because of the potential to produce deep insights into information systems (Klein and Myers 1999). In a case study done by Gladwin, Dixon, and Wilson (2000), a number of case studies are highlighted as having been done to research information systems. This may seem as if the case study research method is a commonly utilised method of researching information systems although the authors mention, "literature lacks in-depth case studies".

3. METHODOLOGY

3.1. Study design.

This was a qualitative case study. The qualitative method allowed the researcher an opportunity to explore in depth the phenomenon under study i.e. the extent of use of information. The case study design was appropriate because it focuses on a particular phenomenon and is therefore good for such a practical problem as information use for decision-making, which is an everyday practice. It enabled the researcher to discover insights and interpretations pertaining to information use for decision-making, and to uncover the interaction of significant factors that influence use of information for decision-making, rather than seeking to quantify data or test hypotheses as in a quantitative study. In addition, the nature of the study sought to address such questions as "why" and "how" information is used in decision-making, discovering those factors that influence its use or lack thereof, and also to determine the attitudes and perceptions of decision makers regarding use of information. This research design was advantageous because it permitted the researcher to explore these in-depth insights and complex interactions pertaining to information use which quantitative methodology would not have allowed. The case study method was chosen over other interpretivist methods because it did not require long periods of time in the field, as ethnographies do and the aim was not to bring about change in the phenomena under study as action research would aim to do. Therefore a case study was most suitable because of the ability to obtain required information within the time frame, and yet study information use by managers in depth without the need to bring about changes as would be required by action research or

spending a long time in the field for participant observation as ethnography method would require.

3.2. Study area

Kampala City Council (KCC) health department was chosen because the top management was interested in the findings. It was also chosen for logistic reasons and convenience.

3.3. Study Population

1). This comprised of the five Division Medical Officers (DMOs) from the KCC health department. These are responsible for the strategic and operational decision-making in their divisions. However, one of the DMOs had been transferred to work on another project in KCC and was no longer a DMO at the time of the interviews. Nonetheless, he was interviewed as he had only been on his new post for less than 4 months, and he was still in a managerial position, which required information use.

2). The members of the public health management committee of one of the divisions, formed the population for the focus group discussion. There are 8 members in each division public health management committee.

3.4. Sampling

There are 5 divisions and all 5 DMOs were interviewed i.e. there was no sampling of the MOs, as the whole population was interviewed.

Selection of one out of the five public health management committees for the FGD was a mix of purposive and convenience sampling. One committee was purposively chosen, because of the availability of the committee members and their willingness to participate.

They also felt that they would benefit from the recommendations that would arise from the study in order to improve running of their division, but mainly it was because of the former reason.

3.5. Data Collection

3.5.1. Individual in-depth interviews

In-depth interviews were carried out because they permitted the researcher to explore in depth the attitudes, and behaviors of information use by management and uncover those factors that promote use or non-use of information. The in-depth interviews permitted the researcher to probe and explore these areas to obtain desired information in a manner that other data collection methods may not have permitted. A semi-structured interview guide was used as there were definite areas which the researcher wished to cover such as exploring issues like what information these managers have, need and use for making decisions, the factors that influence them to use information and those that hinder its use for decision making. The interview also explored the gaps that exist between information required by the managers and information that is available for decision-making. The researcher also explored further to find out how much and which of the available information is used and reasons why some information is not used. This included: looking at information on e.g. immunization, reproductive health information, information on communicable diseases etc. Other issues that were explored include completeness, accuracy and timeliness of information for use in decision-making.

Logistics for the interviews

Prior appointments were arranged with the managers about the most suitable days and time when interviews could be carried out. Often, managers would not turn up on the appointed days and it was not usually possible to interview managers for more than an hour. Therefore, some managers were interviewed over two sessions, each lasting between 30-45 minutes. The interviews were carried out in an environment that was quiet, comfortable and reassuring setting.

At the outset, researcher explained the presence of a tape recorder, assuring the MOs that it was for research purposes only, to obtain consent on its use in data collection; none objected to that. The interviewer attempted to make sure that questions were non directive and supportive. The DMOs' (participants') accounts or actions were in the course of the interview, explored in depth to ensure that the researchers' interpretation was as accurate as possible. The researcher would summarize or rephrase participants' statements throughout the interview to make sure that they had been understood as the participants intended. This implied checking and rechecking of data to make sure that participants' meanings were understood. In case inconsistencies emerged from the managers' accounts, these were explored to see how they made sense to managers. In framing the questions, the researcher made every effort to set aside prior preconceptions and prior assumptions so that the researcher's, own understanding could be as open minded as possible. Interviews lasted between 1hr-1hr 15 minutes.

3.5.2. Focus group discussion (FGD)

A FGD was carried out for triangulation with the in-depth interviews to enrich the study findings. This was because the DMOs and the public health management committees, of which the DMO's are part, function as one entity in the decision-making process.

Therefore they were brought together in the FGD to discuss their reactions and views on use of information in their decision-making process, in order to reveal the ways in which their interactions shape their understanding and use of information in for decision-making. The DMO failed to turn up at the last minute for this discussion.

One FGD was carried out in one chosen division and this depended on the availability of participants. The focus group would ideally have consisted of all 8 members of the public health committee, but at least four out of eight who turned up were deemed adequate to represent the committee. It was, in the course of the research, discovered that the public health committee members were a politically elected group and did not necessarily have background training in health. Therefore a different set of questions was used to guide the discussion instead of the interview guide as was initially planned [see appendix A]. Only technical persons e.g. the DMO represents the views in his department to the committee, who then decide whether funds may or not be allocated to the health activities budget for.

Similar logistics as for the in-depth interviews were arranged for the FGD. The discussion was carried out in a noise free environment to avoid interference and ensure privacy. The researcher moderated the discussion and was assisted by an experienced note taker. Participants were arranged in a circle and introduced themselves at the beginning to familiarize themselves with the researcher, so that all could be encouraged to participate and express their views. The moderator sat directly opposite the note taker and the other participants sat on either side in a circle.

Unlike the in-depth interviews, there was no use of a tape recorder for the FGD. The focus group discussion lasted an hour.

3.6. Data Analysis

Analysis and data collection were carried out concomitantly. This enabled exploration of developing insights in subsequent interviews. The researcher transcribed all in-depth interviews, and then carried out numerous readings of transcriptions to identify common patterns (themes) that emerged from the data. Content analysis of data was then done by identifying units of information e.g. sentence or paragraph, which served as the basis for defining categories (Glaser & Strauss, 1967). Identification of categories was done manually by hand using the high lighter and cut and paste method. In other words, the "highlighter" method of coding was employed to flag specific themes and categories.

The identified units within the categories were re-read to look for relationships between categories. The main themes that emerged were summarized and illustrated with direct quotes from the interview.

3.7. Quality control

3.7.1. Validity

An in-depth description and a rich understanding of issues was done and hoped to enhance the validity of the research. Triangulating multiple sources of data i.e. in-depth interviews and FGD to bear on the same research question was also hoped to enhance validity of the study. Using multiple informants (5 DMOs) and more than one data gathering technique was hoped to greatly strengthen the study. During initial data analysis, attention was given to minority opinions that may not have fitted or that may have contradicted the emerging explanation of the study and the researcher searched for

alternative explanations of the data collected, by actively looking for and discussing those elements in the data that contradicted the emerging explanation. This was also hoped to enhance the validity of the study.

3.7.2. Generalizability

Data collection and analysis were guided by concepts and models as described above so that within the same parameters the cases described may be generalized to other settings. The researcher tried to ensure that research findings on managers' use of information are sufficiently detailed to judge whether or not they can apply to similar settings.

3.7.3. Reliability

All processes were documented as the researcher was going on with the study. As the researcher's understanding of the setting became increasingly refined any changes in the design created (above) were described. The researcher therefore kept thorough notes and that recorded each research design decision and the rationale behind it. The only changes in the design, was the researcher's interview with the data clerk in the KCC to verify some of the responses given by the respondents.

The researcher is a medical doctor currently undertaking a degree for the award of a master's degree in Public Health in Health Information Systems. The researcher is presently unattached to any organization, or body as an employee.

3.8. Ethical Issues

Permission to carry out the study was obtained from the University of the Western Cape research committee and the District Director of Health Services of KCC. Verbal informed consent was obtained from the DMOs. The researcher explained to the DMOS that information obtained was for purposes of the research only. As with the in-depth interviews, consent to carry out the FGD, was also obtained from participants.

4. RESULTS AND DISCUSSION

4.1. Profile of respondents

The respondents are all medical doctors and they each head a division (which is the equivalent of a health sub district).

They are responsible for:

-Making budgets for their divisions and allocating funds, mainly PHC funds to the health units in their division.

-They report to the District Director of Health Services (DDHS) at the district.

The DMO is the overall in charge of all the health units in the division, and has an obligation, among other duties, to do supervisory visits, and ascertain that health units are submitting their monthly HMIS reports, because they must be submitted to the district via, his office.

They are each also allocated specific programmes to manage in addition to their divisional management responsibilities.

Table1. Profile and duties of the DMOs

Dr X	Responsible for the Health Management Information System in Kampala district. Has been in KCC for 3 years. Holds a master's degree in demography.
Dr T	Responsible for tuberculosis control. Has been in KCC for 6 years. Holds a master's degree in public health.
Dr C	Is in charge of primary health care, has been with KCC for nearly 10 years. Holds a master's degree in public health.
Dr P	Was in charge of sanitation as a Division Medical Officer, but has ceased to be. Now a project coordinator for a sanitation

	project in KCC. Holds a master's degree in public health.
Dr Y	In charge of malaria control and Prevention of Mother To Child Transmission Programme. Holds a master's degree in public health.

In Kampala, unlike the rural districts, the DMOs have offices at the district as well as their division, because of the set up of the district. So they do not have to drive miles to access any information from the headquarters. Often they conduct their duties at the district rather than their divisions. Therefore they are able to access information from the centre (i.e. district) if not from their divisions.

The public health committee members were a politically elected group and did not necessarily have background training in health. Because of this only few questions relating to information use were applicable to them since they are politically oriented.

Table 2. Members of the public health management committee present for the FGD

Member X	Health inspector in the KCC. One of the few technical members of the committee
Member L	Fresh graduate from Makerere University
Member M	A law student at Makerere University
Member N	Local council representative for women at local council I

[1] Makerere University is the highest institution of learning in Uganda.

4.2. Overview of results and discussion.

Results are presented and discussed on the themes that emerged from the data collected. The results and discussion sections are presented together for ease of reading and to prevent tedious repetition. They are presented in the following sections:

4.3. Availability of information for use in decision-making
4.3.1. Health Management Information Systems (HMIS)
4.3.2. Other sources of information.
4.3.3. Information required
4.3.3.1. Community and demographic information
4.3.3.2. Information from private sector

4.4. Value placed on information by managers.

4.5. Mismatch
4.5.1. Between information requested by national level and information required for decision-making at the local level
4.5.2. Between information available to and information required by local managers

4.6. Characteristics of data collected for use in decision-making
4.6.1. Accuracy
4.6.2. Timeliness
4.6.3. Completeness
4.6.4. Relevance

4.7. Factors that influence managers' utilisation of information
4.7.1. Information or raw data?
4.7.2. Ownership of data
4.7.3. Availability of resources
4.7.4. Political influence
4.7.5. National guidelines

4.8. Perceptions and attitudes of managers on information and decision-making
4.9. Summary

4.3. Availability of information

4.3.1. HMIS

The HMIS tool was designed to tap information from health facilities and is the only standardised data collection tool for the entire country, i.e. the minimum data set (MDS)

[see page 3-4]. One of the objectives for its design was to provide the bulk of data and information required for monitoring indicators on which decisions and actions would be based (MOH 1996 &1997). Secondly, it was designed so that information collected is relevant to the policies and goals of government and health professionals at the level of collection, and that information collected is functional and used immediately for management decisions (MOH 1996). The HMIS tool, being facility based, collects information on diseases, drugs stocks, equipment, and personnel. In this study, the information which managers claimed was available and could be verified included, information on the returns for activities like immunization, the number of health units in their divisions (both private and public), outpatient department statistics e.g. number of patients seen, and stock reports for drugs. Other information mentioned by some managers but which could not be verified by reports, tables, graphs, or database print outs was, information on "*causes of the problems that are seen in the health units*", figures of populations, disease patterns, and financial information.

From the responses of the managers, it would seem likely that the objectives of the HMIS in providing health facility based data are being met. However, whether the information generated is put to use or not, is another issue.

4.3.2 Other sources of information

Besides information generated from the HMIS however, the DMOs unanimously mentioned that most of City Council's work is "*public health*" [meaning preventive and promotive] oriented, with little focus on the "*curative*" [clinical] aspect. The health inspectorate of the KCC and "*public outcry*" (which the managers implied is the level of the public's satisfaction or lack thereof) generate this category of information, which is

also utilised in decision-making. According to the interviewees even though the health inspector has a certain *"traditional way"* of reporting this information, there is no formal or standardised way of reporting this extra and yet required information.

> *Dr X: Other than HMIS...there is no formal way but there is some sort of a traditional way of reporting. You see when a health inspector goes inspecting a given premise, there is a way he has to report, but there is no formal way...*

Another manager, Dr P termed this as "soft" information, which comes from people, i.e. the public and is never captured by the HMIS, and called it qualitative information. This informal or soft information appeared to be valued more by the managers.

> *Generally, managers utilize more soft information. Soft information like people's satisfaction i.e. the public that is served and that is what we use mostly. 'Soft' information like they tell you there is a* [dead] *dog then you have to run there. It's public outcry. It's mainly qualitative information...for us we have public responses 'Olwalero ebisaniko bituta'* [today garbage is killing us].

The use of this observational or soft information was further confirmed in the FGD when one member in the group, on being asked how they arrive at the decisions they make as a committee, said:

> *We go to the communities and get to know the problem e.g. stray dogs. It is through observation and participation. One individual identifies a problem and brings it to the committee to discuss.*

Because this type of information lacks a standard tool and is reliant on personal observation, it is highly likely to be influenced by political interests, biased and unreliable. Therefore decisions that are made based on this type of information are likely to be irrational and in conflict with the pursuit of equity, one of the goals of PHC which KCC is reportedly striving to achieve. Osiobe (1989) concurs when he notes that when there is absence of concrete information on which to base decisions, health facilities

distribution and health programs will be based on political power and elite interests, rather than need. In order to allocate resources according to need, information used for decision-making must be reliable (Sandiford, Annette & Cibulskis, 1992) and free of such influences. This is especially more so for institutions like KCC, which has an obligation to provide health care to more than 2/3 of Kampala's population, and yet is more or less a political structure, with political committees, e.g. the public health committee [see page 23] which must first endorse the health budget before any spending on health activities can occur. Manager X stated that:

> *We are working in a political system...politics will always come in. So we are having a division...where there are lots of political interests...In a situation where you do not have complete statistical evidence* [meaning information]*...you may take services to where they may not be needed most but...this is only an exception because after all our area is full of needy health services. But you may not exactly gauge which area needs it more than the other, because we have a number of influences, and lack of information. So...decisions sometimes may not be accurately rational but I think that...either way the population still benefits.*

Rao and Perkins (1990) in their study on marketing managers found out that managers used 'soft' information more if they had a lot of experience and for unprogrammed decisions.

4.4. Information needed by the DMOs

4.4.1. Community and demographic information

The DMOs all stated that all their information requirements were not met by the current HMIS. Vital information required for decision-making but not available was: community information, target and catchment population, demography information, and information from the private sector. In other words, they require population-based information. All

these categories of information are required to provide a complete "package". Therefore, the majority of information required for decision-making according to the managers is not available. As Dr Y put it:

> *We need information on population catchment, target populations, prevalence of diseases e.g. prevalence of malaria, but there are no actual numbers, and we just assume those numbers. We need information on garbage production* [collection]. *We do not know how much are our targets we just estimate. 90% of the information on which I act is from the community by the community, yet this is not catered for*

They reported that they need more information on preventive health related problems whose interventions were field based and had nothing to do with health units, an area not covered by the HMIS. Of particular interest was the catchment population, which is necessary for calculation of indicators and yet cannot be obtained from health unit data. One manager, Dr C summed it up by saying:

> *They* [information needs] *are not met because...there are a lot of decisions to make concerning...health interventions in the field... that have nothing to do with health units. Information that is entirely health unit based...does not tell us our catchments area, at least in Kampala. There is no evidence to show that the utilization of facilities in the health units is based on what the information believes is the catchment area of these units. So we are always telling the ministry that you have no information whatsoever on these catchment areas among health units in urban areas.*

Therefore the HMIS provides only a small proportion of information required for use in decision-making. That could imply that managers might fail to utilise the small fraction of available information, because its very smallness might negate use thereof, since it does not provide sufficient information to adequately inform a particular decision, as Dr P stated:

> *It is not exactly useful in decision-making, because the health units that KCC owns are few and small, and yet HMIS incorporates health unit based* [information only].

This is the kind of scenario that Opit (1989) raises in what he termed Finagle's law: that "the information you have is not the information you need and the information that you need is not the information that you can get".

The managers mentioned that the information that is lacking and yet necessary for their decisions is far more than that available, considering the urban setting in which they operate. This raises a point that should not be ignored. It is therefore likely that when the information that managers have at their exposure is much less than that required, the motivation to utilise this available information is lost. This is in line with the findings of the study done on marketing managers by Deshpande and Zaltman (1982), that managers tended to use information more if it was, among other things, "deemed technically adequate, or confirmed prior expectations". So what do they resort to? They continue to make decisions, utilising other means and sources, e.g. experience, anecdotal evidence or as one manager put it, *"use of soft"* information that has no standard ways of collection. This is also important because, taking into consideration that the HMIS is a standard tool for data collection for the entire country, it does not take into consideration unique settings like the urban ones, as one of the managers pointed out. So data is continually collected, not because it meets the needs of the managers, but because it is a requirement by the national ministry of health. This could and does lead to such scenarios where data is seen as potentially useful, but does not inform decisions because what is lacking is much more than what is available. However, does this claimed inadequacy of the information generated by the HMIS imply a failure to achieve the objectives of its design in the first place? Does this imply that the HMIS is totally irrelevant for urban settings, or has KCC failed to come up with other standardized methods of collecting this extra

information? Osiobe (1989) termed this as the "oral tradition", which has impeded the recognition of the pivotal role of information in most third world countries, with the result that many third world countries having poorly developed information systems. What is very important to note is that a national MDS like the HMIS cannot incorporate all the specific information requirements unique to districts. Therefore districts need to come up with methods of collecting extra information to meet all their information needs, but with the assistance of national departments (Opit 1989, WHO 1993 and WHO 1994), and with the district health information system being part of the national health information system (WHO 1994). This is a fact that seems to have eluded KCC management and implies a lack of understanding of what a MDS is, or the purpose and aims of a MDS. The HMIS tool is facility based and facility based recording of data on patients and other clients provides a general picture of the local health situation (Oranga & Nordberg 1993), and KCC owns facilities from which information must be collected. Because the HMIS is a national MDS for the entire country, the information it generates is only a part of all the information that is required at district level. Nevertheless, because KCC management have fallen short in taking the initiative to develop other standard ways of collecting extra information, they feel that it is the failure of the HMIS to provide information out of its realm, which however was not the objective of its design in the first place.

Nevertheless, there are reasons why this deficit of information is rendered vital e.g. information e.g. on the catchment area is important to provide denominator figures for the calculation of certain health indices (WHO 1998) which are important for monitoring of any health programmes to assess the impact on the health status of populations. This is

a classic example of the point raised by Smith, Hansen & Karim (1989) in their report, that many district health managers lack information on the size of their target and catchment populations they are attempting to serve, which is important for them, to think in terms of e.g. coverage. One of the managers, Dr C mentioned:

> *The use of the catchment population is to help you calculate indicators. The information we are collecting is perhaps for a wider population area than what people tell you is your catchment area. The factor of catchment population is actually false because, what is the catchment population*?

In addition, Dr Y further states that information is absolutely necessary because more than half of the KCC health budget is spent on "public health" related activities in the community:

> *But over 50% of our reporting is pure public health, sanitation which is not captured in HMIS, yet 80% of the budget is spent on the public health aspect. This one is lacking a data collection tool. If there is a tool, there is no standard format of reporting the information.*

Garner, Harpham & Annet (1992) however draw out the issue of whether or not to include indicators to collect data on catchment population in a routine HIS [see page 42]. In this report also, alternative ways of collecting this necessary information to support district management based on PHC are suggested.

4.4.2. Information from the private sector.

The other category of information that managers required but that was not available was information from private practitioners who are providing health services to the majority of Kampala's population, although this obligation lies with KCC health department. One manager stated:

...We don't have adequate information from the private practitioners...we could be covering about 10-20% and that leaves more than 80% of the information from the private practitioners unavailable for us to use for planning purposes. Up to 80% of clinical care in this city...is provided by private practitioners.

Only 20% of the private clinics are supported by the KCC in terms of immunisation, drugs or direct funding, and these are NGO clinics. It is from this fraction of private clinics that KCC claims to obtain information from. This highlights that with some great effort, it is possible to obtain information from private clinics for planning if collaboration exists between government and the private sector. However, this must be great effort, particularly from government sectors, if private clinic owners are willing to have their health workers spend time filling in forms for governement. There must be willingness from both sectors, first by government to bring private practitioners on board and for the private sector to embrace this, since the common goal is to improve the health status of the population.

We are mainly getting information [from] *a few of the private health units and some of these ones we are supporting them...with drugs, funds for immunisation coverage, and as a prerequisite, they also submit returns of how many they have immunized, in the communities and these are mainly NGO hospitals, NGO clinics but the actual private individual owned clinics there is none that gets support. But some submit returns still to the government.*

Nevertheless, is information from the purely private clinics really useful for KCC if they do not supply services to this fraction of the population? This information would be welcome but it is not essential.

4.5. Value placed on information

Despite the need for more information however, all the managers acknowledged, to varying degrees, that the information generated by the HMIS, is nonetheless useful to them in one way or another. The information most regarded as useful was information on drug stocks; immunisation, OPD data on patient attendance, information on financial management and information on antenatal and family planning. The other categories of information were not specifically mentioned. One manager Dr X stated,

> *I think all of it* [information] *is useful but at different times and for different reasons, how many OPD cases have presented to Naguru* [health centre] *that is very useful to a certain extent. The stock-outs they have in Naguru that is also useful in as far as computing drug requirements.*

Other managers also added:

> *Dr T: All the information that we get that is available is useful, e.g. information on patient turn up and drug management.*
> *Dr P: HMIS is also useful at health unit level e.g. for maintaining drug stocks, scheduling staff.*

Even though one of the managers, Dr T, also pointed out that he found the information generated useful, he could not point out what particular categories he found useful. This uncertainty raises questions about his routine use of the information; whether he merely appreciates the potential usefulness of the information but has little intention of using it, or whether he does or would like to use the information.

> *All information is useful; as far as I know all information is useful. Whether there are fewer cases or what, then it will help you to know that your efforts are being answered. So I can't say which particular information is useful, I would say all information is useful. All the information I find useful though some information cannot be collected in the best way.*

This manager demonstrates that he theoretically knows that information is intrinsically useful and should inform decisions, but due to his own lack of use of the information at his disposal, he is unable to demonstrate with even one example, what information he

finds useful for his management decisions, yet he requests more information stating that what he has is inadequate to make decisions. This is a typical example of the concept demonstrated by Feldman and March (1981) that managers merely seek information as a symbol and signal of rational decision-making, rather than their use of it in the decision-making process, yet they still request for more.

Furthermore, it was likely that all the managers did not routinely utilise information generated by HMIS. This was because the managers failed to come up with examples to show how they routinely utilised information for their decision-making activities. For example, they relied on the seasonal variations to predict the disease conditions, and all the information they would have been expected to know and have, was said to be with the DMO responsible for the HMIS in KCC. One manager could not recall when he had last received reports from his health units and when asked to say what figures or what conditions were commonly reported from the health units within the last month, he reported that his colleague responsible for the HMIS for the entire district would be more capable of providing them; in other words, he did not know.

> *Ok reports from the health units, when I last got them? Ok,* [pause] *these are monthly reports and usually actually what is currently appearing is what we experience at this period of the year...so the expected number of cases we are seeing right now, are not different from the ones we have been seeing. What we are getting now is what we would expect at this time. I wouldn't probably give you* [figures] *but we would expect more of malaria cases, RTIs* [respiratory tract infections], *diarrhoeal diseases; we would expect them to be on an increase since this is a rainy season, as compared to the dry season, which has just passed. I can't give you that figure right now. I think my colleague would be in position to pass on those figures.*

This statement further confirms that even though the managers claim that the information generated is very useful to them, it may not be used as much as reported. One of the

managers, Dr C had stated that it [health information] *"forms the basis for discussion in our DHT meetings"*, but from the statement above, it is highly likely that information is used for display only, in the sense that a manager would be regarded as incompetent if he did not know certain basic things in his division. Feldman and March (1981) have also raised this issue; that managers "continue to seek more information merely as a symbol of rational decision-making and thus competence, rather than for its use in the decision-making process".

The above example also highlights the pitfalls of information systems where data is centrally processed with limited effort to encourage analysis and use for decision-making at the periphery (Smith, Hansen & Karim 1989, WHO 1994, Sauerborn 2000). With KCC, data is collected and taken to the district where the DMO responsible for the HMIS bears the responsibility of passing on this information to the other DMOs as one manager Dr T put it:

> *We have someone in charge of HMIS...then he gives us feedback though there is a plan to see that this information even before it comes to the centre we can analyse it at the division level and use it there so that the information can be analysed where it is got other than being sent back*

This further confirms that KCC management have a theoretical awareness of the value of information but they are failing to translate this theory into action. This also nudges one to wonder about KCC prioritisation of information as one member of the FGD noted: *Information is not taken as a priority*, a similar observation made by Hull (1994) and Osiobe (1989), that information systems are often a low priority in developing countries.

One disadvantage with this kind of system is therefore that, since information is not utilised at the periphery, data collectors will regard data collection as required only for

the centre, which will lead to collection of inaccurate data that cannot support management decision-making (Opit 1989, WHO 1993 & Hull 1994). And this is the case in KCC, as one manager put it,

The health workers feel it is a routine and just collect it to pass it to the ministry.

Another manager, Dr P, explained that even though he found the information useful, only 50% of it was useful, and the rest not so because of its inaccuracy and incompleteness and that KCC owns too few units to generate useful information for decision-making for the whole district.

> *I would say that 50% of the information collected by the HMIS is not useful because of incompleteness and inaccuracy. It is just a guide for one to make impressions. The regular HMIS is unit-based it does not provide for urban health issues. It is not exactly useful in decision-making, because the health units that KCC owns are few and small, and yet HMIS incorporates health unit based.*

Even though this manager demonstrates the value and importance of having accurate information to use for decision-making, the concerns that are elicited from the above statement should not be underestimated. It provokes one to wonder therefore about the commitment of the KCC management in ensuring collection of accurate and complete data for decision-making since they have few health units, and should therefore easily be able to supervise the collection of accurate information. In spite of the few health units, data are nonetheless inaccurate, and incomplete.

In one way or another, all the managers concurred that information assisted them in making plans to run their divisions in terms of making projections for drug supplies, MCH services and allocating funds to various programmes. Two of the managers stated that the information generated was used more for strategic plans for the KCC unless some drastic changes e.g. epidemics occurred:

Dr P: The HMIS is not very useful for operational decisions in an urban setting. For strategic decisions, it may be more useful because these ones are bigger and so you can follow the trends; for this, it is more useful. This information becomes more useful in monitoring epidemics. It is also useful for active search for disease patterns. It is more for strategic decisions unless there are some drastic changes in what you would have expected, then probably it might influence operational decisions.

It is noteworthy to point out that many strategic decisions will rely on population data, which the managers had earlier pointed out, was not available, because it is not captured by the HMIS tool. Yet they are claiming that the information they have is used for strategic rather than operational decisions. This means that there exists confusion about the use or role of information in planning by these managers, and also confusion about what information should be used for what decisions. The managers had also mentioned that they found OPD data on patient visits useful, but fail to illustrate the manner in which such information is useful, e.g. calculating work load, patient waiting times, and scheduling of staff. These are simple but important operational decisions that are important in delivery of efficient and effective health services; because information collected at this level, should ideally be to satisfy operational needs (Bodart and Sapirie 1998 and WHO 1994). The HMIS is capable of providing information for some of these operational needs, which is noteworthy that these uses were some of the objectives of the HMIS tool; to collect data that would be useful at points of data collection (local level). This further confirms that using information to make decisions remains a concept and it usually comes as an after thought to most managers.

One manager pointed out that information was used for operational decisions rather than strategic ones, but for a different reason all together:

Dr C; It [information] *tends to be used more at the operational than strategic decisions. Because at strategic level you tend to...think that the information is*

inadequate; there is a lot that is decided by policy at national level, at least for strategic decisions.

Even though using whatever available information for decision-making is better than not using any information at all, the state of affairs still raises concerns; 50% of the information generated by HMIS is not utilised because of its inaccuracy and incompleteness [see quote above], and much less than required information is used to make projections for the entire district or division as one of the managers, Dr X stated:

If it's only ¼ of the information that is coming in, I use this ¼ to plan my activities but project for the entire division. I'm using this ¼ to plan for the remaining ¾ so at the end of the day I have a plan for the whole division. That sort of planning is not good but it's better than not using information at all. You see these are the circumstances we face.

The lessons that are established from the above examples are: managers' appreciation of the intrinsic value and the potential usefulness of information for decision-making is theoretical. Theoretically to them, information is inherently useful but they fall short in their lack of demonstration of its actual value, when they fail to demonstrate their routine use of the generated information to inform their decisions, and rely more on soft information that has no standard means of collection. In addition, the managers are requesting more information. They demonstrate an example of the desire for a data led rather than an action or information-led information system, and a lack of understanding of a minimum data set, which aims at collecting minimum but accurate and thus useful data for decision-making. The small data set that already exists is inaccurate and incomplete, yet there are requests for more information e.g. demography data. The danger of a HIS similar to the one requested by these managers, i.e. that is data-led rather than action-led, is well illustrated in a study that was done by Garner, Harpham & Annet