APPLICATION OF POLICY GUIDELINES FOR RESOURCE ALLOCATION AND PROVISION OF QUALITY MATERNAL CARE IN PUBLIC HEALTH FACILITIES IN KYENJOJO DISTRICT UGANDA

By

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MA.HPM Dissertation

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A dissertation submitted in partial fulfillment of the requirements for the degree of Master of Arts in Health policy and management of Muhimbili University of Health and Allied Sciences

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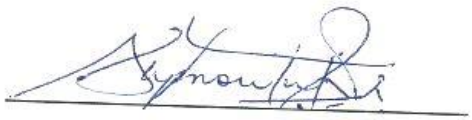
CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by School of Public Health and Social Sciences/ Muhimbili University of Health and Allied Sciences a dissertation entitled: **Application of policy guidelines for resource allocation and provision of quality maternal care in public health facilities in Kyenjojo district, Uganda** as partial fulfillment of the requirements for the degree of Master of Arts in Health Policy and Management of the mentioned university above.



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(Supervisor)

Date: 05/11/2010

DECLARATION AND COPYRIGHT

I, **Jane Muhindo**, declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature.....Date.....4/11/2010.....

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DEDICATION

I dedicate this dissertation to my daughters Sylvia Barigye and Scovia Katusiime Barigye, and my beloved husband Mr. George William Barigye. I also dedicate it to my dad and mum Mr. John Masereka and Ms Loy Kenguto as well as my brothers and sisters.

ABSTRACT

Background: Resource allocation is one of the most controversial issues in the health sector. The government of Uganda introduced policies to facilitate effective resource allocation targeting especially the most vulnerable groups. The fifth Millennium Development Goal strives towards improving maternal health services in particular, and resource allocation to this area is therefore of high importance. This study aimed at assessing the application of policy guidelines for resources allocation and factors affecting provision of quality of care in public health facilities, focusing on maternal health services in Kyenjojo district, Uganda.

Materials and methods: This study was conducted in former Kyenjojo district that recently has been divided into Kyenjojo and Kyegegwa districts in western Uganda. It comprised of an in-depth interview of 7 District Health Management Team members, 6 Health Centre three managers, 12 midwives and a cross- sectional survey of 161 mothers of infants. Interview guides were developed for the managers and midwives, and a semi-structured questionnaire was used for the mothers. The study also incorporated 'financial reports' for the financial year 2008/2009. Qualitative data collected was basically on resource allocation process, use of the formula, policy guidelines, allocation to different health activities, timeliness of release of funds and factors affecting provision of quality maternal care. While quantitative data was about utilization of maternal health services. Interviews were upon obtaining signed consent. This study used a mixed method approach. Qualitative and quantitative data were analysed separately, and triangulated in the interpretation phase, for example constraints faced were reported from both methods. The analysis of qualitative and quantitative data used ATLAS.ti 6.1 and SPSS 13.0 respectively.

Results: The main findings of this study were: the criterion of resource allocation for health used a level of health facility and a ratio of 1:2:4 that means HCIIIs receive funds which are as twice as that of HCII and HCIV is four times as that of HCII. Maternal services were found not to be given a priority by Kyenjojo district health officials due to perceived presence of development partners in the district who were

thought to provide necessary support for that service. The district health financial report for 2008/2009 revealed allowances and transport took 82.0% and less than 1.0% of the annual expenditure was allocated to repair and upkeep of equipment and buildings. Most policy guidelines were not followed as required. The quality of maternal health services was particularly from midwives and found to be substandard due to inadequate human resources and lack of equipment, medicines, accommodation and supplies, delay in funding, poor referral system and lighting system. The interviews with the mothers supported to a large extent dissatisfaction with the maternity services, reporting absence of the midwife as one of the most negative experiences.

Conclusion: This study highlights the need for improving quality maternal care. If the fifth Millennium Development Goal by 2015 is to be achieved, maternal health services in Uganda need to be improved on the health agenda especially when allocating resources.

Recommendations: The district health authority needs to improve and utilize resource allocation guidelines for health, including monitoring quality as a major intermediate objective in all policies. There is also need for research on more equitable and efficiency improving formulae which would facilitate a better provision of quality maternal care.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Ante Natal Care
CAO	Chief Administrative Officer
DHMT	District Health Management Team
DHO	District Health Officer
DHS	District Health System
DHT	District Health Team
EmOC	Emergence Obstetric Care
ECSA	East Central South African
FY	Financial Year
HCII	Health Centre Two
HCIII	Health Centre Three
HCIV	Health Centre Four
HIMS	Health Information Management System
HUMC	Health Unit Management Committee
HIV	Human Immuno-deficiency Virus
HSD	Health Sub-District
HSSP	Health Sector Strategic Plan
IPT	Intermittent Presumptive Treatment
LGFC	Local Government Financial Commission
MA.HPM	Masters of Arts in Health Policy and Management
MDG	Millennium Development Goal
MOH	Ministry of Health
MUHAS	Muhimbili University of Health and Allied Sciences
NCD	Non-Communicable Diseases
NGOs	Non Governmental Organizations
NHP	National Health Policy

PAF	Poverty Action Fund
PHC	Primary Health Care
QUAL	Qualitative
QUAN	Quantitative
SPHSS	School of Public Health and Social Sciences
TBA	Traditional Birth Attendant
UIB	University of Bergen
UNFPA	United Nations Population Funds
UNICEF	United Nations Children's Fund
UNMHCP	Uganda National Minimum Health Care Package
WHO	World Health Organization
XS	Cross-sectional

DEFINITION OF TERMS

Resource allocation is the distribution of resources – usually financial - among competing groups of people or programs [1].

Health resources are defined as all materials, personnel, facilities, funds and anything else that can be used for providing health care and services [2]

Decentralization is the transfer of responsibility for planning, management, and resource-raising and allocation from the central government to (a) field units of central government ministries or agencies; (b) subordinate units or levels of government; (c) semi-autonomous public authorities or corporations; (d) area-wide regional or functional authorities; or (e) NGOs [3].

Maternal health services are health services provided to expectant, delivering and nursing mothers.

Maternal Mortality Ratio is the number of maternal deaths per 100,000 live births, due to complications of or medical conditions aggravated by pregnancy, childbirth, or postnatal period up to six weeks after delivery [4].

Perinatal deaths is defined as pregnancy losses occurring after seven completed months of gestation (stillbirths) and deaths to live births within the first seven days of life (early neonatal deaths) [5].

Quality is the ongoing process of building and sustaining relationships by assessing, anticipating, and fulfilling stated and implied needs [6].

Target groups can be defined in a number of ways by region, age or gender but use of services by income groups is usually the most interest [7].

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background information:

Resource allocation is one of the most controversial issues in the health sector. It lies in the heart of the health equity debate and needs to be confronted if inequities in health are to be seriously addressed [8]. The need for effective systems of resource allocation in the health sector stems not only from the increasing scarcity of resources in many countries, but also from the widening inequities in health care access [9]. Inequities in access to health care remain a common feature in both wealthy and resource –poor countries. In general, the poor and minority populations with the worst health status have limited access to health care, while the rich receive more and better quality services [10].

Therefore, there is considerable agreement among scholars and policy analysts that the current inequities in health cannot be addressed adequately unless health authorities change the way in which they allocate resources across competing needs [11, 12], and become more concerned on the equities and quality of health care among vulnerable groups, especially children and mothers.

Also growing demand of health care among the vulnerable groups, rising costs, constrained resources, and evidence of variations in clinical practice have increased interest in measuring and improving the quality of health care in many countries of the world [13].

Improving maternal health is the fifth Millennium Development Goal (MDG) set by World Health Organization (WHO). The targets of this goal are to: 1) Reduce maternal mortality ratio by 75% between 1990 and 2015, 2) Achieve, by 2015 universal access to reproductive health [14].

Low quality of maternal health services is increasingly becoming a challenge in developing countries including Uganda, where health services provided are almost free of charge in the public sector. For the last four years maternal mortality ratio has been stagnant in Uganda at 435 per 100,000 live births and for the Financial Year (FY) 2004/2005 it was 505/100,000 live births [15].

Maternal mortality claims 514,000 women's lives each year world wide. A big proportion of these lives could be saved if affordable, good-quality obstetric care were accessible to every woman. About fifteen per cent of all pregnancies will result in complications [16]. Most complications occur randomly across all pregnancies, both high- and low-risk. The complications occur in well nourished and well educated pregnant women [17], receiving adequate care for both prenatal and delivery [18]. They cannot be accurately predicted and most often cannot be prevented, but they can be managed and treated [16, 19-23].

Due to this effect, the government of Uganda introduced decentralization policy and National Health Policy (NHP) to facilitate effective resource allocation targeting especially the most vulnerable groups. The decentralization programme was launched in October 1992. Since then, the policy of decentralization has been included in the new Ugandan Constitution. These two legal instruments have dramatically changed the central government framework within which its local governments operate. It is expected that districts, under decentralization, will have more power over decision-making and autonomy. Also, their performance will thus be increasingly important for growth, poverty eradication and long-term rural development prospects [24, 25].

According to the 1995 Constitution and the 1997 Local Governments Act, the new roles of the local authorities (in the context of the health sector) are: Health service delivery, recruitment and management of personnel for district health

services, passing by-laws related to health, and planning, budgeting, additional resource mobilization and allocation for health services [25].

In 1999, the Uganda National Minimum Health Care Package (UNMHCP) was established in the NHP. Maternal health is among the priority areas in this package [26]. The UNMHCP comprises of interventions that address the major causes of the burden of disease and is supposed to be the main reference in determining the allocation of public funds and other essential inputs. According to the policy, the government of Uganda is obliged to allocate a greater proportion of its budget to the package compared to other health activities to match health spending to the priority areas that would reduce burden of disease significantly [26, 27].

The UNMHCP comprises of elements which have been regrouped into four clusters so as to foster increased coordination in planning, budgeting and implementation. These are:

Cluster 1 comprises of the crosscutting areas of health promotion, disease prevention and community health initiatives, environmental health, and school health, as well as gender and health. Cluster 2 represents integrated maternal and child health that emphasizes safe motherhood, newborn care and child survival. Cluster 3 groups together the prevention and control of communicable diseases with accent on HIV and AIDS, Tuberculosis, Malaria and diseases targeted for elimination or eradication. Cluster 4 addresses Non-Communicable Diseases (NCD) with emphasis on healthy lifestyles for prevention of NCD and control of poverty producing conditions such as mental health, deafness and blindness, age and disability [27].

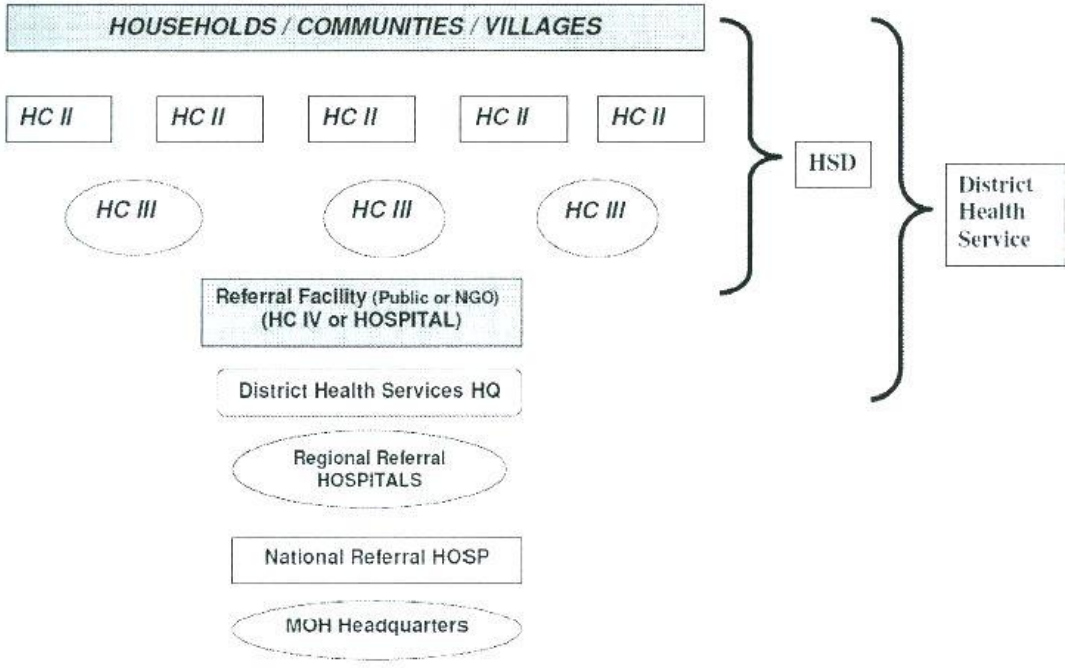
The Ugandan policy objective on maternal health is to ensure safe pregnancy and delivery, improved management of complications of pregnancy and childbirth including spontaneous or induced abortion, and reduce the unacceptably high

rates of maternal and perinatal deaths through timely and effective Emergency Obstetric Care (EmOC) provided at strategic and accessible locations [26, 27]

1.1.1 The Ugandan National Health System

The hierarchical structure of health system in Uganda is as shown in the Figure 1 below:

Figure 1: The National Health System



Source: Health sector strategic plan II 2005/06-2009/2010

HC-Health Centre, **HSD**- Health Sub- District, **HQ**- Head Quarter, **NGO**- Non Governmental Organisation

1.1.2 District Health System (DHS)

The DHS is more or less an independent entity of the National Health System. It consists of various tiers under the direction of the District Health Officer (DHO).

The DHS comprises of a well-defined population living within a clearly delineated administrative and geographic boundary and includes all actors in the recognized spheres of health within the district. It is therefore expected that the activities of the diverse partners in health are reflected in the District Health Sector Strategic Plan, which in turn is an integral part of the rolling District Development Plan [27].The NHP established the Health Sub-District (HSD) as a functional subdivision or service zone of the DHS to improve quality of the essential care closer to the people, allow for identification of local priorities, involve communities in the planning and management of health services and increase the responsiveness to local needs [27]. The central role of the HSD is the delivery of the UNMHCP [27]. In the Health Sector Strategic Plan (HSSP) II high priority was given to making the HSDs fully functional providing services that include life-saving medical, surgical and obstetrical emergency care such as blood transfusion, caesarean section and other medical and surgical emergency interventions [27]; as well as providing basic EmOC. This level is headed by a medical officer.

WHO, the United Nations Population Fund (UNFPA) and the United Nations Children's Fund (UNICEF) identified a package of medical interventions required to treat major direct obstetric complications [28]. The health facility that provides basic EmOC is supposed to have parenteral antibiotics, parenteral oxytocic drugs, parenteral sedatives for eclampsia, manual removal of placenta, manual removal of retained products and assisted vaginal delivery. Comprehensive EmOC at the district hospital level (first referral level) should include the above plus surgery (Cesarean section), anaesthesia, and blood transfusion [28, 29].

1.1.2. Health Centre (HC) III

The HC III offers continuous basic preventive, promotive and curative care and provides support supervision of the community and HCIIs facilities under its jurisdiction. There are provisions for laboratory services for diagnosis, maternity care and first referral cover for the sub-county [27]. This level is run by qualified clinical officer, midwife and other cadres of staff. At this level of health facility, basic EmOC is supposed to be provided.

1.1.4. Health Centre (HC) II

The HC II represents the first level of interface between the formal health sector and the communities. HCIIs provide only ambulatory services, except in strategic locations (poor access to HCIII or HCIV) where as interim strategy maternity services are being provided. An enrolled comprehensive nurse is a key person for the provision of comprehensive services and linkages with the village health team [27].

1.1.5 Current Allocation criteria from central to Districts (PHC recurrent non - wage)

There are several types of transfers of funds to the local government. This study focuses on the PHC recurrent non-wage grant. This is mainly used at the health facility for the daily operations with the objective of delivering UNMHCP.

Funds from central government to the districts are allocated based on: population size, distance from the centre to the districts, human poverty index, special health needs of a district, flat rate for general administration, district coverage with hospitals and the presence of health projects in the district [25, 30].

After determining the allocations for a given district, the guideline states that: "The district health office as agreed in the sector negotiations with local government for FY 2008/2009 should use 9% of the PHC recurrent non-wage, 41.0% for running HSDs and health centres (excluding municipalities) using a transparent allocation formula that takes into account realities of the existing situation and to be approved by the council" [31]. The District Health Management Team (DHMT) is mandated to propose a formula. The remaining fifty percent of the funds is for procurement of medicines and other medical supplies [31].

The HSDs should use a maximum of 16 million Ugandan shillings from their allocation for HSD management activities including facilitating the sub accountants at sub-county to assist health centres maintain proper financial management records. Each HSD should allocate the balance (after deducting the HSD management funds) to the Health centres using a formula proposed by DHMT [31].

In the process of allocating resources for health, governments are supposed to effectively target their limited resources towards meeting the needs of the poor [7]. Literature depicts that financing is a key policy lever in ensuring and improving health services in general, and maternal health services in particular [32]. In most cases, maternal health outcomes of any country are often used as an indicator in the health systems literature to indicate whether the health system in that particular country is well or not [33].

Despite all these policies/ guidelines in place, quality of maternal health services seems to still be a challenge in Uganda. This study therefore aimed at assessing the application of policy guidelines for resource allocation and factors affecting provision of quality maternal care in public health facilities and whether allocated funds are actually spent on activities that have an impact on improving quality of

maternal health service and eventually reduction of the burden of disease at the district level.

1.2 Problem statement:

Poor resource allocation to health services targeting conditions that contribute more to the burden of disease is still observed in Uganda [34]. This is likely to have contributed to low quality of maternal health services that continuously are manifest in Uganda. Due to this effect the government of Uganda has introduced policies which would enable facilitation of service delivery.

However, in spite of the existing policies/guidelines, decisions of the newly created local government authorities do not favor allocation of funds to priority services identified by the central government [32]. Consequently, the quality of maternal services has remained low [34]. A survey conducted to determine availability of Emergency Obstetric Care (EmOC) and to provide data for advocating for improved maternal and new born health in Uganda revealed that 97.2% of health facilities expected to offer basic EmOC services were not able to do so; and most HCIVs were not functional, and not able to provide comprehensive EmOC [34]. It is therefore argued that unless resources are allocated to the development of health infrastructure and improving human resources Uganda is unlikely to achieve the MDG on maternal health [34]. The literature on evaluation of the application of policy guidelines for resource allocation and provision of quality maternal care in public health facilities at district level is scanty and therefore it is not clear whether the resources are actually used according to the guidelines. Secondly, it is not well known if the allocated funds are spent on activities that have an impact on improving quality of maternal health services, and eventually reduction of the burden of disease at the district. Therefore this study intended to assess the application of policy guidelines for resource allocation and factors affecting provision of quality of care in public health facilities, focusing on maternal health services.

1.3 Conceptual frame work

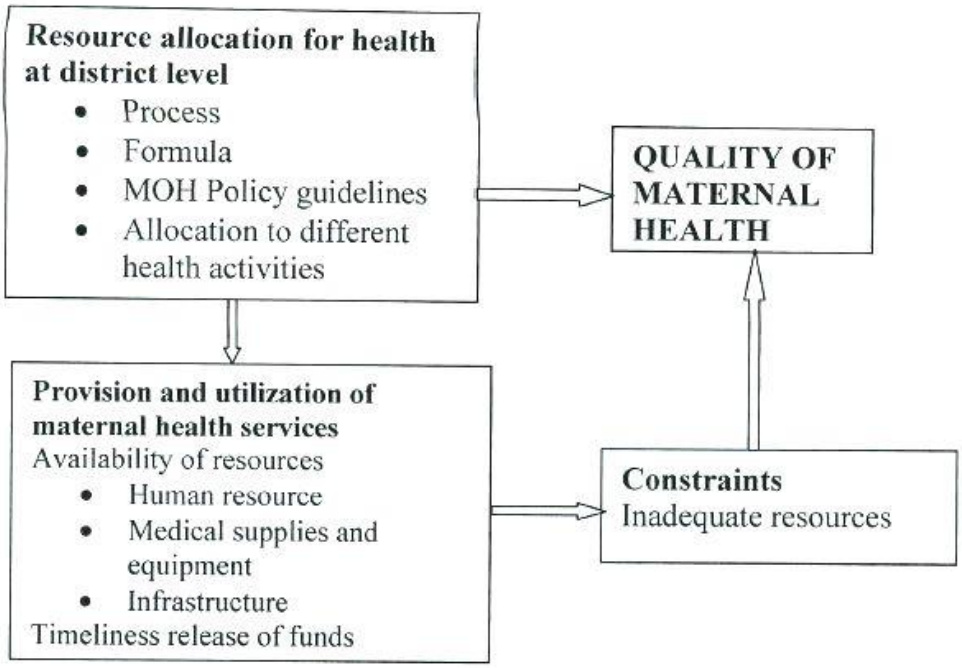


Figure 2: *Conceptual frame work for resource allocation process and factors that contribute to quality of maternal health services*

This study assessed how resource allocation for health at district level; looking at process that includes the use of formula, MOH policy guidelines and allocation to different health activities. At the same time, this study explored factors that affect provision and utilization of maternal health services in public health facilities as well as the constraints encountered by implementers or providers. Also how the mentioned factors affect quality maternal health care. This is summarized in Figure 2 above. This framework created was based on theory described and developed earlier [35, 36].

1.4 Research questions

1.4.1 To be applied in Kyenjojo District-Uganda

1. What guidelines and processes are used for allocating resources to different health activities in the district?
2. What resources are allocated to different health activities and also within the different activities for maternal health?
3. How timely are resources released?
4. What factors affect the provision of quality maternal care?
5. How does resource allocation affect utilization of maternal health services?
6. What constraints are faced by implementers during provision of maternal health services?

1.5 Rationale

The results of this study would shed more knowledge on the usefulness of the guidelines provided by the MOH for allocating resources to maternal health services in Kyenjojo District, western Uganda. They would also be shared with health facility managers and district authorities such as District Health Team (DHT) who are involved in planning and budgeting which would facilitate in developing appropriate mechanism for allocating resources to health services. The study was also expected to stimulate further studies in Kyenjojo District and elsewhere regarding improvement of resource allocation mechanism in the health sector. In order to facilitate accessibility of results to a larger audience a peer-reviewed, open-access publication is planned.

This research study is for the partial fulfillment of the requirement for award of masters' degree in Health policy and management of Muhimbili University of allied and Health Sciences.

1.6 Objectives:

1.6.1 Broad objective

To assess the application of policy guidelines for resource allocation and factors affecting provision of quality of care in public health facilities focusing on maternal health services in Kyenjojo district.

1.6.2 Specific objectives

1. To explore the process of allocating resources to health in Kyenjojo district
2. To assess how resources are allocated to different health activities and within the different activities for maternal health for the FY 2008/2009
3. To find out how timely are resources released
4. To explore factors affecting provision of quality maternal care in Kyenjojo district.
5. To find out how resource allocation affects utilization of maternal health services in Kyenjojo district
6. To explore constraints faced during implementation of maternal health services in Kyenjojo district

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Resource allocation process

At the district level in Uganda, allocation of PHC –non wage fund to the lower level health facilities, two main factors are put into consideration--population size of each HSD and the level of Health facility (HCIII and HCII) where a ratio of 2: 1 is used respectively [27]. Fifty percent is allocated to drugs and the remaining fifty percent is supposed to be utilized as follows: Allowances for outreach activities (40.0%), transport (fuel, maintenance of vehicles) (30.0%), facility and property costs: maintenance of buildings and minor repairs, compound, utilities, stationery and maintenance of equipment, purchase of charcoal, paraffin (30.0%).
Health centres IV are mini-hospitals and amounts to run them are defined every financial year [25]. Fifty percent of the funds is for purchase of drugs, while the other 50.0% is used as follows: Allowances for outreach activities (30.0%), transport (fuel, maintenance of vehicles) (30.0%), facility and property costs (maintenance of buildings and minor repairs, compound, utilities, stationery and maintenance of equipment, purchase of charcoal, paraffin) (40.0%) [25].
An equal share principal as a major allocation factor is supposed to be avoided in the design of an allocation formula. This creates differences in per-capita allocations within the district [25].
Sindall C [37] reports that: "The principle of justice is concerned with questions of fairness and equity. Theories of distributive justice usually distinguish between two types of equity; 'horizontal equity' which implies equal treatment for equal needs; and 'vertical equity' that is unequal treatment for unequal need. Application of distributive justice in health policy draw most heavily on Rawls's theory of 'justice as fairness' [37]. Rawls argues that justice requires an equitable

distribution of what he termed as 'primary goods such as liberty and opportunity, income and wealth, and the 'social bases of self respect' in order to allow each citizen at the very least 'fair equality of opportunity'". Daneil has applied Rawls's argument especially to questions of justice in health and health care arguing that an unequal distribution of health compromises Rawls's fair equality of opportunity requirement [37].

There is a tendency of using the previous budgets when planning and making budgets for the current year in Uganda. Also literature shows that resources tend to be allocated as they always have been in the past rather than according to any concept of need. Each facility (for example, a health centre) receives a certain allocation which is usually increased (or decreased) by, say, 10 per cent each year in line with the overall increase (or decrease) in the health budget [38]. There is certain logic to this in the short term: it makes sense to provide funds for services you have already and use your current infrastructure efficiently [38]. However, with infrastructure and services often poorly distributed this can mean significant inequity in the allocation of resources and in access to services. An incremental approach serves only to perpetuate this inequity. In order to address the prevailing inequities in resource allocation, the MOH and Social Services are supposed to abandon the historical instrumentalist method of budgeting/resource allocation and adopt a more appropriate allocation mechanism that incorporates measures of need for health care [38].

In assessing the adequacy of targeting of government services as well as the equity implications of the utilization of those services studies have been done to show the extent to government health finances target the poor. Many African countries use resource allocation formula that consists of more than one factor. The factors used suit the realities of the prevailing situation [30, 39]

Pearson [7] argues that: "There is little point in starting down the road of allocation formulae if there are no effective mechanisms to regulate financial flows. In many low-income countries actual releases bear little relation to budgets and releases tend to be highly unpredictable, making resource planning almost impossible. Not only was only two-thirds of the 1997/1998 conditional grant for primary health care released in Uganda, and releases were made in three tranches, with the last reaching the districts during the final few days of the financial year". He added on to say: "There is little point in setting out targets and ensuring that resources reach the intended recipients if there is little prospect that the resources will be put to their intended use". Literature depicts that resource allocation is considered to have been influenced by availability of human resources for health, local capacity to utilize funds, donor involvement in the health sector, and commitment to promote equity [9].

2.2 Quality of maternal health services

Campbell et al [13] defined quality of care focusing on the care received by individuals from formal institutional health care system which individuals and careers have chosen to access. They identified two dimensions of quality of care; access and effectiveness. Here they meant: "do users get the care they need, and is the care effective when they get it?" They further identified two key elements of effectiveness as clinical effectiveness and the effectiveness of the inter-personal care. They highlighted that the quality of inter-personal care is a very important element of quality of care. Table 1 shows an illustration of dimensions of quality of care for individual patients.

Table 1: Dimensions of quality of care for individual patients

		Care	
	Health care system (Structure)	*Patient centred care (Process)*	*Consequences (Outcome)*
Quality *Accessibility*	Geographical/ physical access Affordability Availability	Affordability Availability	Health outcome User evaluation
Effectiveness		Effectiveness of clinical care Effectiveness of inter-personal care	Health status User evaluation

Rosenfield et al [40] report that: "It is essential that pregnant women in whom complications develop have access to the medical interventions of emergency obstetrical care. Programs to make such care more widely available involve upgrading rural health centres and referral hospitals and stocking them with the necessary drugs, supplies, and equipment, such as magnesium sulfate for eclampsia, antibiotics for infection, and basic surgical equipment for cesarean sections". Efforts also include training of human resource for health and developing strong referral systems between communities and health care facilities, since delays in care can be life-threatening. A referral system includes means of communication and transport as well as mechanisms for ensuring that referral facilities are able to provide services at all hours [40]. When a functioning health care system is in place, some interventions at the community level, such as the use of misoprostol to strengthen contractions, help expel the placenta, and control bleeding before transfer to a health care facility, could contribute to significant reductions in maternal mortality [40]

UNFPA [16] states a three pronged strategy to reduce maternal mortality which include: 1) Family planning to ensure that every birth is wanted, 2) Skilled care by a health professional with midwifery skills for every pregnant woman during pregnancy and 3) Child birth and emergency Obstetric Care (EmOC) to ensure

timely access to care for women experiencing complications. Paxton et al [41] reports that EmOC must be a critical component of any program to reduce maternal mortality. Improvement of quality at maternity care services is an effective strategy to reduce maternal mortality in all types of setting [4].

2.3 Utilization of maternal health services

The Annual Health Sector Performance Report shows that only 34 percent of births are delivered with the assistance of a trained health professional. Contraceptive Prevalence Rate is 23.6 percent, caesarean section rate per expected pregnancies is 2.4 percent, proportion of pregnant women receiving two doses of IPT is 47percent, teenage pregnancies is 25 percent, total fertility rate is 6.5 percent, unmet need for emergency obstetrical care is 40 percent and proportion of women attending ANC 4 times is 58 percent [14] in comparison with the previous years; (Annex 1).

There is evidence that ANC services are more utilized than deliveries in developing countries such as Uganda [33]. Women are often dissatisfied with the care they receive during child birth [42]. The poor quality of care and general dissatisfaction influences patients' use of health services and compliance with treatment [43-45] Dogba [42] comments that: "Overall, the interpersonal interaction was very unsatisfactory for patients". Some studies identified that quality of interpersonal care and communication is one of key important elements of quality of care [13].

There is also evidence that skilled attendants—people with midwifery skills, such as midwives and doctors and nurses who have been trained to proficiency in the skills to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and identify, manage or refer complications in the

woman and newborn are best placed to ensure the survival and safety of pregnant women and their infants [46]. A survey conducted in Uganda in 2006 also revealed that availability of midwives had the highest protective effect on maternal deaths, reducing the case fatality rate by 80% [34].

For that matter skilled attendants need to be supported by a health system providing legal and policy infrastructure, an effective referral system and the supplies that are necessary for effective care. Also government health expenditure as a percentage of total health expenditure is significantly associated with utilization of skilled birth attendants [47]. Further argument is that while government financing is associated with better access to some essential maternal health services, greater absolute levels of health spending will be required if developing countries are to achieve the Millennium Development Goal on maternal health [46].

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study area

The study was conducted in the former Kyenjojo district. Recently Kyenjojo district was divided into two districts; Kyenjojo and Kyegegwa. The former Kyenjojo district is located in the western part of Uganda (Appendix 10). It is approximately 270 kilometres (170 miles) by road west of Kampala; Uganda's capital and largest city. It is bordered by Kibale district to the north, Mubende district to the east, Kiruhura district to the southeast, Kamwenge district to the south and Kabarole district to the west [48]. The current Kyenjojo district is subdivided into two counties: Each county constitutes a HSD whose headquarters are at HCIV level. Mwenge north has got four HCIIIs and two HCII owned by the government and three HCIIIs and two HCIIs that are Private Not for Profit (PNFP). In Mwenge south, there are four HCIIIs and four HCIIs owned by the government and three HCIIs that are PNFP.

Kyegegwa district formerly known as Kyaka county has got six HCIIIs and six HCIIs owned by the government and two HCIII that are PNFP.

It is estimated that the population of former Kyenjojo District in 2010 is approximately 481,000 with a growth rate estimated at 3.0% [48]. Most people are poor and live on less than 1 US dollar/day.

Agriculture is the main economic activity in the district. The major crops grown include: tea, coffee, cassava, sweet potatoes, potatoes, yams, millet, maize, sorghum, beans, peas, groundnuts, soybeans and bananas.

The study was conducted at Kyenjojo district Headquarter and in three HCIVs and seven HCIIIs that are government owned.

3.2 Study population

The study population included members of the DHMT that encompassed the DHT and HSD/HCIV managers. Further, HCIII managers, midwives at both HCIV and HCIII level and mothers of infants who were bringing their babies for routine immunization at health facilities were included in the study.

The HCIII managers and DHMT members were responsible for the resource allocation process or planning and budgeting for PHC recurrent non-wage grant. That was the main reason for including them in this study.

3.3 Study design

A cross-sectional descriptive study was conducted at the selected health facilities. In addition, qualitative methods were used. This study therefore applied a mixed method approach. Mixed methods were chosen to facilitate for the combined exploratory and descriptive research objectives (Table 2). By combining both qualitative and quantitative data the findings could be triangulated and a greater understanding of the research objectives could be reached [49]. To achieve this, a concurrent triangulation design was used [49]. The qualitative (QUAL) and quantitative (QUAN) data collection was done separately and concurrently. The same pattern was applied during data analysis. During interpretation and presentation of results, QUAL and QUAN findings were triangulated (Figure 3). This latter process is also referred to as 'integration'.

Figure 3: Concurrent Triangulation Design

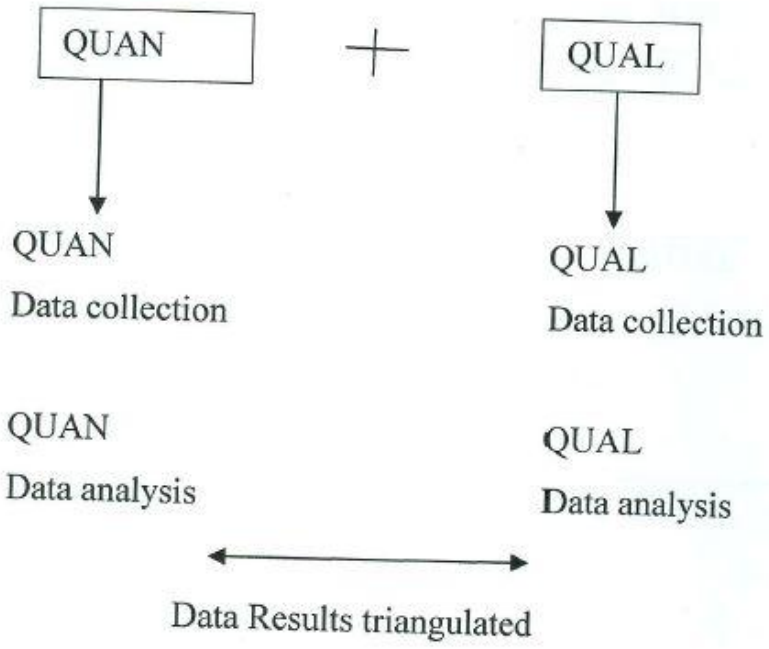


Table 2: Methodology of the resource allocation study: objectives, method, subjects and analysis

Objectives	Method	Respondents	Analysis
1) Exploring the process of allocating resources to health in Kyenjojo district	QUAL	DHMT HCIII managers	Deductive
2) Assessing how resources are allocated to different health activities and within the different activities for maternal health for the financial year 2008/2009	QUAL	DHMT HCIII managers	Deductive
3) Finding out how timely resources are released	QUAL	DHMT HCIII managers Midwives	Deductive
4) Exploring factors affecting provision of quality maternal care in Kyenjojo district.	QUAL	DHMT HCIII managers Midwives	Deductive /Inductive
5) Finding out how resource allocation affects utilization of maternal health services	QUAN +qual[a]	Mothers	Deductive /Inductive
6)To explore constraints faced during implementation of maternal health services in Kyenjojo district	QUAN	DHMT HCIII managers Midwives Mothers	Inductive

[a] The study design with capital letters is the major methodology for the study objective

3.4 Respondents and data

Inclusion criteria

The inclusion criteria were:

- DHT members and HCIVs managers from current Kyenjojo district head quarter and HSDs of the study area
- HCIIIs managers and midwives at HCIIIs and HCIVs
- mothers of infant's: those who came for the infant's first immunization were the primary target as respondents, but also any mother of infants coming for routine immunization at the health facility were allowed if the data collection team had the capacity. Those who had delivered and were still in the ward were also included in the study if they were present. These criteria facilitated for including mothers with recent experiences from the maternal health services and thereby could minimize recall bias.

Exclusion criteria

District health officials not on the DHT, HCIIIs managers, midwives not from the sampled health facilities and mothers who had not come for immunization services or had not delivered and were still in the ward were not included in the study.

The study sample therefore comprised of 4 sub-samples.

a) Sample 1: From the DHMT seven members were interviewed for in-depth interviews.
b) Sample 2: Six selected health managers at HCIII were interviewed for in-depth interviews.
c) Sample 3: Twelve midwives were interviewed for in-depth interviews.
d) Sample 4: 161 mothers of infants were interviewed with a semi-structured quantitative questionnaire.

Data was also collected from district health documents

Sample size calculation for the quantitative study

The proportion of births in a service area is 0.0485 [50].

To get the number of women having given birth in a service area:

A× 0.0485; where A is the total population in the service area.

A=481000 for former Kyenjojo District.

Therefore, 481000×0.0485=23329 was the estimated number of women having given birth.

Assumptions

The proportion of women at babies' first immunization is 88%

Maximum alpha error is 5% and the design effect is 1. Therefore, using sample size calculation for cross sectional (XS) surveys [51]; the estimated sample size was 161 women. The planned sample size was maintained.

3.5 Sampling procedure

a) ***Decision makers***: Purposeful sampling was applied to select DHMT members. All members (seven) who were available at the time of collecting data were included in the study for the interview.
b) ***Health Centre IIIs managers***: Health facilities from each HSD were sampled. A sampling frame was created by enumerating all public HCIIIs in each HSD. Then simple random sampling technique by lottery was made; 2 HCIIIs were selected from each HSD of Kyarusozi and Kyenjojo however, for Kyegegwa HSD, three Public HCIIIs were selected making a total of seven HCIIIs. From each selected health facility a Clinical officer/ in charge was selected purposefully.

c) ***Midwives*:** Midwives of the sampled HCIIIs were also selected purposefully because at this level of health facility there is only one midwife. At each Health Centre IVs, there are at most six midwives. Their names were written down on small pieces of paper then a simple random sampling technique by lottery was used. Only two midwives were selected from each HCIV.

d) ***Mothers:*** Initially the study targeted selected mothers at babies' first immunization. During data collection, this category of mothers could not be captured because of very low turn up of mothers for immunization in some health facilities. That made the researchers to include any mother with an infant who had come for immunization in all facilities. The sampling method depended on the turn up of mothers for immunization on that day of collecting data. For instance at some health facilities mothers could come in very small numbers that made everyone to be included in the study. In other health facilities, mothers could come in big numbers and in that case, the first priority could be given to mothers of babies' first visit for immunization. The capacity of the research team was sixteen mothers per day. There was no health facility that had mothers of the first visit making exact or exceeding target number stipulated for each health facility. Therefore after interviewing all the first visit mothers, a random sampling was made from other mothers of infants who were willing to be interviewed.

3.6 Research instruments

Three instruments were used to collect data.

- Two different in-depth interview guides were used for DHMT, HCIII managers and the midwives. The DHMT and HCIII managers had the same interview guide and the midwives at both levels also had their own interview guide. (Appendix 3, 4)

- A semi-structured quantitative questionnaire with both open and closed ended questions was used to interview mothers. The English version was translated into Runyooro- Rutooro; local language for mothers who did not understand English. (Appendix 6). That generated quantitative data.

Data collected from Health managers was on the themes 'resource allocation process, use of guidelines, allocation of resources to various health activities and constraints faced'. Midwives provided information mainly on factors affecting provision of quality maternal care and the constraints they face. Mothers provided data on the use of maternal health services in government health facilities in addition to their socio-demographic characteristics (Appendix 5).

Pilot testing

A pilot study was conducted in Kabarole district, an adjacent district. This provided an opportunity for refining of the study objectives and instruments. During the pilot study an informed written consent was sought from the respondents before commencing any interview.

3.6.1 Recruitment and training of research assistants

Two research assistants were trained for the study. They were from the health facilities in the district. The selection research assistant was upon the main investigators trust of which one was the brother. The intention of this selection criterion was to minimize the reporting bias. Due to available resources at the time of collecting data, a two-day orientation on the study and training to get familiar with the study and research instruments was conducted.

3.7 Data collection

Data collection was conducted from mid March to mid April 2010. Before initiating data collection, an appointment was made to DHT, HCIV and HCIII managers and midwives a week prior to the in-depth interviews. That was done to get exact time and date to conduct the interviews. A reminder was made a day before going to the field. Once in the field, a written signed informed consent was obtained from every respondent for qualitative data before commencing any interview. Every respondent was interviewed individually ensuring maximum privacy and confidentiality. A tape recorder was used on those who accepted to be recorded and that was after getting an informed consent from them. Qualitative interviews were conducted till a state of saturation.

The cross-sectional survey was conducted simultaneously with the qualitative in-depth interviews. A written signed or thumb printed informed consent was obtained from every mother. The two research assistants interviewed the mothers while the principal investigator conducted the in-depth interviews with the midwives and health facility managers. By working at one site per day, the principal investigator could perform quality checks of the data collected from the mothers. Field notes and direct observation were made. Some pictures were taken on areas of interest. Documents were also collected such as the guidelines, financial reports and MOH FY 2009/2010 district transfers for health services.

3.8 Data management and analysis.

For the qualitative data, transcription was done for audio taped data. All transcripts were entered into ATLAS.ti 6.1 as well as the directly recorded interviews plus observation notes. Deductive and inductive techniques were applied (Table 2). Sorting of data was done by coding using ATLAS.ti 6.1;

networks were created to link together themes and categories. Thereafter memos were created which were used for analysis. Analysis of qualitative data involved two groups; DHMT and HCIII managers and midwives. During quantitative data collection, all filled questionnaires were first studied carefully by the principal investigator. Missed or wrong data was minimized by asking research assistants to follow up the mothers for information in case a mistake was identified. After data collection was completed, data was entered using the Statistical Package for Social Sciences (SPSS) 13.0. Single entry was done and 75% of the cases were double checked. Quality of entry was found satisfactory. The data entry error rate was less than 1%. Data analysis was done using SPSS 13.0.

Descriptive statistics was conducted including cross tabulations focusing on the dependent variables 'place of delivery' and 'skilled attendance during delivery'. Pearson chi square test was used to address whether any association between variables was significant at the 0.05 level.

QUAL and QUAN data collection and analysis were initially done separately and later merged in the triangulation phase (Figure 3).

3.9 Ethical clearance

Ethical approval to conduct the study was sought from Muhimbili University of Health and Allied Sciences (MUHAS), Research and publication committee (Appendix 7). In Uganda, when the principal investigator inquired about the same, she was told that it was not necessary since she was a citizen and the research did not have any physical impact on human lives. However, permission to conduct the study was obtained from the Chief Administrative Officer-Kyenjojo District (Appendix 8). Eligible candidates for study were thoroughly informed about the study; including giving them information about the objective of the study and the main purpose of conducting this study. Those who were involved in the in-depth interviews were asked for their permission to be audio taped before commencing any conversation for the study and those who accepted

were audio recorded. All respondents were assured for their right to withdraw at any time of the interview. They were also assured of anonymity and that the information provided by them would remain confidential and only used for the study purposes. Therefore, an informed written signed or thumb printed consent was sought from each respondent (Appendix 1, 2).

CHAPTER FOUR

4.0 RESULTS

4.1 Characteristics of respondents

The number of DHMT members interviewed was seven: five were DHT members and two HCIV managers. Among them were six males. The qualifications of those members were medical officers (four), senior clinical officers (two) and one bio-statistician. The HCIII managers interviewed were six; three of them were males and the qualification for all of them was clinical officer.

Midwives were twelve and all were female. The qualification of the interviewed midwives was either certificate or diploma holder in midwifery termed as enrolled midwives or nursing officers, respectively. Their age ranged from 26-59 years and their years of working experience ranged from 3-29years.

A total of 161 mothers of infants were interviewed. Their ages ranged from 16-39 years with mean age of 24 and median of 23, years old and the age of the baby ranged from 1 day to 46 weeks with the mean of 15 and median of 12 weeks.
Around 16 (9.9%) of mothers had never been to school and slightly more than half 88 (54.7%) reported to had not completed primary formal education. The rest had completed primary school and above (Table 3).
The major occupation of mothers was peasant farming 140 (87.0%), most farmers sold their crops for generating income 136 (84.5%) and only 3 (1.9%) mothers had salaried income.
Most mothers were married 124 (77%) and 30 (18.6%) were single. The number of children per mother ranged from 1-9 with a median of 5 and the number of household members ranged from 2-14 with a mean of 5.8 (Table 3).

Table 3: Socio-demographic characteristics of mothers

Variable	N (%)
Age of mother	
<20	31 (19.3)
20-29	99 (61.5)
30-39	31 (19.3)
Completed years in school	
0	16 (9.9)
1-6	88 (54.7)
7+	57 (35.4)
Main Source of income	
Farm harvest	136 (84.5)
Petty trade	22 (13.7)
Salary	3 (1.9)
Marital status	
Married	124 (77.0)
Single	30 (18.6)
Divorced/Widowed/separated	7 (4.3)
Number of household members	
0-5	87 (54.0)
6-12	74 (46.0)

Results on the following themes are presented in this report:

- Resource allocation process
- Release of funds
- Issues related to provision of maternal health services
- Utilization of maternal health services
- Constraints faced by implementers of maternal health services

4.2 Resource allocation process

4.2.1 Planning process at district level

According to the DHMT members, they held meetings quarterly. When it was time for annual planning and budgeting, a planning meeting was conducted. The priority areas were from the Ministry of Health (MOH) that year. After the meeting, the HSD managers disseminated indicative planning figures to the lower health facilities. A member of DHT said that:

"*Normally we receive a communication from the centre that we should use figures of the previous year waiting for actual figures around the month of June (end of Financial Year), but this was never fulfilled. However there was no difference in the amount of funds released.*" *(DHO)*

Regarding the allocation process, most respondents reported that they followed guidelines from the MOH for Primary Health Care (PHC) non-wage recurrent grant. Procurement of drugs and other medical supplies for HCII, HCIII and HCIV were allocated 50% of PHC recurrent non-wage grant. Some DHMT members said that:

"*Nowadays the money for drugs never comes to the district; it is transferred directly to the National Medical Stores (NMS).*" (HCIV manager)

The District Health office was allocated 9.0% and the balance of 41.0% for running the HSDs and health centres.

The activities undertaken were the following categories: 1) HSD management activities which included support supervision, planning and budgeting, preparation of reports requests, liaising with the DHO; and 2) Health Centre activities (II, III, and IVs) such as allowances for outreach activities, transport, facility and property costs (maintenance of buildings and minor repairs, compound, utilities, stationary and maintenance of equipment, purchase of charcoal, paraffin).

The criteria which were reported as the base for allocating funds included level of health facility came up as the main variable used and other variables mentioned were population size, hard to reach and hard to stay area.

An equal share distribution of funds to health facilities of the same level was reported; a ratio of 1:2: 4 to HCII: HCIII: HCIV respectively was reported by the majority. A few said it was 1:2:3. However, the DHO confirmed that the ratio used is 1:2:4.

4.2.2 Allocation to various health activities

According to the information gathered, some respondents said lack of criterion for allocating funds to various health activities was because of other funders:

"*There are guidelines which are not followed because some activities like reproductive health have various development partners that are supporting it for example UNICEF, the USAID- funded STRIDES for family health project and*

Belle. We are supported with family planning supplies, immunization and even in the area of HIV and AIDS." (DHO and Assistant DHO)

According to Kyenjojo district local government health sector final accounts 2008/ 2009, almost half of the budget was allocated to transport, fuel and motor vehicle maintenance (49.2%); allowances (37.1%) while less than one percent was allocated to repair and upkeep of buildings plus other maintenance (0.5%). The budget corresponded with the expenditure (Appendix 9).

4.2.3 Planning and budgeting at Health Centre level

Health managers of facilities at all levels were involved in planning and budgeting for the health activities, reported by all in-charge of HCIIIs. In some health facilities, Health Unit Management Committee (HUMC) and some members of staff were involved. They said:

"*We normally follow the format of the previous year's work plan and budget when making a budget for the current year and those who need guidance get it from the HSD manager during supervisory visits.*" (HCIII manager)

For activities which were never financed by PHC non- wage recurrent grant, some respondents reported that some sub-counties assisted in buying some beds, mattresses, cupboards for storing drugs, paying cleaners, constructing kitchen for patients, digging placenta pits and putting up incinerator in some health facilities. That had been done on appeal by Health Unit Management Committee (HUMC) with those in charge of health facility.

4.2.4 Concerns of the Respondents on the resource allocation mechanism

Regarding the resource allocation mechanism used all health managers acknowledged that using one factor of level of health care could not lead to fair distribution of resources for health in the district. A member of DHT commented:

"*Though we are using the ratio to easy our work, I agree it should be allocated according to level of care, population size, pattern of disease/ Burden of Disease, geographical location of health facilities or hard to reach and hard to stay area, but we lack scientific techniques.*" (DHO)

4.3 Release of funds

Regarding the release of funds, it was reported by the majority that over 95.0% of the budget was released annually. The district financial report for 2008/2009 showed a release of 96.3% of PHC recurrent non-wage fund (Appendix 9). However, most HCIII managers said that there were a lot of delays; it took about 3 months without receiving funds. The same pattern applied to supply of medicines. At the time of collecting data (March), the HCIII managers said they had last received money in December 2009.

As a result of the delay, there was change in the planned activities such as reprioritizing. It was reported that they were free to reallocate funds. The main priority were immunization, stationary, kerosene, paying debts, transport (maintenance of vehicles/motorcycle and fuel) as well as paying staff allowances.

Also when the release of funds was delayed, most health facility managers used their own money on condition to be refunded when funds were released. This was reported by most of them. Their aim was to ensure the facility operated although that was not acceptable by their employer Chief Administrative Officer (CAO). It was mentioned by one respondent at the district that:

"In case of the delay of release of funds they should close the unit because it was stated clearly by the CAO that employees should not inject their small money into government activities." (DHT member)

4.4 Factors affecting provision of quality maternal care

4.4.1 Human resource for maternal health

Both health managers and midwives reported that the number of staff for maternal health services at HCIVs had improved since the year began. They said that there were relatively enough midwives at HCIVs with six midwives. One member of DHT acknowledged that at HCIII level the second midwife was missing and there was need have a midwife at every HCII. One midwife commented low use of maternity services:

"I *am the only midwife here at this facility and when I am away nobody attends to mothers. I think they get discouraged to come and find nobody to attend to them.*" (Midwife at HCIII)

One mother commented on this by saying that:

"There is only one midwife; you may find her very tired." (Mother of infant)

4.4.2 Drugs and supplies

Regarding supplies in maternity, interviewed midwives reported the following:

"*Currently we are well stocked especially in maternity. We have got enough mama kits that contain a pair of gloves, and ligature, cotton and polythene sheet. However, during the antenatal visits we encourage mothers to come with a polythene sheet to use after delivery because the one from the mama kit is used during delivery and then thrown away. Also to carry a pair of gloves, razor blades, clean threads along with them which sometimes assisted as some of them deliver on the way to the health facility.*" (Midwife at HCIV)

"*Nowadays, there is no shortage of supplies especially mama kits, gloves and drugs.*"
(Midwife at HCIII)

That was contrary to those who reported shortage of supplies that:

"*We are running shortage of gloves, paraffin, jik or OMO (Detergent), drugs for example ergometrine, intravenous fluids. Consumables are not enough for instance maternity is supplied with one litre of kerosene for a week which is not even consistent.*" (Midwife at HCIV)

They added on to say that when conducting a delivery, they tried by all means to improvise for example clumping the cord using ligatures and if it required episiotomy, they used surgical blade. One midwife said:

"*I perform delivery more less like a Traditional Birth Attendant (TBA) because of lacking paraffin to sterilize instruments.*" (Midwife at HCIII)

Mothers reporting on the past experience revealed that, the majority of pregnant mothers were prescribed medicines 150 (93.2%); this included anti-malarial for prophylaxis, anti helminthes, and vitamins and minerals. However, only 71 (44.1%)

received all the prescribed medicine while only 49 (30.4%) received a few types. Failing to get medicines from the health facility, some mothers reported that they got the missing medicines from different places as follows: the nearest drug shop 73 (45.3%), another health facility 4 (2.5%) and 8 (4.9%) went back home without any medicines (Table 4b).

Table 4a: Antenatal services

Variable	N (%)
ANC attendance	155 (96.3)
Delayed services >30 minutes	76 (47.2)
Waiting time in hours	
1-3	42 (26.1)
4-6	36 (22.4)
Cause of delay	
Mothers are many	40 (24.8)
Few Nurses	18 (11.2)
Nurses report on duty late	4 (2.5)
Don't know	18 (11.2)
Midwife listened to mother	
Everything	55 (34.2)
Most	77 (47.8)
Some	17 (10.6)
Only a little	11 (6.9)
Information from midwife to mother	
Much	73 (45.3)
Some	51 (31.7)
Not so much	13 (8.1)
Only a little	23 (14.3)

Table 4b: Antenatal services with keeping appointment

Whether mother understood	
Everything	60 (37.3)
Most	64 (39.8)
Some	20 (12.4)
Only a little	13 (8.1)
Medicines	
Prescribed medicine	150 (93.2)
Received all prescribed medicines	71 (44.1)
Received a few medicines	49 (30.4)
Alternative ways of getting medicine	
Another health facility	4 (2.5)
Nearby drug shop	73(45.3)
Go back home without any medication	8 (4.9)
Appointments	
Kept appointment for ANC	98 (60.9)
Cause of not keeping appointment	
Lack of transport	22 (13.7)
I seek health services when unwell	18 (11.2)
No drugs	10 (6.2)
No body to keep the home	6 (3.7)
Delays at health facility	5 (3.1)

4.4.3 Equipment and infrastructure

The equipment situation seemed to be worse. Midwives revealed that there was inadequate equipment for example delivering packs were not complete sets; they lacked episiotomy scissors and dissecting forceps. The following quotation illustrates frustration from some midwives:

"*I become very discouraged to work in government health facilities because of shortage of resources. You know even we are at risk of infecting ourselves with HIV. Can you imagine, repairing episiotomy with no needle holding forceps and dissecting forceps!*" (Midwife HCIV)

In addition they had no resuscitation apparatus; instead they improvised with a bulb syringe (Picture 1). None of the health facilities including the HCIVs had premature unit.

According to the observation made, some delivery beds were in very bad condition for example rusted (Picture 2). The space in the labour ward was very small with one delivery bed. The maternity wards had seven beds on average for all categories of mothers; sick, waiting and postnatal mothers. It was observed that some beds and mattresses were in very bad and unhygienic condition (Picture 3). There was no room for the nurse on night duty.

However, interviewed mothers' report on availability of some equipment was as follows: beds 106 (65.8%); mattresses 100 (62.1%) (Table5a). Mothers who said the availability of supplies and equipment was very good were 2 (1.2%), good 36 (22.4%); fair 45 (28.0%); poor 19 (11.8%) and 15 (9.3%) said do not know. A fifth was charged some money at the time of delivery to buy equipment such as gloves, polythene sheet, syringes and kerosene (Table 5b).

Table 5a: Medical supplies and equipment

Variables	N (%)
Availability of supplies and equipment	
Beds	106 (65.8)
Mattresses	100 (62.1)
Water	93 (57.8)
Gauze	92 (57.1)
Bath shelter	89 (55.3)
Cotton	89 (55.3)
Kitchen	73 (45.3)
Drugs	59 (36.6)
Gloves	48 (29.8)
Polythene sheet	48 (29.8)
Lighting	15 (14.7)
Blanket and Bed sheet	3 (1.8)
Mothers' comments on the availability of equipment for maternity	
Very good	2 (1.2)
Good	36 (22.4)
Fair	45 (28.0)
Poor	19 (11.8)
Don't know	15 (9.3)

Table 5b: Charging for health services and mothers' satisfaction

Charged money	30 (18.6)
Charged money for:	
Syringes	30 (18.6)
Kerosene	30 (18.6)
Gloves	19(11.8)
Polythene sheet	11 (6.8)
Drugs	9 (5.5)
Delivery	5 (3.1)
Overall comment on maternal services	
Very satisfied	20(12.4)
Somewhat satisfied	55 (34.2)
Somewhat dissatisfied	53 (32.9)
Very dissatisfied	21 (13.0)
Don't know	12 (7.5)

Picture 1: Midwife demonstrates how to use bulb syringe to suck secretion out of baby's mouth

Picture 2: Delivery bed in labor ward at HCIV

Picture 3: Bed on maternity ward

4.5 Utilization of maternal health services

4.5.1 Maternal health services provided

According to the midwives, the services provided were Ante Natal Care (ANC), deliveries, health education, counseling, postnatal care when mothers took their babies to the health facilities for immunization and to only those who had complaints, immunization, family planning, Routine Counseling and Testing and Prevention of Mother to child Transmission with HIV (PMTCT), outpatient department, cleaning, sterilization, ordering drugs from the health unit store, provision of Anti Retroviral Therapy to clients and compiled monthly report for maternity. On top of the mentioned duties, some had extra responsibilities such as Assistant PMTCT coordinator, in charge maternity as well as for health facility.

4.5.2 Antenatal care services

Most of the women interviewed 155 (96.3%) visited the ANC clinic during pregnancy. Women were asked whether they were delayed to get ANC services, half of the mothers responded positively. The reported causes of delay were the following: Mothers are many 40 (24.8%), few nurses 18 (11.2%), nurses report on duty late 4 (2.5%) and the rest did not know (Table 4a). Some mothers were further asked about what they think were the reasons for delay. The following quotes illustrate what they think:

"We are told to wait until the number reaches 20 or when we are many so that we can be attended to; they first attend to other patients." (Mother of infant)

"They do not care to work on patients. Sometimes they spend a lot of time telling

stories. There is a long break between the flow of patients and it is worse when they go for lunch because they come back around 3 pm." (Mother of infant)

Regarding interaction between midwives and mothers, almost half 77 (47.8%) of the mothers reported that the midwife listened to most of their complaints and concerns whereas 11 (6.9%) reported that midwives did not listen much to their concerns. Further, 73 (45.3%) of the mothers received much information from midwives, but only 60 (37.3%) said they had understood what they had been told. Only 98 (60.9%) of mothers kept the ANC appointments. A total of 61 mothers responded that they did not keep the appointments for ANC. The main cause reported for failing to keep appointment was lack of transport 22 (36.1%) (Table 4b)

4.5.3 Deliveries

About half of the deliveries 83 (51.6%) were in public health facilities. More than half 97 (60.2%) had a skilled birth attendant to assist them. A total of 78 mothers gave reasons for delivering outside a public health facility and 42 (53.8%) attributed that to lack of transport (Table 6). Financial constrain was another reason. One mother said:

"Because of hearing that midwives charge money for delivery, my husband refused to take me to the health facility at the time of delivery because he did not have money for transport and for the service." (Mother of infant)

Table 6: Delivery

Place of delivery	index infant N (%)	Siblings of index infant N (%)
Main hospital	10 (6.2)	11 (6.8)
Health facility	83 (51.6)	59 (36.6)
Clinic/PNFP	13 (8.1)	0 (0.0)
TBA's place	3 (1.9)	5 (3.1)
At home	39 (24.2)	51(31.7)
On the way to the health facility	11 (6.8)	1 (0.6)
Who assisted the delivery		
Skilled birth attendant	97 (60.2)	59 (36.0)
TBA	38 (23.6)	44 (27.3)
Relative	14 (8.7)	10 (6.2)
Unassisted	9 (5.6)	10 (6.2)
Reasons for delivering outside health facility		
Lack of transport to health facility	2 (26.1)	
Midwife is rarely at the health facility	17 (10.6)	
TBA is friendly	7 (4.3)	
Midwife asks for money	5 (3.1)	
Midwife is rude and arrogant	4 (2.5)	
Used to delivering alone	2 (1.2)	
Public holiday	1 (0.6)	

An association was seen between delivering in a health facility and having higher education, salary and fewer children. Delivery in a health facility increased with

more completed years in school, higher income and fewer children (Table 7). The same pattern applied to skilled birth attendance (Table 8).

Table 7: Socio-demographic characteristics with place of delivery

	In health facility	Not in health facility	Pearson chi square
Age of mother	N (%)	N (%)	(p-value)
< 20	20 (18.9)	11 (20.8)	
20-29	67 (63.2)	30 (56.6)	0.911
30- 39	19 (17.9)	12 (22.6)	
Completed years in school			
0	5(4.7)	10 (18.9)	0.001
1-6	55 (51.9)	32 (60.4)	
7+	46 (43.4)	11 (20.8)	
Income			
Farm harvest	84 (79.2)	50 (94.3)	
Petty trade	19 (17.9)	3 (5.7)	0.043
Salary	3 (2.8)	0 (0.0)	
Marital status			
Married	80 (75.5)	42 (79.2)	0.621
Single	22 (20.8)	8 (15.1)	
Divorced/widowed/separated	4 (3.8)	3 (5.7)	
Number of children			
1-3	81 (76.4)	30 (56.7)	0.021
4-6	20 (18.9)	16 (30.2)	
7-9	5 (4.8)	7 (13.2)	

Table 8: Socio-demographic characteristics with skilled and non-skilled attendance

	Skilled birth attendance	Non skilled birth attendance	Pearson chi square
Age of mother	N (%)	N (%)	(p-value)
< 20	17 (17.5)	13 (21.3)	
20-29	63 (64.9)	34 (55.7)	0.410
30- 39	17 (17.5)	14 (22.9)	
Completed years in school			
0	5 (5.2)	11 (18.0)	0.003
1-6	50 (51.5)	37 (60.7)	
7+	42 (43.3)	13 (21.3)	
Income			
Farm harvest	75 (77.3)	59 (96.7)	
Petty trade	19 (19.6)	2 (3.3)	0.004
Salary	3 (3.1)	0 (0.0)	
Marital status			
Married	71 (73.2)	51 (83.6)	0.208
Single	22 (22.7)	7 (11.5)	
Divorced/widowed/separated	4 (4.1)	3 (4.9)	
Number of children			
1-3	73 (75.2)	36 (59.1)	0.021
4-6	21 (21.7)	16 (26.3)	
7-9	3 (3.1)	9 (14.7)	

The overall comment by mothers on maternal services was as follows: very satisfied (12.4%); somewhat satisfied (34.2%); somewhat dissatisfied (32.9%) and very dissatisfied (13.0%) (Table5b). Most of those who reported satisfaction rated it upon having a live a baby. A mother said:

"I do not care so long as I delivered my baby well." (Mother of infant)

In the viewpoint of midwives, it was reported that they tried their level best to work within the limited resources. Most midwives reported that quality of services would be improved if resources were adequate.

4.6 Constraints faced by implementers of maternal health services

In this study the following constraints were reported by: DHMT members/ HCIII managers and midwives reported almost similar challenges encountered in their daily work. Most challenges were also concerns for mothers. The reported challenges were on allocation of resources and provision of maternal health services:

a) Allocation

Almost all respondents during the in-depth interviews reported that there was untimely and inadequate release of funds which hindered effective service delivery. This resulted in some activities being left out at expense of others, for example school health and postnatal care on outreach basis.

Further, there was poor infrastructure especially in theatres of which some had poor drainage system. Even the maternity unit was not allocated adjacent to the theatre and there was no pavement that connected the two which made it difficult to move the patient either way on a trolley.

In the viewpoint of midwives, they reported that there was a lot of pressure from the community that they serve that they were not performing as expected, yet according to them they were trying their level best to perform their duties under limited resources.

b) Accommodation for staff

Some of the health facility managers and midwives reported that most health facilities did not have enough housing for staff. Some staffs were residing outside the health facility premises. They rented the houses at their own cost without compensation which was really de-motivating according to them. For midwives, it was an obstacle to attend to mothers especially at night. Therefore, it was found that in most health facilities midwives did not stay in the wards at night. The main reason given by most midwives was that: they overworked during day time especially those at HCIII and found it difficult to stay full time in the ward at night. But, they allowed care takers of mothers to call upon them if there was a need. Others said:

"There is no room in the ward for nurses on night duty." (Midwife HCIV)

In this study, it was also found that midwives did not monitor progress of labour as required. In some health facilities there were partograms, a very good tool for monitoring labor, but they were never used. This was illustrated by some mothers' complaints:

"Midwives do not stay around in the ward when a woman is in labour; she told my attendant that when the baby's head comes call me. By the time she came the baby was already out." (Mother of infant)

Another mother reported similar complaint, experiencing that she was not prioritized:

"The midwife left me on the delivery bed and went to do her own things in her home. By the time she came back the baby was out. She did the rest, that is to say

cutting the cord and receiving the placenta but while quarreling." (Mother of infant)

The principal investigator also witnessed a similar case at the time of collecting data. A mother was in labour and was left with the relative; the relative was putting on gloves as if she was the midwife. The principal investigator asked her why are you putting on gloves and where is the midwife? She replied: "*Midwife has told me to put on gloves and she has gone to her house*." When a mother felt a strong contraction, both of them screamed calling for help and then the relative said: *"I wish I remained at home. Really what is this!!! Please call for us the midwife to come and help!*"

For some mothers the public maternal health services were not an attractive option. On this some mothers reported the following:

"Delivering in health a facility does not make any difference. Midwives are rude and do not care whereas TBAs show love and care." (Mother of infant)

"I was chased away without being examined to go to HCIV. Fortunately I delivered at the bus stop while waiting for the bus." (Mother of infant)

The above quotes portrayed the mothers' bad experience with the maternal ward and the midwives as rude and absent.

c) Poor referral system

Some HSD managers said that they do not have fuel for transporting patients to a referral hospital. Most midwives at HCIVs said more often they received complicated cases yet the ambulance was never fuelled. The car was fuelled for

other activities. Even mothers who were interviewed highlighted that it was known as the doctor's car. One mother said:

"*I wish all services could be provided here so that we minimize on referrals to other hospitals since the vehicle which is here is never used for transporting patients. We are poor.*" (Mother of infant)

d) Equipment

The inadequacy of equipment was reported as a factor that was contributing to poor quality of maternal health services. For instance, in some theatres there was neither autoclave for sterilizing instruments nor generator to run the operations. One DHT member said: "*Lack of some equipment has made theatres not operate.*" Some midwives reported that in maternity, they had no resuscitation apparatus, premature unit, and delivery packs were incomplete and even assisted delivery could never be performed due to lack of equipment.

Furthermore, at one of the HCIVs, it was reported by a midwife that the refrigerator for vaccines was broken down and they resorted to using the one which was supposed to be for storing blood in theatre. She said:

"It is now serving as multipurpose because everything that requires refrigeration is kept there, for example laboratory reagents, vaccines, ergometrine, anti rabies…" (Midwife at HCIV)

Much as it was reported that equipment were inadequate, a few which were available were poorly maintained. One HSD manager said:

"Keeping and maintaining instruments in good conditions is becoming very difficult. As I talk some instruments are missing in the theatre. I find incomplete

sets/ packs. Others have rusted because of staying long in Jik/disinfectant." (HSD manager) (Picture 4)

How are you minimizing this? (Principal investigator) *"I have tried to talk to my staff that if any one uses an instrument, let her/ him remember to return it to its right place and those responsible for sterilization are cautioned not to leave any instrument in Jik for more than 30 minutes, but they seem not to be having a sense of responsibility."* (HSD manager)

Picture 4: Instruments in disinfectant (Jik) and rust developing on pair of scissors

e) Medicines and supplies

Complaints were reported by some respondents that supply never matched with drug order and that had contributed to high rates of stock out of essential medicines. Also it was reported that there were no protective gears such as gum boots, eye glasses or long gloves. Lack of preventive equipment was considered a risk factor that would predispose them to HIV infection. It was also a concern for the midwives that they run the maternity ward without emergency medicines and supplies such as intravenous fluids, drugs such as hydrocortisone, 50% Dextrose,

gloves, syringes and needles, Ergometrine or Oxytocin. Some mothers in the study reported it as major problem and risk. They said:

"There are *no drugs even if we hear that they were brought the previous day. We only receive panadol and the rest of the drugs prescribed we are asked to buy. I wish all the medicines could be stocked especially for Sexually Transmitted Infections."* (Mother of infant)

"No drugs, gloves or polythene sheet in maternity." (Mother of infant)

This feeling of lack of supplies was experienced to harm quality of services. One mother said:

"After delivery I bled a lot and there was no drug to control bleeding in the health facility. My relative tried the nearby drug shops but they were all closed. She just consoled me that God will help me through and by mercy of God bleeding stopped by itself towards morning." (Mother of infant)

f) Shortage of staff

The scarcity of human resources for health was also reported to affect maternal health services. For instance, some theatres were unable to run because they lacked anesthetists, medical theatre assistants and a second medical officer at HCIV. This was partly explained by the need to engage into administrative work as well as clinical. Also some HCIII managers and midwives said:

"*One midwife cannot make maternity run 24 hours a day and 7 days a week"* and added on to say: "*Due to shortage of staff especially at HCIII, there is work overload; they have to do extra duties beyond maternity work for example attending to general patients in Out Patient Department.*" (HCIII manager)

Some mothers identified shortage of staff as a challenge in health facilities. A mother commented:

"There is only one midwife; you may find her very tired." (Mother of infant)

Due to shortage of staff some mothers could miss services at the unit. For example some mothers reported:

"I came for ANC and went away without being examined because the midwife was away for a work shop." (Mother of infant)

"I did not get Tetanus Toxoid vaccine because the person responsible was not around." (Mother of infant)

g) Lighting system

It was reported by most midwives that there was poor lighting system. Most health facilities had solar system, but that was never reliable because it could light for 1-2 hours. Therefore it was only spared for delivery. Even those who had hydro electricity complained of not being reliable. The midwife said:

"There is only one meter for electricity for all departments. It is very difficult to control it and currently no electricity because the person in charge said there is no money to re-charge. We are using personal torches, in case of repair of episiotomy; it is postponed to be repaired in the morning under local anesthesia." (Midwife at HCIV)

h) Water

Shortage of water was a problem especially in dry season. The midwives reported that they were sometimes forced to make caretakers of patients or mothers fetch some water for time when in the health facility.

CHAPTER FIVE

5.0 DISCUSSION

This study looked at resource allocation process that includes the use of formula, the guidelines and allocation to different health activities, funds and expenditure, release of funds, factors affecting provision of quality maternal health services and utilization of maternal health services.

In this study, it was found out that criteria were used to allocate resources for health. The health managers basically used the level of health facility as the main variable for allocating resources for health. This does not agree with the literature that states that allocation of resources at the district level in Uganda uses both level of health facility and population size [27]. As instructed in the guidelines, the district health managers developed a formula of a ratio of 1:2:4 for HCII: HCIII: HCIV respectively. This implies that health facilities of the same level are allocated equal shares of funds. In that case HCIIIs receive funds which are as twice as that of HCII. HCIV is four times as that of HCII. The LGFC [25] emphasized that an equal share principal as a major allocation factor is supposed to be avoided in the design of an allocation formula. That it creates differences in per-capita allocations within the district. In this study due to equal share distribution of resources (allocating equal amount funds to health facility of the same level), some health facilities of the same level reported shortage of supplies while others were still well stocked at the time of conducting this study. Indeed this criterion seemed not to be satisfactorily even to most health managers. According to literature, theories of distributive justice distinguishes between two types of equity; the horizontal equity implies equal treatment for equal needs and vertical equity that is an unequal treatment for unequal need [37]. Therefore equity means that greater resources and more services should be made available to the most vulnerable and needy groups. In the context of health care, equity means

care according to need [37]. It has been observed in this study that there is need for equitable resource allocation for health. Therefore research is needed in order to come up with more equitable formulae or criteria.

This study reveals that allocation of more funds to HCIV, is according to the guidelines [27]. However, the guidelines stated that HCIV should be allocated more funds if fully operational [27]. It was found out that all the HCIV in the district were not fully operational. Theatres were not functional and comprehensive EmOC was not provided [34]. Inability to provide comprehensive EmOC is regarded as a contributing factor for high maternal death in Uganda. Other studies show that EmOC must be a critical component of any program to reduce maternal mortality [41]. A study conducted in Uganda reveals that most health facilities (97.2%) expected to offer basic EmOC were not able to do so and most HCIVs were not functional and not able to provide comprehensive EmOC [34]. Yet the Ugandan policy objective on maternal health is to ensure safe pregnancy and delivery, improved management of complications of pregnancy and childbirth including spontaneous or induced abortion, and reduce the unacceptably high rates of maternal and perinatal deaths through timely and effective EmOC provided at strategic and accessible locations [26, 27]. Therefore, there is need for revising the way funds are allocated and spent to various health activities. This would facilitate better use of the available resources than in the financial report of 2008/2009 (Appendix 9). That definitely implies that maternal health services need to be among the activities which are given first priority on health agenda hence more resources need to be allocated to it. It is even in the policy guidelines that activities in the UNMHCP should be given first priority and more funds to be allocated to them [27]. Mother and child health with emphasis on safe motherhood, newborn care and child survival is one of the activities in the UNMHCP [27]. Some studies also agree with the above argument that unless resources are allocated to the development of health infrastructure and improving

human resources, Uganda is unlikely to achieve the MDG on maternal health [34]. Also it is important to ensure that there is improved referral system in place to minimize on delays to reach the health facility which provide comprehensive EmOC although the finding in this study shows almost half of the annual budget was allocated to transport yet transporting of patients was hardly done.

Planning and budgeting at health facility needs to be improved. Therefore this calls for research on criteria that would be appropriate for allocating resources to health activities. The principal investigator argues that since it is claimed that there were funders in Kyenjojo district supporting family planning and immunization activities, this would be an opportunity of allocating a relative better proportion from PHC recurrent non-wage fund to maternity services especially to upkeep and maintenance of maternity wards.

If the above idea is adopted, it would lead to better distribution of funds among health activities than what was reported in the district health financial report 2008/2009. The report reveals that less than 1.0% of the annual budget which was allocated and spent on repair and upkeep of equipment and buildings can never keep the maternal facilities in good conditions. If maternal facilities were to be maintained in good conditions, repair and upkeep of equipment and buildings requires more funds. This is because time and again equipments have to break down due to probably wear and tear, for example some buildings would need renovation after a period of time and some equipment to be furnished with paint for instance the reported rusted delivery bed. If that would be addressed, it would contribute to making maternal services more attractive. Studies have also shown that poor quality of care and general dissatisfaction influences patients' use of health services and women are often dissatisfied with the care they receive during child birth [42].

Another finding in this study is delay in release of funds. It was reported that funds were released towards the end of the quarter. This agrees with what Pearson [7] found out in 1997/1998 that the last release reached the district during the final few days of the financial year. This study reveals that delay in the release of funds made some activities not to be implemented according to the health facility work plan. For example supply of utilities such as electricity, water or even kerosene could not be maintained in maternity ward. This was reported as one of the constraints to providing quality maternal health services in the district.
More so if funds are released towards the end of the financial year, it would be spent haphazardly aiming at making prompt accountabilities in return. Therefore in order to ensure effective service delivery it is important for health managers to have funds at the beginning of every quarter. This would enable the planned activities for that quarter to be implemented accordingly. More so monitoring and supervision of such activities is very fundamental to that effect.

Furthermore, the finding of this study reveals that delivery by skilled attendant is 35.0% higher than the district figures. However, overall dissatisfaction was reported. It was found out that what mattered most to mothers was to have a live baby. This might have contributed to biasness in reporting in this study. Complaints on poor interpersonal care were common among users of the services. Mothers complained of midwives not staying around the ward at the time of delivery. Absence of midwives in the wards at the time of delivery indicated poor monitoring of labour. The inability to monitor progress of labor efficiently is a risk factor to maternal death because a mother can develop complications without notice. Literature shows that about 15.0% of all pregnancies will result into complications [16] and most complications are unpredictable and fatal [16, 19-23].

In this study skilled care at birth was relatively high (60.2%). This might partly be explained by the sampling frame of the mothers also allowing post-partum mothers at the maternity ward and mothers coming with their infants for immunization hence allowing women with a health seeking behaviour. The implication of this may indicate that mothers who did not use skilled birth attendant at birth were more likely not to utilize other health services such as immunization. However, it is known that early vaccination has a relatively high coverage rate in Uganda According to 2006 Uganda Demographic and Health Survey report, the vaccination coverage of DPT1 is 87.0% whereas DPT3 is 58.9% and for measles is 52.3% [5]. Therefore a conclusion can be drawn that the period at which the study was conducted (Planting season) had a negative effect on use of health services especially on mothers who are likely not to have used skilled care at birth hence and probably affecting . Also the use of research assistants who are health workers in the district under study might have also contributed to biasness in reporting.

Limitation of the study

The study population was a self motivated group. They might have biased the responses as well as the research assistants used in this study.

Some respondents were not willing to be audio taped that made it a bit difficult to capture everything that was said. However, this was minimized by making the interview process more slowly.

At the time of data collection it was planting period with lots of rain that affected the attendance of mothers for routine immunization. Therefore it was difficult to only get mothers coming for their infants' first visit. Every mother of an infant who had come to the health facility for immunization was eligible for the study. This might potentially have introduced a greater time lag and therefore increased recall bias than having had everybody interviewed early after birth.

Results obtained from mothers on the utilization of maternal health services especially on use of skilled birth care at birth may not portray a true picture of the district. This was attributed to sampling frame of the mothers also allowing post-partum mothers at the maternity ward and mothers coming with their infants for immunization hence allowing women with a health seeking behaviour. Also the period at which the study was conducted might have had an effect on mothers who did not use skilled care at birth

Conclusion

This study aimed at assessing the application of policy guidelines for allocating resources and factors affecting provision of quality of care in public health facilities, focusing on maternal health services. Most guidelines were not followed as required. Quality of maternal health services was found to be affected by inadequacy of equipment, medicines, supplies and human resources in maternal facilities. Therefore, in order to achieve MDG 5 by 2015, quality of maternal health services in Uganda needs to be improved on the health agenda when allocating resources. Health facilities that are supposed to provide EmOC need to be well equipped. The number of midwives at HCIII needs to be improved. Monitoring and support supervision at all levels need to be strengthened so as to improve quality of health care. Through monitoring and supervision all health staff needs to be encouraged to have a very good interpersonal care. Further, timely release of funds were reported dissatisfactory and needs improvement. It is important that the concerns of maternal health providers and users are communicated to those in charge of the resource allocation.

Recommendations

The district health authority needs to improve and utilize resource allocation guidelines for health, including monitoring quality as a major intermediate objective in all policies. There is also need for research on more equitable and efficiency improving formulae which would facilitate a better provision of quality maternal care. And lastly, communication between maternal health managers, providers and users needs to be strengthened in line with streamlining of resources and supervision of services in order to improve the current situation for pregnant women and their offspring.

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