

# **Makerere University Institute of Public Health**

## **Health Systems Development Programme**



Health Systems Development

## **Maternal Health Review Uganda**

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## Acronyms and Abbreviations

ANC	Antenatal Care
CPR	Contraceptive Prevalence Rate
DFID	(UK) Department for International Development
DHS	Uganda Demographic and Health Survey
DISH	Delivery of Improved Services for Health
FP	Family Planning
GDP	Gross Domestic Product
HSD	Health Sub District
HSDP	Health Systems Development Programme
HSSP	Health Sector Strategic Program
MCH/FP	Maternal and Child Health and Family Planning
MMR	Maternal Mortality Ratio
PHC	Primary Health Care
PNFP	Private Not For Profit
Shs	Uganda Shillings
SMP	Safe Motherhood Programme
SWAP	Sector Wide Approach
TBA(s)	Traditional Birth Attendant(s)
TFR	Total Fertility Rate
UPE	Universal Primary Education

# **1. Introduction to Maternal Health in Uganda**

## **1.1 Background**

Uganda has a high maternal mortality ratio, typical of many countries in sub-Saharan Africa, with an estimated 505 maternal deaths per 100,000 live births. While several measures to combat the poor reproductive health performance have been put in place by the government, Maternal and Child Health programs have in the past focused more attention on child-care programs with a particularly strong emphasis on immunization.

A number of studies have been undertaken in Uganda to understand the dimensions of maternal health performance and the broader reproductive rights and health issues. In many cases the available literature has been fragmented with little effort to bring it together for policy and health systems learning. The Demographic Health Surveys of 1988-1989, 1995 and 2000-2001 [1,2,3] have been a major source of information on maternal and reproductive health. The Safe Motherhood Needs Assessment of 1995/6, which was conducted in 14 districts, and is the largest recent survey of institutional capacity to deliver maternal services, provides another source of baseline information on maternal health. Several small studies have been undertaken that have important bearings on maternal health and reproductive health in general.

The Health Systems Development Programme (HSDP) was established as a knowledge programme by the UK Department for International Development (DFID) to support selected countries with research aimed at understanding factors that hinder national health systems from meeting the needs of their populations, in particular the poor. The delivery of maternal health programs is affected by the general organization and functioning of health systems, and so it is believed that investigating the factors that constrain improvement in maternal health can help to understand larger health system functioning. This literature review is aimed at informing the current Ugandan Health Sector Strategic Program (HSSP) about key research findings in maternal and reproductive health for the last ten years. In addition, the review was undertaken as a situation analysis for the HSDP with a view to understanding health system issues and how they affect maternal health performance in Uganda. During the first year of the HSDP, similar analyses have also been undertaken in the other three partner countries (South Africa, Russia, and Bangladesh). These situational analyses will be followed by further primary research in each of the partner countries.

## **1.2 Objectives:**

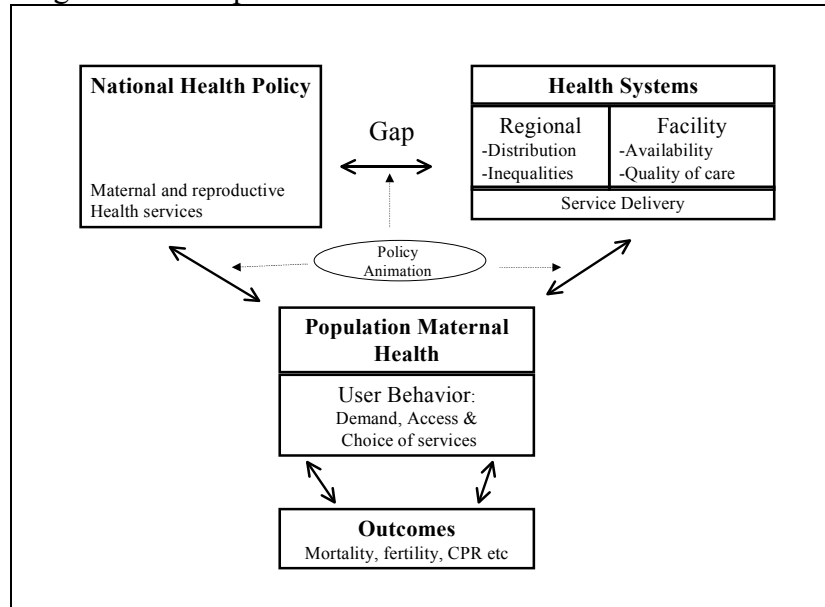
The goal of this study is to review the existing studies on maternal health in Uganda and identify research, policy and program implications for improving maternal health status. The specific objectives for the study are:

1. Undertake a rapid appraisal of maternal health services in Uganda.
2. Explore the use of maternal Health services as a probe for understanding broader health systems issues and capacity
3. Find out what larger systems factors influence Uganda's maternal health performance
4. Identify health systems and policy issues that may need exploration & understanding through HSDP research
5. Create a knowledge base on health systems and maternal health services in Uganda for policy and management of health services and the HSDP.

To undertake this review, a framework was adopted that looks at policy, health systems, and the level of population (figure 1). The policy level perspective seeks to understand the attempted

policies, their implementation and where possible, policy outcomes. At the system level, the review sought to understand the system capacity to deliver services at national and regional or district level. Issues of service delivery inputs, quality and distribution are included. At the population level we analysed information pertaining to user behaviour, service demand and access, as well as client choice for reproductive health and maternal services.

Figure 1: Conceptual Framework for Maternal Health Review

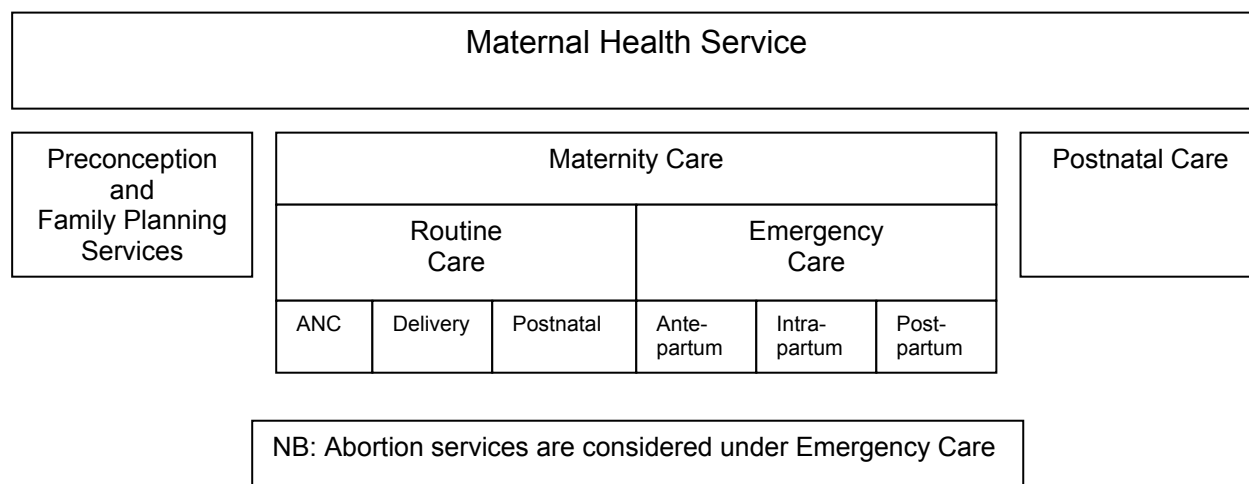


The review framework is designed in order to guide how policies influence the health system to deliver maternal health services and the way population maternal health services are influenced in terms of demand, access and choice. In this framework, the way the policies are adapted to achieve the health systems and population health goals are referred to as policy animation.

### 1.3 Scope of Maternal Health Review

As illustrated in figure 2 below, the review scope for the maternal health services includes preconception and family planning services, prenatal, maternity and postnatal care. Maternity care is subdivided into routine care and emergency care:

Figure 2 : Scope of Maternal Health Review



## 2. Maternal Health Indicators

The trends in the indicators of health status in Uganda over the last 10 to 15 years have been a major concern and central issue of debate for politicians, health managers and planners [4]. According to three Ugandan Demographic and Health Surveys (DHS), there was a notable general improvement in many indicators between 1989 and 1995, contrasting with the worsening or stagnation of some indicators between 1995 and 2000, as illustrated below:

Table 1: Indicators Trends for Maternal and Reproductive Health, Uganda

	Past Trends			Future Policy Goals** (2004/05)
	DHS 1988/89	DHS 1995	DHS 2000/01	
<b>Outcome Indicators:</b>				
Maternal mortality ratio	700	506	505	Reduce 70%
Neonatal mortality rate *	-	27	33.2	Decrease by 30%
Total fertility rate	7.1	6.9	6.9	Reduce to 5.4
Infant mortality rate *	119	81.3	88.4	
<b>Process Indicators:</b>				
Proportion of Women delivering by skilled attendant (%)	38	37.8	39	Increase to 50
Antenatal Care (ANC) coverage (%)				
In first 6 months		48.6	55.4	
At least once		90.7	91.9	
At least 4 times		47.2	41.9	Increase by 15%
At least 2 doses of TT		53.7	41.7	Increase to 80%
At least 1 dose of TT	76	80	69.6	
Caesarean section rate (%)		2.6	2.5	
Contraceptive rate – married women (%)	4.9	14.8	22.8	Increase to 30

		(15.7)***		
Unmet need for family planning (%)	52	21.9	35	-

\* Based on the 4 years preceding the survey

\*\* Targets based on DHS 1995

\*\*\* 15.7 Figure is calculated for the 1988/89 DHS area for comparison

In many circumstances there is incomplete data to show trends in many of the indicators over time, but in general there has been little improvement in the outcome indicators such as the maternal mortality ratio since 1995. While there has been significant improvement in the access to family planning, along with a growing demand for services, the total fertility rate has also not changed much. Other process indicators have remained stationary or made marginal changes since 1995, and some indicators may be showing declines, for example the proportion of women undertaking at least four antenatal care visits has declined between 1995 and 2000/01.

## 2.1 Maternal Mortality and Morbidity Risk

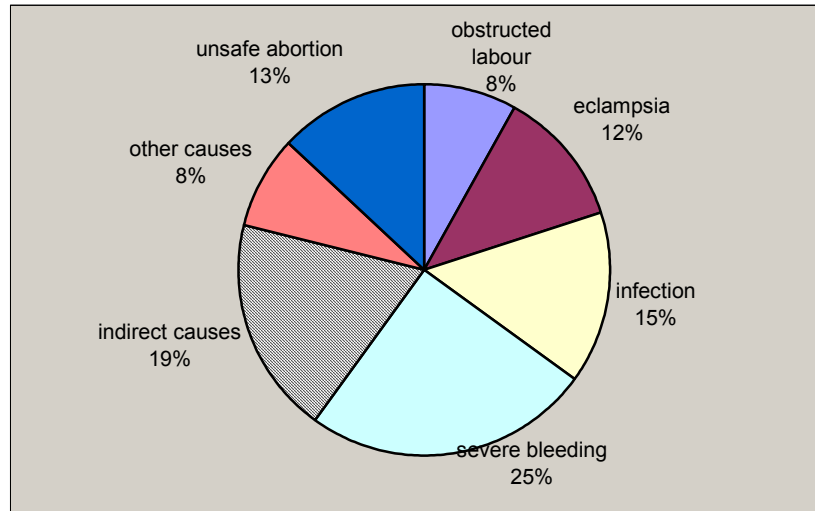
All pregnant women, face some level of maternal risk. According to the WHO, about 40% of pregnant women will experience delivery complications, while about 15% need obstetric care to manage complications which are potentially life threatening to the mother or infant. Despite the importance of antenatal care to predict and prevent some complications, many are sudden in onset and unpredictable [5].

There are few reliable and accurate data on maternal deaths available countrywide in Uganda. According to DHS estimates, the national average for the Maternal Mortality Ratio (MMR) has ranged from 700 to 505 deaths per 100,000 live births for the survey period 1988/89 to 2000/01. However, a national study conducted by Mbonye at 97 health facilities, including 30 hospitals, found the institutional MMR to be as high as 846 per 100,000 live births [6]. It is conceivable, however, that institutional mortality rates would be higher than national averages due to the fact that women will tend to seek institutional care when complications arise.

The prevailing high rates of fertility (6.7 births per woman), in an environment of poor access to quality maternal and neonatal care, have continued to expose Ugandan mothers and infants to a high risk of death from pregnancy related causes [7], with an estimated 1 woman in 10 dying from maternal causes in Uganda (the lifetime risk) [8]. Figure 3 illustrates the main causes of maternal morbidity and mortality in Uganda – many of which are preventable with appropriate treatment.



Figure 3: Causes of Maternal Death in Uganda, 1995-96



Source: *Sexual and Reproductive Health Minimum package in Uganda 2000 (adapted from safe motherhood needs assessment 1995-6) [9]*

Note – Estimates of the impact of abortion vary considerably by source, as will be discussed below

Some of the contributing factors to the high maternal mortality rate in Uganda have been found to include:

- Poor fertility regulation of early pregnancy in adolescents, short pregnancy intervals and a generally high total fertility level. This has been in part due to an overall low use of contraceptives [2,3,10].
- Limited capacity of health facilities to manage abortion/miscarriage complications, despite it being a major contribution to maternal morbidity and mortality. According to Mbonye, of the 97 health units studied, only 40% were able to manage the complications of abortion. There was also poor service availability for post abortion care, ranging from inadequate skills to lack of equipment, supplies and drugs in most health units [6];
- Prevalence of HIV/AIDS among pregnant women has also been a factor in poor maternal outcomes. It is presumed that the prevalence of HIV infection peaked in 1992 for many areas, then declined to its current level, estimated in 2001 to be 6.1% of Ugandan pregnant mothers [11]. According to one study, 26.5% are assumed to transmit the infection to their babies [12]. Although AIDS continues to be a major health problem in Uganda, HIV incidence (new infections per year) does seem to be declining in parts of the country [13].
- Malaria is one of the leading causes of morbidity in pregnant women but prevention and prophylaxis services are not well established [14].

### **3. The Structure of the Health System in Uganda**

#### **3.1 Policy Environment**

The overall policy of the government is poverty reduction through improvement in human capacity and production. The key sectors to delivery the goals of poverty reduction include health as well as education, agriculture, roads and manufacturing.

The national Safe Motherhood Programme (SMP) has been one of the major interventions for the promotion of maternal health in Uganda. As part of this programme, a number of initiatives were established in the last decade, including building a supportive community network of traditional birth attendants (TBAs) as a backup for a modern maternal health system, and interventions to forecast high-risk obstetric events and strengthen referral systems [15].

Several other policies affecting reproductive health have been adopted in Uganda. The national population policy seeks to reduce fertility and maternal morbidity and mortality by promoting informed choice, service accessibility and improved quality of care. The policy outlines the need for a multi-sectoral implementation strategy involving education, health, agriculture, the economy and a need for changes in some cultural practices to achieve the policy goals [16].

In response to the lower status of women in many parts of the society, the government adopted a national gender policy in 1997 with the goal of integrating gender into community and national development. The policy intends to empower women in decision-making processes as a key to development [17]. In recognition of the special reproductive health needs of adolescents, the government has drafted an adolescent health policy. The policy seeks to promote adolescent friendly services, sex education and building life skills. In addition, the policy sets the minimum age for marriage at 18 years to counter the high rates of adolescent pregnancy [18].

In 1996, the government adopted universal primary education as a strategy to improve population literacy. This policy has increased the school enrolment of both girls and boys. In the long term, it is hoped that the benefits of schooling will be reflected in maternal and reproductive health indicators [19].

There have also been attempts to legislate against some negative aspects of common social practices. A domestic relations bill seeking to curb domestic violence, polygamy and inequity in access to family resources by women was publicly discussed in 1998. However there has been little political momentum to push the bill to become law [20,21].

In the health sector, there are a number of policies with implications for maternal service provision. To expand the platform for health care services, the private sector is envisaged to play an important role in the implementation of the national health policy and a public-private partnership policy has been drafted to set the modalities of the collaboration. The health sub-district has further been adopted as a policy strategy for increased decentralization of service delivery and the expansion of access to essential obstetric care at the community level. As a mechanism of coordinating development assistance for the health sector, a sector-wide approach (SWAP) has been adopted by government with the goal of mobilizing resources for the health sector strategic plan, although its development and implementation has not been complete [22].

### **3.2 Maternal Health Policies**

There have been a number of government policy interventions in Uganda aimed at specifically improving access and quality of maternal services. The national health policy has set maternal and reproductive health care as one of the priority areas. Reduction of maternal morbidity and mortality are key outcomes expected. Safe motherhood is among the key elements of the minimum health package.

A safe motherhood needs assessment survey was undertaken in 1995 –1996 to inform the programme planning for safe motherhood [7]. A costing study was undertaken in 1998 to determine the financing needs for improved maternal service delivery [23]. From these studies, decisions were made to establish comprehensive training curricula to expand and integrate midwifery, public health and clinical nursing skills. This has been piloted in three nursing schools and an output-to-purpose evaluation is due. In response to a shortage of anaesthetics skills at hospital and health sub-district level, there is accelerated training of the available staff (nurses/midwives) to ensure functionality of operating theatres.

At the level of service provision, maternal death audits are being piloted as an awareness-raising strategy among health providers and the community. The audits seek to highlight the factors at the health facility and community level that could help reduce maternal mortality and morbidity. [24]. Other initiatives, with a bearing on maternal health, are the preparation and dissemination of operational protocols for clinical care and the adoption of prophylaxis for malaria in pregnancy.

In addition to these specific maternal health related interventions, there have also been other general government policies which have some bearing on maternal health. In an effort to encourage access to the minimum health care package, the government eliminated cost sharing (user fees) at public facilities in 2001. At hospital level, a two-window (paying and non paying) system has been created. Utilization of ambulatory services has risen in general following the elimination of cost sharing [25,26]. However, one study on rural patients' pre-hospital spending (spending for health care in private clinics or in traditional healer premises before seeking hospital services) found an average of Shs 10,000 spent (approximately US \$6) [27]. Another study in Uganda showed that the abolition of cost sharing in hospitals led to increased utilization of ambulatory health services but reduced quality; antenatal attendance and deliveries in health units also were not found to have increased significantly [28]. It is not clear yet why maternal service use was not found to increase in this study, but authors elsewhere have argued that user fees may be a disincentive to hospital deliveries by mothers [29]; in South Africa it was found that the introduction of free government health care did increase utilisation of maternal services [30].

### **3.3 Maternal Health Infrastructure**

Forty nine percent of the Ugandan population lives within 5 km of a health facility [2]. However, even within this group, geographical access to health facilities does not translate into access to required services. For example, a baseline survey done for the SMP showed that 33% of health

facilities in the country did not provide maternity services, and only 57% of hospitals were equipped to administer general anaesthesia [7].

The number of health facilities has been increasing at an annual growth rate of 6 - 9% between the years 1996 to 2000 [31]. It is not clear to what extent different components of maternal health services have expanded through recent infrastructure developments.

### 3.3.1 Health Infrastructure Organization

Public health infrastructure is organized in a hierarchical manner on the basis of both catchment population and administrative boundaries. Table 2 shows the organizational layout of the infrastructure.

Table 2: Distribution of Health Facilities by Population Levels

Facility Level	Population Served	Public	Private Not For Profit	Private For Profit*
National teaching hospital	22,000,000	2	0	0
Regional referral	2,000,000	11	0	0
District hospital	500,000	42	49	5
Health centre IV	100,000	143	13	3
Health centre III	20,000	614	147	26
Health centre II	5,000	781	365	879
Total		1593	574	913

Source: Ministry of Health Statistical Abstract 2002 [ 31,32)

\*Less accurate information on numbers and distribution

A tiered level of services is provided from the community level to the national referral hospitals as reflected below:

- **HC I:** Located at Local Council 1 level<sup>1</sup> to provide community based health care services only and is estimated to serve 100 people using community based providers.
- **HCII:** Located at Parish level to provide preventive, promotive and curative services. Antenatal services may be available.
- **HCIII:** Located at the Sub-County to offer preventive, promotive, curative, maternity and in-patient services. Delivery services may be available.
- **HCIV:** Located at the county or health sub-district headquarters to provide preventive, promotive, out-patient, curative and in-patient services, emergency surgery and blood transfusions.
- **Hospital (HCV):** In addition to the services offered at the HC IV, it offers laboratory and X-Ray facilities. In-service training, consultation and outreach to community based health care programmes are organized and coordinated at this level.

Generally, it is felt that there is more infrastructure capacity in the Central and Eastern parts of the country as compared to the Northern and Western regions. Table 3 illustrates the numbers of facilities in each region, but it should be noted that it is primarily the different population densities in these regions that affect how well the population is served by these facilities. While the Northern region has the lowest population per bed, for example, it has a small population spread over a very large area.

<sup>1</sup> The Local Council (LC) system of administration is tiered from the village level (LC1) to the district level (LC5)

Table 3. Regional Break Down of Facility and Bed Capacity

Region	Hospitals	Health Centre IV	Health Centre III	Total Beds	Population Per Bed
Northern	23	98	194	5894	658
Eastern	19	210	237	5499	935
Central	37	210	182	8606	670
Western	23	153	261	5587	1011
Total	102	671	874	25586	799

Source: Adopted from Uganda Bureau of Statistics, 2000, and Health Service Inventory 2000 [32,33]

### 3.3.2 Health Sub Districts:

Some of the existing health facilities have been upgraded to provide for the new health policy strategy of Health Sub-Districts (HSD). The strategy of the HSD was incorporated into the health policy with the objective of improving access to the minimum health care package and decentralizing health service delivery further down to the community level. One of the key services to be provided at HSD is emergency obstetric care in the form of caesarean sections, blood transfusions and post abortion care [34]. Although Health Centre IVs (now also called HSDs) have not been fully equipped to function in these roles in the past, the recruitment of doctors and other personnel has been a major activity for the year 2000–2001. However, it should be noted that most Health Centre IVs are at early stages of establishment, and the health service referral system in most districts remains less than satisfactory [35]. Nevertheless, the system of HSD and efforts to further decentralize service delivery and more financing closer to the community level points to a commitment by government to improve maternal health services in the country.

### 3.4 Financing of Maternal Health Services

Studies have shown that out-of-pocket spending contributes between 58 – 75% to the total health care financing in Uganda. Privately provided services (including small clinics and drug shops) are estimated to constitute about 70% of total curative care in Uganda [36].

Inadequate budgetary allocation is a major obstacle to improving public health services. The percentage share of the public budget going to health services ranged from 2.7% to 6.6% in the period 1995 – 1999 [37,38]. The overall financing is affected by the constraint of raising revenue by the central government. The government revenue is cast in a context of a low tax base (11% of GNP), stringent fiscal discipline and running a cash budget. For the health sector, this has translated into irregular disbursements of grants from the centre for a decentralized service delivery. In addition, low priority has been given to capital development in the health sector resulting in poor equipment and infrastructure support for service delivery [39,40].

Table 4: Health Expenditure Trends 1992 to 1998  
(includes private spending estimation – figures are not adjusted)

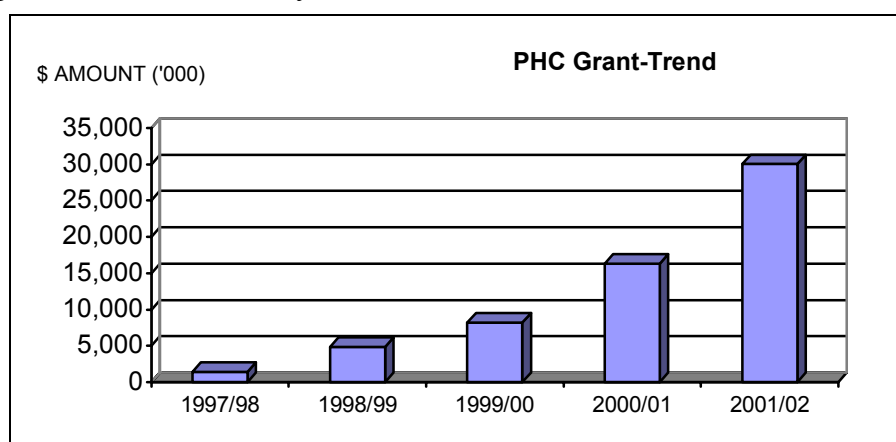
Expenditure	1992	1993	1994	1995	1996	1997	1998
Per Capita in Shillings	4,998	4,206	10,847	13,424	13,662	13,664	16,611
Per Capita in US \$	4.9	4.01	9.86	11.67	11.58	11.37	12.19
Total GDP in Billions of Shillings	3,725	4,800	5,482	5,956	6,565	7,414	7,818

Source: Mugarura, 2001 [37]

Donor support has been biased towards Primary Health Care (PHC) level activities. The donor contribution has been estimated to be 34% of the recurrent health budget and 82% of the development health budget [38]. Little donor support has gone to the hospital sector despite the current understanding of the central role played by hospitals in emergency obstetric care and referral systems. Hospital care financing did not attract a major public budget increment due to the government policy of orienting health services to PHC. The average public expenditure per hospital bed has been \$800 per year for the last three years.

Funds made available from debt relief (through the Highly Indebted Poor Countries initiative) have made it possible to allocate more funds to the health sector including hospitals. These funds are consolidated into what is termed the Primary Health Care grant. Figure 4 illustrates the growth trend of the PHC grant.

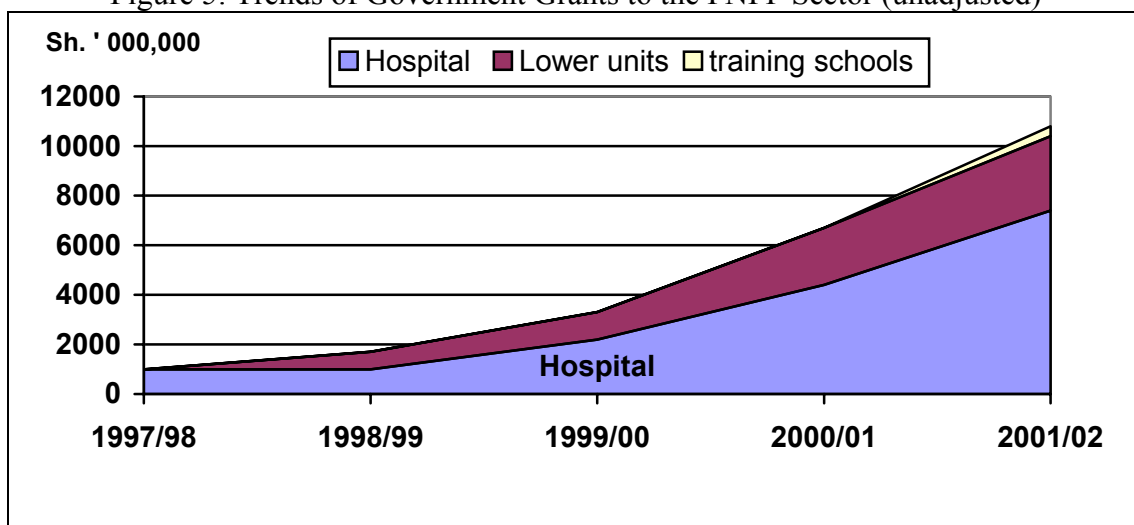
Figure 4: Trend of Primary Health Care Grant to Districts 1997/98 – 2001/02



Source: Ministry of Health Policy Statement, 2001 [41]

In the same vein, non-governmental hospitals have received grants from the government in support of public-private partnerships (figure 5). The rationale for this support has been to provide ‘bailout’ funds for private-not-for-profit (PNFP) NGO providers, especially in the era of declining support from charitable organizations abroad. In addition, most of the PNFP hospitals have a rural location and, therefore, are strategically located to serve the poor and improve equity in service access.

Figure 5: Trends of Government Grants to the PNFP Sector (unadjusted)

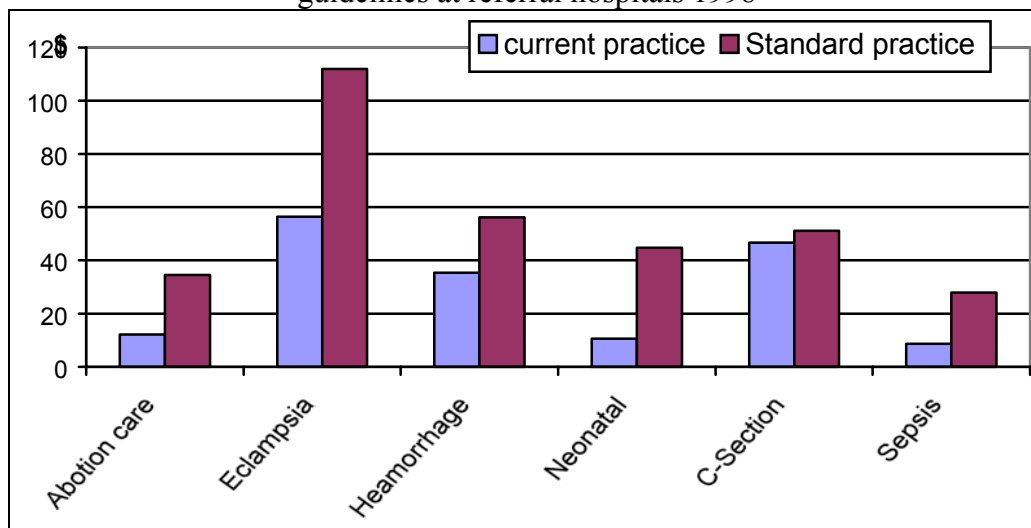


Source: Health Planning Department quoted in Ministry of Health, 2001 [42]

### 3.4.1 Service Costs and Cost Recovery

It is important to assess financing levels for essential services in order to assess whether these services are obtaining adequate support. However, using the WHO safe motherhood standards, it can be seen that most common practices for maternal health in Uganda are underfinanced:

Figure 6: Cost of implementing Emergency Obstetric Care: current practice versus evidence-based guidelines at referral hospitals 1998



Source: Wiessman et al. 1999 [23]

A weakness in the productivity of available labour has been demonstrated by several studies. In a cost study by Levin *et al.* conducted in Masaka district, one referral hospital was found to have a surplus of midwives in relation to the maternity workload. On average, a midwife delivered 38 mothers per year at the public referral hospital studied, compared to 68 mothers per midwife at an NGO hospital [43] - corresponding to around one delivery per week per midwife. The problems of short disappearances from duty, short working hours and dual practice (both public and private practice by publicly paid public/ civil servants), further points to sources of inefficiency in staff productivity.

The numbers seen by Levin *et al.*, however, are significantly below the national average for deliveries per midwife in Uganda derived from national general figures. According to UNICEF, there were approximately 1,184,000 births in Uganda in 2000 [44]. If 35.2% of these are delivered by nurses/midwives, as DHS data state, this would indicate just around 461,000 deliveries per year with trained attendants. According to the Ministry of Finance, in 2000 the population per midwife was 1/7000 [39]. With a year 2000 population of 22,200,000 – this equates to approximately 3,171 midwives in the country, which would indicate approximately 146 deliveries per midwife per year in Uganda. This number is approximate, however, and it is unclear if the nurse/midwife category included in the DHS figures only included nurses with midwifery skills, and if the Ministry of Health count of midwives also counts nurses without such skills. Furthermore, stillbirths are probably not included in the total births, which could raise the number of overall deliveries. Finally, this study only counts deliveries in facilities, yet it is known that many health workers undertake private practice on top of their public service. However, an overall average of 146 deliveries per midwife per year would amount to approximately one delivery every 3 days or 1-2 deliveries a week (in the facilities at least). The fact that Levin *et al.* found such a low number of deliveries per midwife could indicate a variability in the number of deliveries per midwife, most likely reflecting an unequal distribution of midwives in the country.

Although PNFP providers charge fees for their services, they only recover about 50% of the total service costs. They charge higher fees, however, for maternal complications and emergencies such as caesarean sections and post abortion care. The cost of inputs for these services was on average \$87 and \$58 while clients were charged at 68% and 85% cost-recovery respectively [43]. Despite an increasing trend in the financing of PNFP hospitals, there is no deliberate strategy by the government to link the public-subsidy to the reduction of client charges for priority services such as maternal complications and other emergencies. Unfortunately this cost structure may provide deterrents to people seeking those services which are most needed to reduce maternal mortality. Community level providers, such as TBAs, are increasingly trading their services at high charges that exclude poor women [72, 43]. For example, the average charges levied on a normal delivery was found to be \$3.7 (range \$0.43-8.7) compared to an average of \$2.6 in cheaper public health centres [43].

### 3.5 Human Resources Deployment and Efficiency

The cornerstone in the implementation of safe motherhood is midwifery skills. According to a joint statement by WHO, UNFPA, UNICEF and World Bank, skilled attendance at birth is the most effective way of ensuring that women get proper assistance when facing the unpredictable risk of pregnancy complications. Coupled with access to referral care and fertility regulation, skilled attendance at birth would lead to a substantial reduction in the number of maternal deaths [45].

Table 5: Selected Human Resource Indicators in Uganda

Indicator	1989	1995	2000
Population per physician	22,600	25,400	18,600
Population per nurse/midwife	8,000	7,700	7,000

*Source: Ministry of finance, planning and economic development (1999) [39]*

One can see that there is a general shortage of human resources, but disaggregating these numbers also shows that there is an inequitable distribution of personnel between districts and between urban and rural settings. Over 80% of doctors and 60% of midwives and nurses are located in hospitals, which mostly serve urban populations [46]. The following table demonstrates the inequitable share of personnel in select urban and rural settings. Such discrepancies may be difficult to overcome, as poor rural districts have the least capacity to provide additional incentives to attract personnel.

Table 6: Share of Personnel Among the Most Urban and Rural District, 1997

District	Population Per Medical Assistant	Population Per Nurse/Midwife
Kampala district (Urban)	--	2,250
Jinja district (Urban)	7,070	--
Moyo district (Rural)	21,950	10,970
Kibale district (Rural)	20,020	27,530

*Source: Draft Human Resource Development Policy, 1997 [46]*

In recognition of the importance of midwives for the improvement of maternal health, their professional scope has been expanded to include responsibilities that had previously been reserved for medical doctors. The administration of intravenous fluids, prescription of antibiotics, manual



removal of the placenta and use of manual vacuum aspiration machines in post-abortion management are some of the new responsibilities that have been transferred to midwives [47].

As a further stopgap measure, medical doctors and nurses/midwives are being trained in basic obstetric anaesthetic skills to increase the service coverage for obstetric emergencies in the context of a scarcity of anaesthetic personnel. These interventions have not been evaluated to ascertain their coverage and effectiveness [47].

Table 7 shows the profile of human resource outputs from training institutions over the period 1995-2000. Overall, the training institutions are producing fewer graduates, especially midwives and anaesthetists, than required for the expanded provision of services under the Health Sub-District policy.

Table 7: Number Graduated for Selected Medical Cadres 1995 - 2000

<b>Cadre</b>	<b>Total For Period</b>	<b>Average Per Year</b>
Medical officers	893	149
Clinical officers	1,123	187
Comprehensive nurses	185	31
Midwives	1,784	280
General nurses	2,320	387
Anaesthetic officers	64	10
Laboratory Tech	169	28
Radiographers	33	6

*Amandua, 2001 [48]*

It is estimated that about 60% of the annual output of nurses and midwives are trained in schools affiliated to PNFP hospitals [49]. However, trained staff may lack the competence to handle common emergencies. For example, medical doctors leaving medical school can choose to not complete an Obstetrics and Gynaecology rotation during internship, despite obstetric complications being the most common emergency faced in medical practice. Lack of competence in handling obstetric emergencies has been perceived as unacceptable luxury for Ugandan doctors and nurses [50]. Comprehensive training schools have been established in the last 5 years to train Comprehensive Nurses; a cadre that will have both general nursing and midwifery skills.

Using local government job advertisements between 1995 and 2000 to infer priority for maternal health services by the district administrations, Amandua 2001 demonstrated that midwife vacancies form the largest share (28%) of the 3,338 positions advertised at district level, followed by general nurses at 20% and doctors at 6% [48]. This indicates some discrepancy between the numbers of each trained (as shown in the table above) with the needed personnel. While more midwives were needed according to the advertisements than nurses, more general nurses are trained each year on average. This discrepancy raises questions of human resource management and training, including how to encourage larger proportions of midwives to emerge from training institutions.

Given that most training institutions share the problems associated with the host hospitals, there is a worry that the attitudes and skills developed in these institutions may affect the overall performance of the trained personnel [51]. For example, the general lack of adequate clinical tools in training hospitals is likely to produce cadres with competence gaps. Where the general morale of providers/trainers is poor and informal provider behaviour exists, various degrees of professional

neglect may be perceived as normal among trainees. Survival strategies for workers seem to work against the efficiency of the health system. Providers have adopted practices that see professional time being taken away from duty stations especially in the public health facilities, or misappropriation of drugs to private practice [52,53].

In general, the professional skills that are urgently needed at the district level (at the upgraded health sub districts) to deliver the minimum health care package include those of doctors, midwives, anaesthetic officers/assistants and laboratory technicians [48].

### **3.6 Public-Private Mix**

Strengthening the collaboration and partnership between the public and private sectors in health is an important guiding principal of the National Health Policy [49]. The goal of the partnership is to contribute to the strengthening of the national health system through the capabilities and full participation of the private health sector to maximize the attainment of the national health goals. A policy to govern the partnership is being drafted as dialogue continues on how to structure financing and regulation mechanisms. However, the policy implementation is likely to be constrained by the lack of information about the nature of private practice and the extent to which it meets public health goals.

The contribution of the PNFP NGOs to maternal health services is also not well quantified but is significant from the policy point of view – in particular because a large number of low level facilities (providing antenatal care, for instance) are run by these actors. There are also non-facility based private sector actors, such as NGOs and donors, who are involved in, or support, public sector health services for maternal health. These include the Delivery of Improved Services for Health (DISH) Project and other nongovernmental projects undertaken with the support of USAID, UNFPA, UNICEF, CARE, GTZ and other multilateral, bilateral and NGO development partners. Most of the efforts have been focused on the rehabilitation of infrastructure and training of providers (including TBAs) and piloting interventions, especially in maternal referral and management of decentralised service delivery.

However, it has been noted that recent health structure expansion in the public sector, coupled with relative salary growth in the sector, has resulted in an inflow of personnel to the public sector from the PNFP sector. The effect of this loss of personnel in the PNFP sector is being felt in terms of quality decline [49].

#### **3.6.1 DISH Project**

In the last decade, the DISH Project (sponsored by the United States Agency for International Development) was the largest project with a reproductive health focus in Uganda. After seven years of implementing reproductive maternal and child health programs in ten districts, the DISH project has registered some positive results. The project trained at least one nurse/midwife per health centre between 1995-1999 in the project districts. The trainees, through clinic and family visits, provide integrated reproductive health services at the community level. Through its ongoing information, education, and communication activities, the project encouraged the use of family planning and maternal services during pregnancy. Results found an increase in the percentage of women receiving delivery care from nurses/midwives for their last birth between 1997 and 1999. The following table presents some of the findings, along with DHS data for comparison:

Table 8: Attendant at Delivery, Comparisons of Uganda DHS and DISH Project Area

	DHS 1989	DHS 1995	DISH 1997	DISH 1999
Doctor	3%	4%	12%	10%
Nurse/midwife	36%	34%	44%	54%
Traditional Birth Attendant (TBA)	6%	15%	10%	18%
Relative/other	36%	35%	30%	18%
None	17%	12%	10%	9%

Source: Uganda DHS 1989-1995 and DISH surveys 1997-99 [1,2,3]

### 3.6.2 Uganda Private Midwives Association

In regions of the country with relatively high incomes, the private sector has established health services in some communities. Private midwives have set up private maternity homes with the assistance of national and international donors who have provided them with start-up capital and equipment. In such areas, the private midwives have provided a commendable service. However due to the high disease burden on poor families, private sector initiatives such as these have witnessed a stagnation of income due to non payment of health care bills. Further, they have tended to avoid investing in essential but costly services such as emergency surgery or blood transfusion facilities [48]. The Uganda Private Midwives Association has enrolled an increasing number of members from 600 midwives in 1998 to 748 in the year 2000. The private midwives and maternity homes demonstrate the extent of one market for private midwifery care, and offer the prospect of expanding service accessibility at the community level – at least in districts with higher incomes. DISH is also engaged in supporting the Private Midwives Association through training in Family Planning and Safe Motherhood, and clinical life saving skills [54].

### 3.7 Maternal Health Disparity in the Country

Issues of poverty are also linked to maternal health outcomes [55] and tables 9 and 10 show that regional disparities exist in income, life expectancy and service delivery in Uganda.

Table 9: Regional differences in key variables affecting maternal health

Region	Monthly income per capita (Shillings)	Life expectancy (years)	ANC access to Doctor %	ANC By Nurse/ midwife %	ANC by TBA %	ANC no care %
Central	23207	50.3	17.5	76.3	1.8	4.3
Eastern	10353	48.6	4.3	89.7	0.7	5.1
Northern	9600	44.3	4.5	87.4	0.6	7.2
Western	11625	48.3	8.9	80.2	1.8	8.6

Source: Uganda National Household Survey 1994-95 and DHS 2000-01 [3,56]

Peace and stability are also pre-requisites for positive health outcomes and the northern region of Uganda has been an area of civil unrest and insecurity since mid 1980s. It is estimated that 32% of the population in the northern region has been internally displaced – and under-sampling of conflict affected areas could indicate overestimates of ANC use for the northern region as a whole [57].

### 3.7.1 Urban/Rural differences

As mentioned above, health practitioners tend to be consolidated in urban areas. In a country where the urban population is only 15% (DHS 1995), it may be concluded that the vast majority of the population have limited access to the services of trained medical personnel. In rural areas there are three times more people per clinical assistant than in urban areas. The ratio of population per nurse/midwife ranges from five to thirteen times higher for rural areas. The ratio for doctors is even higher. There has been little action by government to make the deployment patterns in the favour of rural areas.

Most relatively well-equipped hospitals and health units are also found in urban environments. The quality of services provided in the rural areas is far lower compared to the urban facilities.

Table 10: Differences in the quality of antenatal care received (percentages)

Characteristics	Informed about complications	Weight measured	Height measured	Blood pressure taken	Urine sample given	Blood sample given	Received TT injection	Received Iron tabs	Received Anti-malarials
<b>Residence</b>									
Urban	38.1	88.2	59.4	83.7	32.0	36.6	83.7	66.1	38.3
Rural	16.1	68.7	30.6	52.1	7.6	11.8	72.6	52.6	34.0
<b>Region</b>									
Central	26.6	73.9	41.2	71.3	20.1	22.7	74.6	67.2	40.7
Eastern	14.1	72.3	29.3	46.8	6.5	10.3	78.5	55.3	39.4
Northern	18.3	81.0	37.3	57.0	8.7	11.0	77.5	60.0	31.4
Western	15.5	59.8	29.7	48.0	5.6	13.6	65.8	33.1	23.4

*Uganda Demographic and Health Survey 2000-01 [3]*

## 3.8 Social-Political Environment

### 3.8.1 Economic and Political Context

Since 1986, the government has pursued economic policies and structural adjustment with the support of a number of international development partners. Although still among the world's poorest countries, the annual GDP growth rate of Uganda has averaged 6.5% since 1990, with a per capita GDP of about \$300. Assuming a minimum basic expenditure required for food and basic family requirements to be \$24 per month, 35% of Ugandans fall below this threshold and are said to be living in absolute poverty [56]. In an attempt to deal with poverty in the country, a multi-sectoral Poverty Eradication Action Plan has been developed as the overall framework for government action. The top priorities of the plan are universal primary education (UPE), primary health care, rural water and sanitation, rural road maintenance, agricultural extension and modernization, and information technology. UPE provides the opportunity for free basic education and has improved school enrolment especially for girls. It is envisaged that action in these priority areas will provide an impetus for development in all other sectors of the economy and improve the maternal health status in Uganda [19].

### 3.8.2 Decentralization and Health Service Management

Under Uganda's decentralized government structure, the principal responsibility for the provision of the health service, including maternal and child health care, to the country's largely rural population now rests with the individual district administrations. Therefore, since 1997, the Department of Maternal and Child Health and Family Planning (MCH/FP) under the Ministry of Health has mainly focused on building the capacity of districts to enable them to plan, implement and supervise maternal and child health and family planning services. Further decentralization of health services has been built into the health policy in the form of establishing HSDs at

constituency level. This has entailed upgrading a Health Centre at each of the 214 constituencies to provide a comprehensive range of services under the Minimum Health Care Package [58].

## 4. Population Level Service Characteristics

### 4.1 Fertility and Family Planning Services

#### 4.1.1 Contraceptive knowledge, access and use

Considering the contraceptive prevalence rate (CPR) of 15%, the unmet need for Family Planning (FP) is estimated at 38%. With a total fertility rate (TFR) of 6.9, it can be inferred that significant access barriers to FP services exist in the country. The Uganda DHS of 1995 provides various reasons for the non-use of contraception and these are reflected in table 11 below:

Table 11: Reasons for not using contraception (1995 DHS, percent)

Reasons for not using Contraception	Women			Men		
	Age			Age		
	<30	30 - 49	Total	<30	30-54	Total
Want children	50.7	23.1	37.0	61.4	39.8	46.7
Side effects, inconvenient, interferes with health/body	6.2	7.0	6.5	2.9	1.6	2.0
Knows no method, source, hard to get or high cost	16.8	14.2	15.6	9.8	7.4	8.1
Religion, respondent/partner or others opposed	17.2	13.8	15.5	15.5	21.8	19.8
Infrequent sex, menopausal/hysterectomy, subfecund /infecund	5.2	37.9	21.4	1.1	20.1	14.0
Inconvenient	0.3	0.1	0.2	0.0	1.6	1.1
Other/don't know/Missing	3.5	3.9	3.7	9.4	7.0	7.7

#### 4.1.2 Unsafe Abortion

Unsafe abortion is a major problem in Uganda, however impact is difficult to measure as studies often use different estimation methods. It is usually estimated to contribute between 20 to 35% of maternal deaths and a much higher proportion of reproductive health morbidity. Unmarried young girls are at higher risk of unsafe abortion due to economic and social reasons (MoH, 1999).

Adolescents may be particularly at risk of unwanted pregnancy and, as there are no legal abortion services, an unsafe abortion may follow. Approximately 15-23% of female youths (15-24 years of age) who had ever been pregnant had had an abortion [59,60]. Small studies among girls have revealed a high knowledge of abortion techniques as a birth control method, although these techniques may carry significant risk [61].

#### 4.1.3 Adolescents

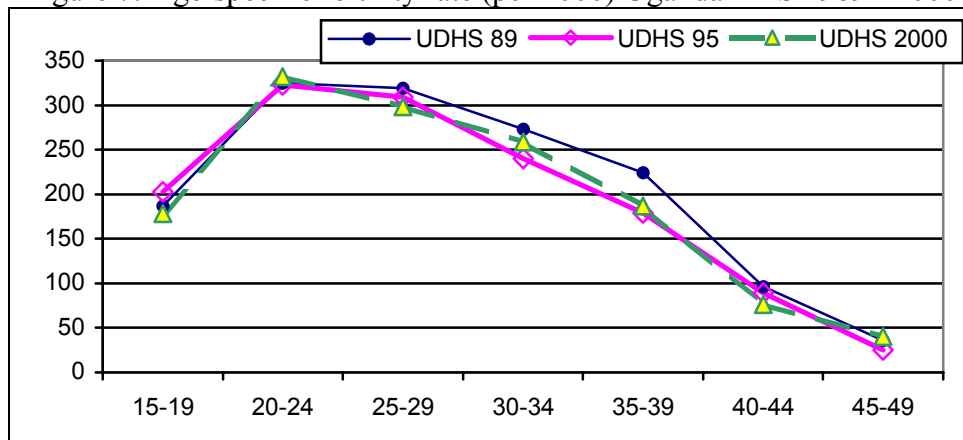
Adolescents contribute almost one quarter (23.3%) of Uganda's total 21 million people [16]. As elsewhere in the world, the young often face health risks due to the physical, psychological and

social transition to adulthood. Major changes in sexual and other behaviour occur during this period, with implications for the fertility and maternal health status of the country.

A sizable proportion of young males and females are sexually active by 15 years of age, although the legal age for sexual consent is 18 years [62]. On average, women become sexually active earlier than men. By age 15, 30% of women have had sexual intercourse and 72% of women have done so by age 18. Research has found that peer pressure motivates many adolescents to initiate sexual activity early, and financial transactions were a major component of adolescent sexual relationships [63].

The impact of adolescent sexual behaviour and early marriage are reflected by several reproductive health statistics. For example, Uganda has one of the highest rates of adolescent pregnancy. By 19 years of age, 71 % of girls have begun child bearing. Use of modern contraceptives among adolescents is 7.2%, far below the national average of 15.7% [2]. Around 38% of girls aged 15-19 years are married and this proportion rises to 68% among 20-24 year olds. On average, males enter into their first union at a later age than females – with a median age of 23.3 years (median age at sexual onset for females is 18.8 years). Early marriage has been found to expose girls to health risks commonly associated with early child bearing: high abortion rates and the chance of obstetric complications. Abortion is not legal in Uganda, but according to one study, it contributed 27.8% of all maternal deaths among adolescents [64]. DHS surveys have consistently shown that men are more likely to want more children than women. Two in three men want to have more children than their partners and the desire to have children is high even at a young age.

Figure 7: Age-specific fertility rate (per 1000) Uganda DHS 1989 - 2000



According to Arinaitwe and Turinde, while contraceptive knowledge among adolescents was found to be high, the level of actual use among sexually active adolescents was in contrast very low. In their study they found that under 25% of the sexually active males and females actually used a method. While this is higher than the results of the DHS surveys, they also found a large regional variation in contraceptive use, with the prevalence being highest in urban areas (30% males and 35% females). In the rural areas only 13% of male and 5% of female youths used contraceptives. The use of contraceptives, including condoms, was highest among educated adolescents, at 15-18%. The most important barrier to safer sex practices was said to be the attitude of parents, who did not wish their children to be exposed to contraception, especially condoms, for fear of promoting sexual activity. The belief that contraceptives are unsafe also discouraged some potential users [60].

At the same time, the authors found that adolescents rarely utilized public health facilities because of inaccessibility due to distance, poor reception by health workers, lack of drugs at the health

units, and lack of financial support. Unmarried adolescents could, therefore, not easily obtain family planning supplies and advice. Furthermore, before their elimination in 2001, user-charges in public health facilities were commonly unaffordable by adolescents, and there were no services specifically designed for them in a number of districts. However, a number of public and private providers had some component of adolescent health services integrated in their programs. Providers of adolescent services in the communities included drug shops, teachers, health workers, and general community resource people.

Another recent study by Korukiko *et al.*, found that the perceived health problems by adolescents were concentrated in reproductive health. The main sources of information on health issues reported was radio (77%), health workers (25%), and teachers (23%). The main source of reproductive health information specifically, however was ‘aunties’ (28%) and health workers (18%). Only 5% of adolescents would obtain such information from their parents. There were also few health facilities found to offer adolescent-friendly health services. The study found that the provision of such services was affected by several factors, such as religion, cultural beliefs and the refusal of adolescents to seek care in the first place [65]. The study recommended that training of health providers should include adolescent sexual and reproductive health issues such as adolescent growth and development, sexuality and its consequences, the role of parents, safe sex practices, life skills, counselling, and improved referral systems and record keeping for adolescent health problems.

## 4.2 Access to Antenatal and Delivery Services

The 1995 DHS also provides a breakdown of antenatal attendance patterns in Uganda. It indicates a high level of utilization of antenatal services, although consultation tends to start late. The median time at which mothers start visits was at 6 months of gestation, with a median of 4 visits in total. The Safe Motherhood Needs Assessment of 1995/6 also found that most ANC clients (77%) make their first visits in the second and third trimesters of pregnancy. The DHS surveys of 1988/89, 1995, and 2000/01 also give information on the type of attendant at ANC and delivery, as shown in the table below:

Table 12: Type of attendant at ANC and birth according to DHS (percent)

<b>Assistant at ANC</b>	1988/89	1995	2000/01
Doctor	9	10	9
Nurse/Midwife		82	81
Others		8	10
<b>Assistant at Birth</b>			
Doctor		4	4
Nurse/Midwife		34	34
Others (including TBAs)	65	62	62

According to the surveys, institutional deliveries have remained constant at 48% despite a significant increase in the number of trained providers between the survey periods.

These data indicate a large number of women who will seek ANC, yet not deliver with a trained attendant. Data from Mbarara district corroborates this, finding that nearly all women (91%) attended antenatal care but more than half (56 %) delivered at home. Among those who never attended ANC, nearly all (92%) delivered at home. Reviewed studies have shown that expectant mothers face difficulties if they attempt to deliver in hospitals without evidence of antenatal

attendance. Most pregnant women are prompted to register with a health unit during the antenatal period as an insurance strategy in case a hospital delivery is needed [35,66,67,68].

#### **4.2.1 Women's Status, Empowerment, and Access to Financial Resources**

It has been observed that the overall maternal health status in Uganda may be correlated with the access of women to household income. According to a study by Blanc *et al.*, women's occupation and ability to earn money were important for their ability to save for maternity care. In general, information sharing between couples about their household incomes was found to be poor, affecting the bargaining power of women when they need to decide with their partners to seek maternal health services [69].

Studies have also shown that the decision-making power of women for seeking health services during pregnancy is limited in many ways. Decisions are mostly taken, or dictated, by relatives and their husband. This takes the decision-making process away from the woman who is directly facing potential complications. Furthermore, societal and familial expectations can influence women's choices to seek care, and may lead to delays in seeking essential professional care. Pregnancy and childbirth are perceived as a normal process and in many Ugandan communities women who deliver in the community with little biomedical assistance are often held in high regard [70]. In addition, social responsibilities assigned to women sometimes stand in the way of their using needed services. For example, one of the main reasons for refusing hospital admission during antenatal visits was found to be the need for women to provide for their families and care for young children [47].

On the other hand, other studies have found that formal education empowers women to know their rights, take appropriate decisions and make healthy personal choices, thereby influencing obstetric performance [35].

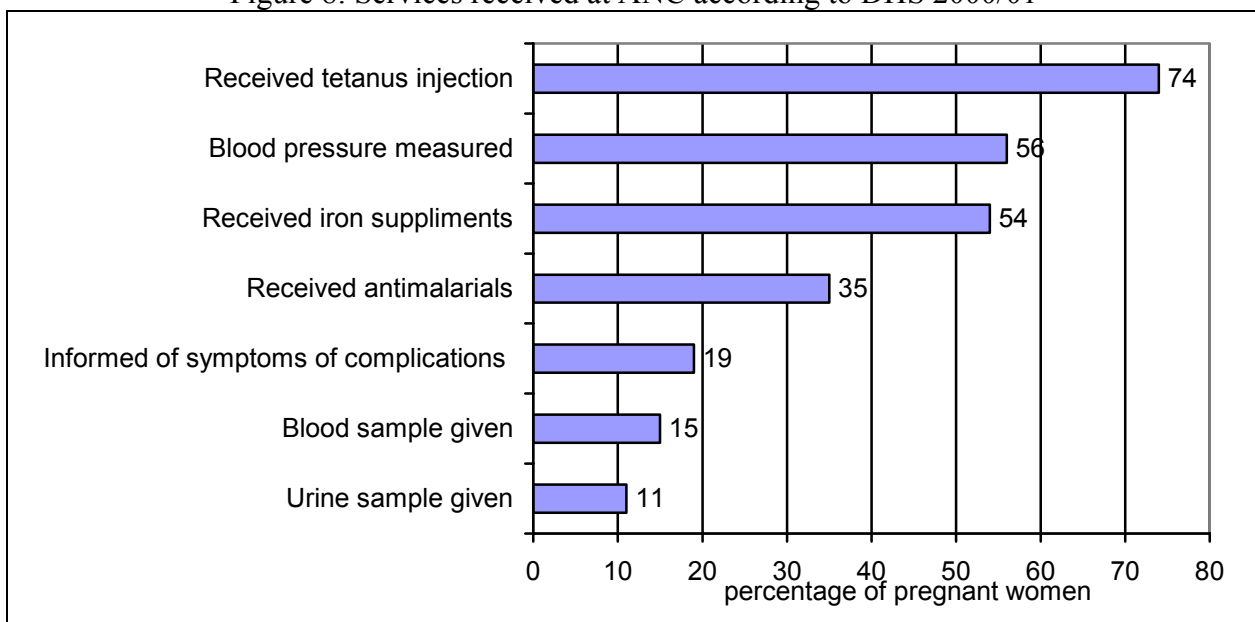


## 5. Maternal Services Delivery at Facility Level

### 5.1 Antenatal Care Components

The DHS of 2000/01 included a review on the components of antenatal care received in Uganda. The findings show that the services received by women at ANC are not up to satisfactory standards in many cases as shown in Figure 8:

Figure 8: Services received at ANC according to DHS 2000/01



However, it would appear that services are improving. In 1995/96, the Safe Motherhood Needs Assessment found that 97% of ANC clients did not receive basic laboratory tests such as a haemoglobin test. The provision of anaemia prophylaxis was recorded in only 50% of the antenatal cards and only 6% of clients received malaria prophylaxis. All of these indicators have improved according to DHS data from 2000/01. In the Needs Assessment, 90% of clients indicated that the staff at the ANC were friendly and polite, but only 36% reported that they were availed the opportunity to ask questions. The Needs Assessment Survey concluded that antenatal services in the districts were not adequate due to low staff levels, high caseloads, lack of proper training and lack of clear management guidelines. The study found that 76% of health centre IIIs and IVs offered antenatal care.

### 5.2 Management of Complications in Pregnancy

Additional information on facilities can be seen in the Needs Assessment of 1995-96. Few health facilities were found to be able to provide emergency life saving services, particularly among lower level health centres. Only 15% of hospitals were able to manage abortion complications, 39% sepsis, 3% eclampsia, and 24% could manage ante-partum haemorrhage [7]. Similarly a study by Mbonye revealed that some of the reasons for poor service availability for post-abortion care included inadequate skills of providers, lack of equipment, supplies and drugs. The author also found poor clinical records on abortion in most health units [6].

Data on complications during pregnancy show that malaria is the most important cause of morbidity during pregnancy. Anaemia is the second most common complication because of

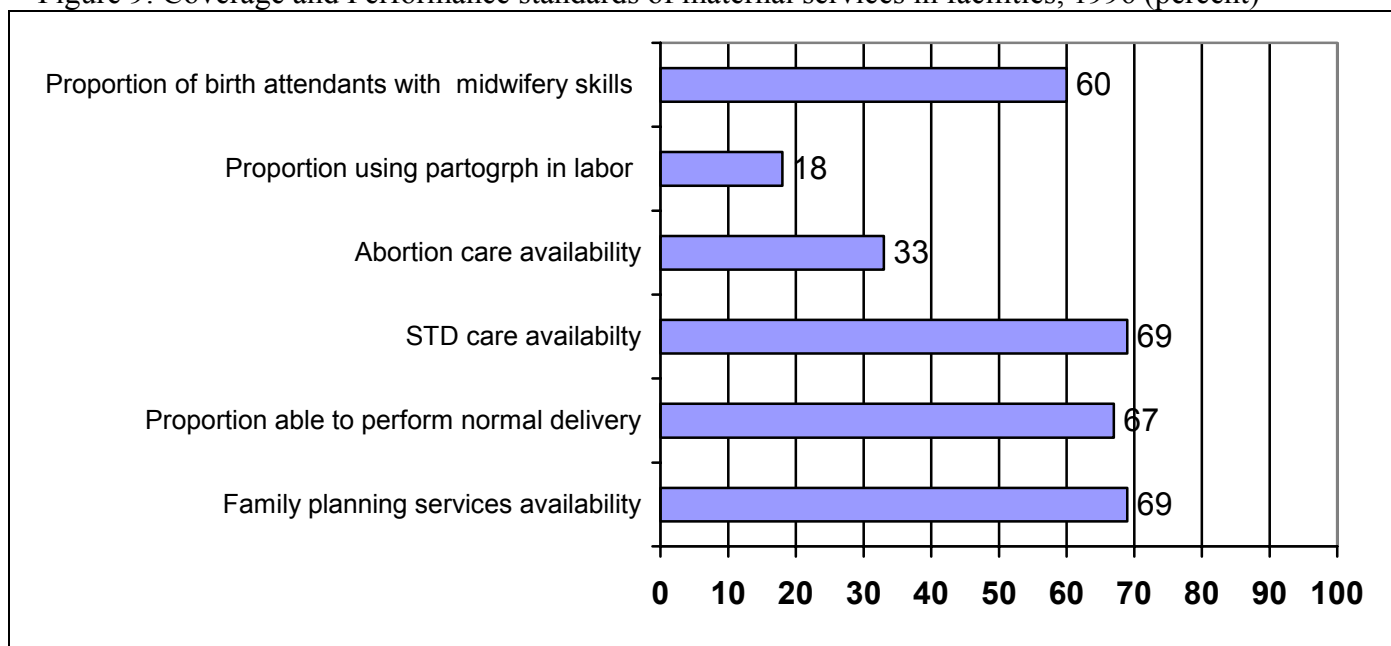
maternal nutritional deficiencies as well as the effects of malaria. Sexually transmitted diseases, especially syphilis, gonorrhoea and HIV/AIDS also feature as important complications faced by pregnant women [14].

### **5.3 Delivery and Postnatal Care**

Generally, the Needs Assessment Survey revealed that the quality of delivery care to similarly be poor. For instance, recording of foetal heartbeat and blood pressure were done according to standards in only 11% and 48% of cases, respectively. Partographs to monitor progress of labour were used in only 18% of the health facilities. Some hospitals (17%) did not offer 24-hour obstetric surgery. Gaps were noted in obstetric services at night and on weekends. Many hospitals (43%) were lacking capacity to administer general anaesthesia.

It has also been observed that very few women attend postnatal care (25%), and only 52% of health centres offered such care. However qualitative information from group discussions revealed that postnatal care given is often targeted on the baby and services for family planning rather than the mothers themselves [7].

Figure 9: Coverage and Performance standards of maternal services in facilities, 1996 (percent)



Source: *Safe motherhood Needs Assessment Survey of 1995/6* [7]

About 53% of the normal delivery records were found to be incomplete indicating poor record keeping. Anecdotal evidence suggests that some public referral hospitals refer mothers to neighbouring NGO hospitals for caesarean sections and complications, due to the absence of doctors, anaesthetists and other resources such as blood and equipment.

The unsatisfactory status of equipment has been documented by several studies in hospitals [39]. Public hospitals have had little new investment in equipment due to inadequate financing of development budgets and little support from donors. However, under the current health sector program, procurement of new equipment is a priority proposed for financing.

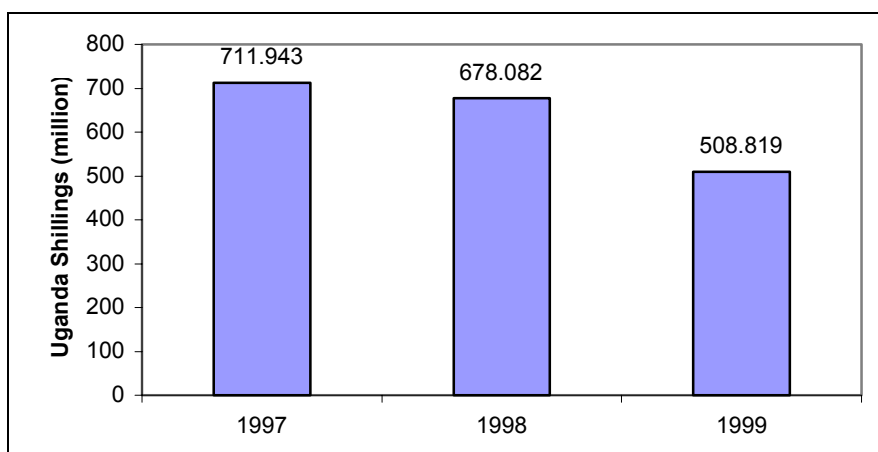
### 5.3.1 Provider Training

Health care providers of all cadres are being retrained in midwifery skills and related services to operationalise the government's policy of providing a basic package of reproductive health and services. The USAID funded DISH Project has pioneered the effort to train midwives in comprehensive reproductive health that combines basic midwifery with the management of sexually transmitted infections, HIV counselling, family planning and post abortion care. The DHS of 1995 and project evaluations of the DISH project demonstrated higher knowledge and uptake of contraceptives and lower fertility levels following these interventions.

### 5.3.2 Logistics Management for Drugs and Supplies

Drug shortages were identified in several cases as leading to problems of service delivery. In one study, the overall trend in financing of essential drugs and supplies at district level was evaluated. The financing was found to have declined over the period 1997-99 (see Figure 10). The survey further found that only 68% of clients at district health facilities obtained all prescribed medications. Among the non-dispensed drugs, antibiotics accounted for 48%, followed by analgesics/pain killers (11%). The average client's expenses to fill the non-dispensed prescription were estimated at approximately \$1.7 - three times the price of average user-charges paid at the facility [71]. Other studies have also demonstrated drug pilferage and the practice of dispensing a fraction of the prescribed medication in Ugandan health facilities [52,53,72].

Figure 10: Total Drug Expenditures for a Sample of 6 Districts 1997 – 1999 (unadjusted)



Source: National Medical Stores records for Masaka, Luweero, Mbarara, Hoima, Iganga and Bugiri districts 1997 – 1999 [71]

#### 5.4 Traditional and Alternative Maternal Health Practices

Traditional medicines are commonly used during pregnancy and birth in Uganda. The indigenous system of medicine has persisted for a long time and still continues partly because of inadequate modern medical services and inadequate drugs in health facilities [66]. Some of these medicines have been well known as remedies by particular groups in Uganda for many years, yet others have been found to be dangerous, containing highly toxic elements [40]. It is believed that certain childhood disorders such as congenital malformation and tumours may be due to toxic or carcinogenic constituents present in herbal medicine taken during pregnancy [54].

In a study by Neema in Mbarara district, it was found that 73% of women used traditional medicine when they were pregnant with their last child. Reasons women gave for taking herbs during pregnancy included cleansing the baby, preventing some STDs, preventing miscarriage and stomach upsets associated with pregnancy, and to soften or widen the birth canal. During labour, women often take herbs to ease and quicken the childbirth. Herbs taken during labour include those with oxytocic properties (contracting the uterus). From a biomedical point of view, such drugs can be associated with risk of rupture of the uterus, a potential life-threatening complication. These herbs have also been used to terminate unwanted pregnancies [70].

Several local cultural groups have traditional practices related to childbirth with varying degrees of perceived risks by biomedical health providers. This is a common cause of client-provider conflict in labour wards as providers may blame women for their use of potentially dangerous herbs [70].

The Safe Motherhood Assessment Survey of 1995/6 also showed that traditional birth attendants use local herbs on mothers before labour, during birth and in the postpartum period. The most commonly prescribed herbs were those that are perceived to stimulate labour contractions (50%), “relax” the pelvic bones (29%) and those to prevent miscarriage (26%). Little research has investigated the effects of various herbs on maternal processes [7].

## 6. Client Views of Services

### 6.1 Client Satisfaction of Services

The most recent National Service Delivery Survey [73] presents both district and nationally representative estimates for the perceived levels of satisfaction with some aspects of public service delivery systems. The survey respondents were predominantly male (80%) and data was collected about the six priority sectors of government from 13,604 households. Table 10 presents some of the findings related to the health sector.

Table 10: Selected findings of National Service Delivery Survey 2001 (percent)

Variable	National	Central	Eastern	Northern	Western
Respondents saying health centres are adequate (staff and equipment)	64.2	61.4	54.8	60.8	76.4
Staying within one hour distance from a nurse/midwife services	66.4	58.5	70.3	68.0	68.0
Satisfied with quality of health centres services	55.7	51.0	49.7	53.2	65.9
Satisfied with quality of pre/post natal services	55.4	48.9	61.3	49.5	58.4
Satisfied with quality of nurse/midwife services	62.0	52.2	62.8	66.7	66.0
Respondents saying corruption by nurse/midwife has increase from previous year	10.6	5.9	15.8	14.0	7.8
Respondents reporting that health providers levy informal charges	50.1	39.5	56.8	51.9	51.5
Respondents reporting that public providers refer patients to their own clinics and drug shops	62.4	52.1	67.6	65.5	63.9
Respondents that prefer private instead of public health facilities	41.9	44.6	42.4	39.0	40.9
Respondents reporting that the cost of hospital delivery is too high	47.1	51.7	44.8	42.7	48.1
Respondents reporting lack of adequate transport to hospital	28.8	25.0	34.9	30.8	35.4
Respondents reporting that midwives at hospital/clinics are not caring	3.5	2.9	4.2	3.5	3.2

#### 6.1.1 Views of Provider Practices

In a small study by Onama (2001), it was found that mothers feared and anticipated unbecoming handling (rudeness of midwives to mothers and attendants, slapping and pinching of mothers in labour by midwives and derogatory remarks by some doctors), unacceptable delivery posture, or being rushed for caesarean operation even when vaginal delivery seemed likely [35]. The same study also revealed that the women who used hospital services for delivery were concerned about hygiene in the labour rooms, hospital water supplies and the privacy of women in labour.

Anecdotal information suggests that standard procedures like frequent assessment of labour progress by several providers are in conflict with the cultural expectations of women, who see such attention as reducing dignity and esteem. This problem is compounded by lack of choice of providers especially in large maternity units. For such concerns, traditional birth attendants may be seen as more appropriate by women.

#### 6.1.2 Referral Behaviour

Transporting mothers to referral sites is also a common problem in Uganda. There are poor ambulance systems in the communities to respond to needs of women who need to deliver in hospital. The cost of transport in emergency situations can be high and was found in surveys to be the major factor in the delay to seek life-saving care in some communities [43,47]. Small studies have shown that even after training, TBAs can delay making referrals, mainly because of fear of

loss of income from their clients [74]. Studies at hospital level have documented institutional factors that can also affect the outcome of referral care. Among the major problems seen is the unpredictable expenses pregnant mothers face in the hospital environment. User-fees and other informal charges in hospitals have also been found to be important factors that discourage women from seeking delivery services [52,75]. Informal markets in labour wards are well established due to chronic shortage of supplies and so-called ‘supplier induced demand’ - for example, frivolous use of client-acquired supplies is believed to be a common practice to ensure more sales of gloves by the labour-ward provider [76].

### **6.1.3 Traditional Birth Attendants**

Most women in Uganda deliver in their homes assisted by relatives or traditional birth attendants with no formal midwifery training, and some pregnant women visit TBAs for antenatal care as well [67,70]. TBAs are members of the community with no formal training, but who have often acquired skills through apprenticeship and are known by the people in the community. However, they tend to have limited knowledge on risk factors and danger signs of complications in pregnancy. It is believed that women tend to have a more equal relationship and socially acceptable dialogue with TBAs compared to biomedically-trained midwives. Hence, many mothers continue to deliver at home with the help of untrained attendants whom they trust.

The Reproductive Health Programme in Uganda has implemented a strategy to train TBAs in the conduct of safe birth, including identification of complications and proper referral behaviour. A number of TBAs have been trained by the Ministry of Health and NGOs through such efforts. The ‘certification’ obtained by the trained TBAs boosted the community perceptions of TBAs as alternatives to trained attendant at birth [67,70].

Unfortunately, recent evaluations have found a persistence of poor referral and delivery practices from TBAs. In part this is because they will not receive the same payment from a referred case than from a successful delivery, which provides incentives to delay referrals as long as possible and attempts to manage complications on their own. There has also been no obvious change in maternal mortality resulting from TBA training interventions.

## **7. CONCLUSIONS**

### **7.1 Population Level**

Uganda faces a number of challenges at the population level with regard to improving maternal health in the country. DHS surveys show little change in the proportion of skilled attendance at birth, which could indicate low appreciation of the risks of pregnancy, high barriers to care, or both. The context of high desire for children especially by men seems to expose women to repeated pregnancy and childbirth. Early sexual activity and motherhood by adolescent girls – often before they reached full maturity - is a major contribution to abortion and maternal mortality and morbidity. Poverty in the community can also be seen to compound maternal health problems, especially as many households rely on large numbers of children as a source of labour, and women are expected to work when pregnant or near delivery. The cost of accessing services is generally high as well for pregnant women, both in terms of time required to get to the facility as well as fees for maternal services – and lack of control of domestic resources by women has been shown to delay decision-making about seeking health care [35,53, 43,70,77,78].

At the macro level, poverty is the major problem for health status development. Rampant poverty at the community level works in many ways to exclude women in need of maternal care. About a quarter of the national population lies below the poverty line. Per-capita spending on social services is low due to the poor tax base. As a result, development partners have been relied upon to provide financial support to social services, including in the health sector.

### **7.2 Facility Level**

Even if health care is sought in Uganda, this review has identified a number of challenges with the provision of services at the facility level. In general, there is poor population coverage for a range of maternal services [7]. The overall number and placement of trained personnel also affects delivery services. The available human resources are skewed towards urban areas due to hospital-biased deployment where they seem to operate under capacity. The relative shortage of midwives is being addressed by expanding their school enrolment and broadening the curricula to produce more comprehensive cadre with midwifery skills, yet national training centres were still found to train too few midwives in comparison to demand (measured by posts advertised) – which may reflect poor incentives for individuals to go into midwifery as well as training centre bias. Nevertheless, even if more midwifery students can be recruited, hospitals are under-equipped and under-financed to provide quality training for midwives and maternal services to women.

Beyond the problems of midwives and skilled attendance, there is also limited coverage of emergency maternal services, as illustrated by capacity to handle post-abortion care. The poor transportation infrastructure, especially for emergency care and referral, is a hindrance for service uptake. Ambulance services are nearly absent, which makes hospitals less responsive to the needs of maternal care emergencies.

For those women who do get to hospitals, there are many barriers to their receiving appropriate care. The lack of tools, shortage of supplies and associated informal charges all point to poor quality service and can affect the perceptions of users. Provider morale is low due to poor incentives and work ethics. Small studies suggest that women are uncomfortable with the culturally insensitive standard procedures in maternity wards, although the appreciation of cultural

values of communities and their influence in the uptake of maternal services has not been well explored [40,52,51,72,74].

This being said, there have also been achievements in Uganda. The health infrastructure is being upgraded, including the creation of surgical capacity, at 214 health sub-districts, to respond effectively to maternal emergencies. A doctor has been recruited at each of the sub-districts and theatre capacity and blood transfusion services are being operationalized. Training of midwives and doctors in emergency obstetric care is being financed as an integral part of the in-service training at all levels. As a commitment to improving maternal health status, the government tracks deliveries in health facilities as one of the monitoring indicators for its overall poverty eradication programme. Priority in development budgets is also being given to transportation and equipment needs to develop improved referral systems [15, 19, 31, 34,58].

### **7.3 Policy Level**

As the above improvements demonstrate, in order to address challenges faced at the population and facility level, the government of Uganda has developed several progressive national policies that address health needs and articulate the importance of fundamental human rights and gender equity. However, while some progress has been seen, it has been difficult to translate many policies into specific changes on the ground.

The national health policy clearly outlines the need for improvements in national health indicators, with maternal mortality one of the indicators that government plans to prioritise. Expansion of service delivery infrastructure is one of the strategies proposed by government to improve maternal health status. Concerns of disproportionate expenditure at hospital-level has been a key policy driver for the government as it has sought to target financing to primary health care levels. However new developments in the financing of health services may not be structured in a way that will maximise policy goals – so for example the government is increasing public subsidies to NGOs for service provision, yet the subsidies are not explicitly linked to performance or deliverables for priority areas. The lack of a strong financial base and reliance on development assistance further presents challenges to implementing national priorities and producing wide-scale improvements in services. However, new opportunities in financing health services are emerging, including partnership with the private sector and the Sector Wide Approach to health care financing that is being pursued. The overall trend in financing of health services is improving, although the government's stewardship in financing needs further development.

Overall, there is weak institutional capacity to implement policies and to regulate the delivery of health services. There is little use of performance incentives and sanctions in the public health service delivery network [40]. The available human resources are less well distributed in the regions and are under utilised in urban hospitals. There is no clear government plan on school enrolment in strategic professions such as midwifery, anaesthetic sciences, and others central to the delivery of maternal services and the basic package in general. Due to the elective nature of some of the training curriculum, competence in maternal service delivery is not universal even among doctors. Community-level providers, such as TBAs, are increasingly trading their services at high charges that exclude poor women [55,70]. Among others, poor work ethic of some providers, informal charges and poorly informed communities act in synergy to disenfranchise women from the health system.



## 7.4 Uganda Health Systems Development Program

Following the literature review presented above, the Uganda branch of the Health Systems Development Program is planning to undertake further investigative studies to fill some of the knowledge gaps identified in order to understand larger health systems factors which affect the provision of improved services for maternal and newborn health.

### *Questions Raised*

The above summary of the state of information raises a number of questions of interest from a health systems perspective:

- Health Seeking Behaviour and Access to Services. The overall status of women, social expectations to deliver at home, and demands on women's time have all been identified as factors leading to home delivery and use of TBAs rather than trained medical birth attendants for delivery assistance. However, there are clearly also technical access barriers (such as geographical distance from facilities or cost) which may prevent utilisation of services, and issues with the quality of care available in facilities. It is important to disentangle the web of access barriers to identify the way these various factors are interrelated. TBAs may be socially more appropriate for some women, but they may also be particularly preferred when there is a perception of low quality in public health centres. Similarly, transportation barriers exist, but other factors may increase the delays in seeking care, thereby making early planning to offset transportation barriers more difficult. It is not known what interventions are most effective for promoting utilisation of trained attendants at birth and/or delivery within medical institutions, and there is little known about the effectiveness of potential behaviour change interventions. However, these issues are crucial to understand if attempting to improve the utilisation of professional maternal delivery services. Finally, there may be specific groups who are systematically excluded from accessing maternal health services. In particular, adolescents have been identified as one group who are under-served by appropriate sexual health care and services. It is worth investigation to understand the needs and constraints of groups such as these in order to plan appropriate policy interventions.
- Experiences of Service Delivery Systems - It is unknown what role is played by the training institutions in improving the goals of maternal health in country. It may be important to investigate to what extent biomedical standards and protocols are influencing quality and acceptability of maternal care in Uganda. An important part of this can be to evaluate women's experiences of maternity services at hospital and delivery centres, identifying what women's experiences tell us about the needs or performance of management and regulation.
- Contraception and Family Planning. Abortions are not legal in Uganda, yet the high levels of abortion related maternal mortality point to a continued use of illegal and dangerous abortions in the country, indicating a need for increased use of contraception and family planning to avoid unwanted pregnancies. Adolescents, again, seem to be particularly vulnerable, as abortion related mortality has been estimated to be a very large component of maternal mortality in this group. However, improving access and availability of contraception will need to similarly address social relations in the household, desired family

size by both men and women, and other elements affecting the uptake and continued use of contraception.

- Human Resources and Incentives. The review of literature has identified a number of important issues for performance of maternal care facilities, but one striking contradiction appears to be the demand for a greater number of midwives, while at the same time midwives in some facilities perform relatively few deliveries over the course of a year. One explanation might simply be the distribution of midwives. As noted, most medical workers are placed in urban areas, yet only 15% of the population live in these areas (and fertility rates may be different from rural areas as well). Similarly, problems of private practice in public facilities have been observed, which might lead to midwives not spending their full time in their public sector positions. Yet while policy calls are made to expand the number of trained midwives, this situation may point to a lack of incentives for midwives to take up positions where they are most needed, leading to an over-abundance of midwives in areas with relatively low need. Similarly, it has been noted that training centres do not train as many midwives as might be expected from demand for these positions. This may point to a lack of incentives for individuals to go into midwifery. Rather than simply calling for more training and more midwives, there may be a need to investigate the factors that constrain the efficient use of existing midwives, and to trace out the incentives (or disincentives) for individuals to become midwives and take up high-need posts.

### ***Government Interventions***

Finally, beyond these general thematic question areas, there are similarly a number of questions which can be related more specifically to potential or ongoing government interventions in the Ugandan health sector. There are a number of initiatives attempting to expand utilisation of maternal health services or promote health more generally. These include:

- The HSD Policy – The Health Sub-District policy is attempting to improve District level facilities, including emergency obstetric care for maternal complications. This reorganisation and improvement at a decentralised level may have great implications for maternal health, and it may be worth investigating a number of factors surrounding the HSD improvements – including the actual improvements in quality of care seen and the change in utilisation patterns.
- Public-Private Partnerships – The Government of Uganda has attempted to improve service delivery in the health sector, including for maternal health, through a policy of public-private partnerships. This raises a number of questions around contract issues and to what extent the arrangements maximise efficiency and equitable outcomes of maternal health service delivery. It is similarly important to ask what decentralised governance capacities and incentive-schemes are needed to steer the collaboration to maximise public health goals. Private sector actors – both for profit and not for profit – may have differing goals than the public sector and the government must act to provide incentives for these actors to work towards the outcomes desired by the public sector. It will be important to investigate the ways this is done, and maternal health provision provides one opportunity for this.
- The SWAP – A Sector-Wide Approach to health financing is being implemented in Uganda, but it is not yet clear what the impact of this change will be. In general it is felt that the SWAP will improve the coordination of funding of the health sector, avoiding the project based approach of donors that has led to a more ‘piecemeal’ approach in the past.

The SWAP is also hoped to lead to joint planning and goal development, with a more central role for the government in the process. While the SWAP is intended to address all health care issues, looking at the impact on maternal health services may provide an important avenue for investigation of the way that different health services are affected by SWAPs in general. Maternal health promotion has been shown to rely on a wide network of health services, with referral between facilities an important element. Reorganisation of the health sector, as envisaged by the SWAP may have both positive and negative effects on this network required for maternal health provision.

## REFERENCES

1. Ministry of Finance and Macro International, Inc. *Uganda Demographic and Health Survey, 1989*. 1989.
2. Ministry of Finance and Macro International Inc. *Uganda Demographic and Health Survey 1995*. 1995.
3. Uganda Bureau of Statistics. *Uganda Demographic and Health Survey – Preliminary Report 2000-2001*. 2001.
4. Ministry of Health. “The Paradox of Uganda’s Poor and Worsening Health Indicators in the areas of economic growth, poverty reduction and health sector reform” *Uganda Health Bulletin* vol 7 Number 3 and 4, 2001
5. World Health Organization. *World Health Report 2000*. Geneva, 2000.
6. Mbonye AK. Abortion in Uganda: Magnitude and Implications. *African Journal of Reproductive Health* 4(2): 104-108, 2000.
7. Ministry of Health and WHO. *Safe Motherhood Needs Assessment Survey 1995 – 1996*. 1996.
8. Safemotherhood. *Maternal Health Around the World*. 2002.  
[http://www.safemotherhood.org/facts\\_and\\_figures/health\\_around\\_the\\_world.htm](http://www.safemotherhood.org/facts_and_figures/health_around_the_world.htm). Based on the “*Maternal Health Around the World*” poster. World Health Organization and the World Bank, 1997.
9. Ministry of Health. *Sexual and Reproductive Health Minimum Package for Uganda*. 2000.
10. Fraser AM, Brocket JE and Ward RH. Association of young maternal age and adverse reproductive health outcomes. *New England Journal of Medicine* 332: 1113-1137, 1995.
11. Ministry of Health. *HIV/AIDS Surveillance Report*. STD Control Program Ministry of Health, 2001.
12. Miiro 2001. *Mother to Child Transmission of HIV in Uganda*. Conference paper International Conference on Mother-to-Child Transmission of HIV Kampala Sept. 2001
13. Mbulaiteye SM, Mahe C, Whitworth JAG, *et al*. Declining HIV-1 incidence and associated prevalence over 10 years in a rural population in south-west Uganda: a cohort study. *Lancet* 360: 41-46, 2002.
14. Lutalo SKK, Bakyayita N, Lyimo E, Wanyana J, Sekitto G, Odiit A and Tumwesigire S. *Monitoring and Evaluation of Roll Back Malaria – Baseline Data for Uganda*. Malaria Control Program, Ministry of Health Uganda, 2001.
15. Ministry of Health. *Updated safe Motherhood Package*. Reproductive Health Division, 1999.
16. Ministry of Finance and Economic Planning. *National Population Policy for Sustainable Development*. 1995.
17. Ministry of Gender and Community Development. *The National Gender Policy*. 1997.

18. Ministry of Health. *Draft Adolescent Health policy*. Ministry of Health Reproductive Health Division, 2000.
19. Ministry of Finance, Planning and Economic Development. *Poverty Eradication Action Plan (2001-2003), Volume 1*. 2001.
20. The New Vision. “*I will Review Domestic Relations Bill*” – Say Museveni. 9<sup>th</sup> March, 2001.
21. Ministry of Gender and Community Development. *Domestic Relations Bill*. 2000.
22. Government of Uganda. *National Health Policy*. 1999.
23. Wiessman E., Sentumbwe-Mugisa O., and Mbonye A. K. *Uganda Safe Motherhood Programme Costing Study*. Uganda Ministry of Health and WHO, 1999.
24. Ministry of Health *Annual Health Sector Performance Report Financial Year 2000/2001*. 2001.
25. Ministry of Health. *Utilisation of Health Service*. Report circulated at the 5<sup>th</sup> Joint Review Mission, Nile Conference Centre, Kampala, 2001.
26. World Health Organization. *Report on the Effects of Abolition of User-Fees*. WHO Uganda Country Office, 2001.
27. Bwanga F. Expenditure without User fees: Pre-Hospital Spending in Mbarara. *Uganda Health Bulletin* 7(3): 54–60, 2001.
28. Acaye G. Increased utilization, reduced quality: the results of Cost-sharing abolition in Busia. *Uganda Health Bulletin* 7(3): 49–53, 2001.
29. Borghi J. What is the cost of maternal health care and how can it be financed?. In, V. De Brouwere and W. Van Lerberghe (eds.) *Safe Motherhood Strategies: a Review of Evidence*. Antwerp: ITGPress, 1999.
30. Schneider H. and Gilson L. The impact of free maternal health care in South Africa. In V. De Brouwere and W. Van Lerberghe (eds.) *Safe Motherhood Strategies: a Review of Evidence*. Antwerp: ITGPress, 1999.
31. Ministry of Health. *Health Infrastructure Development and Maintenance Plan*. Engineering Department, 2001.
32. Ministry of Health. *Ministry of Health Statistical Abstract*. Ministry of Health, Kampala, Uganda, 2002.
33. Uganda Bureau of Statistics. *Statistical Abstract for Uganda*. 2000.
34. Ministry of Health. *Concept Paper: Uganda Health Sub-districts*. 1999.
35. Onama V. O. N. *Access Barriers to Maternal Health Services in Moyo Hospital Uganda and their Association with Obstetric Emergencies*. Master of Science in Health Services Management Dissertation, London School of Hygiene and Tropical Medicine, UK. 2001.
36. Mark Pearson. *Cost of hospital services*. Ministry of Health, 1997.
37. Mugarura, C. *Where does donor money actually go? Tracking Financial Flows to Health Services*. *Uganda Health Bulletin* 7(4): 65–68, 2001.

38. Ministry of Health. *Draft Health Financing Strategy Paper Planning Dept.* Ministry of Health, 2001.
39. Ministry of Finance Planning and economic Development. *Human Development Basic Indicator 1989 – 1998.* 1999.
40. Ssenkooba F, Atuyambe L, McPake B and Hanson K. *Prospects for Public Hospital Autonomy in Uganda.* Unpublished report, 2000.
41. Ministry of Health. *Health Policy Statement to Parliament.* Analysis of Health Planning Department, 2001.
42. Ministry of Health. *Draft Public-Private Partnership for Health Policy.* Partnership Desk, 2001.
43. Levin A, Dmytraczenko T, and Ssenkooba F. *Costs of Maternal Health care Services in Masaka District, Uganda.* Partnership for Health Reform Special Initiative Report 16, 1999.
44. UNICEF *The State of the World's Children 2002: Official Summary.* New York: UNICEF, 2001.
45. Safe Motherhood Inter-Agency Group. *Saving Lives: Skilled Attendance at Childbirth.* Conference Report, Tunis, Tunisia, November 2000.
46. Ministry of Health. *Draft Human Resource Development Policy.* Human Resource Development Division, 1997.
47. Taylor T, Phoya A and Okong P. *Addressing Obstetric and Neonatal complications in Africa from the community and family perspectives.* MotherCare/JSI, USA, 1999.
48. Amandua J., Wambete B.N. Training, Recruitment and Deployment of the Health Workers in Uganda, 1995-2000. *Uganda Health Bulletin* 7(3), 109-111, 2001.
49. Ministry of Health. *Draft Policy for Partnership with PNFP Health Providers.* Kampala 2001.
50. Health Service Commission. *Deployment of Doctors for Public Service.* Annual Conference of Association of Obstetricians and Gynaecologists, Kampala, Uganda, April 1999.
51. Ministry of Health. *Human Development Plan Planning Dept.* Ministry of Health, 2001.
52. McPake, B., *et al.* Informal Economic Activities of Public Health Workers in Uganda: Implications for Quality and Accessibility of Care. *Social Science and Medicine* 49: 849-865, 1999.
53. Van Der Heijden T. and Jitta J. *Economic survival strategies of health workers in Uganda* Child Health and Development Centre, Kampala, unpublished report, 1993.
54. Katto R *Uganda Private Midwives Association Annual Report.* Uganda Private Midwives Association, DISH Project, Kampala. 2000.
55. Ministry of Finance, Planning and Economic Development. *Learning From the Poor: Uganda Participatory Poverty Assessment?*. 2000.

56. World Bank and Ministry of Planning and Economic Development. *Uganda National Household Survey (1994-95) Second Poverty Monitoring Survey*. 1997.
57. Ssenkooba F. : *Feasibility of Establishing Medical Centers of Excellence in Uganda*. Uganda Investment Authority, unpublished report, 2000.
58. Uganda Government. *National Health Policy*. Ministry of Health, 1999.
59. Agyei WK and Epama E. Sexual behaviour and contraception use among 15-24 years old in Uganda. *International Family Planning Perspectives* 18(1): 13-17, 1992.
60. Arinatwe L.K and Turinde A. *Adolescents Needs Assessment Survey Mbale Rukungiri and Kabale Districts*. UNICEF Report, 1999.
61. UNFPA. *Project Evaluation for Maternal Rescuer Project in Iganga District Uganda*. 1997.
62. Barton T and Wamai G. *Equity and Vulnerability: a situation analysis of women, adolescents and children in Uganda*. Uganda Government and National Council for Children, 1994.
63. Fraser A M, Brocket JE and Ward RH. Association of young maternal age with adverse reproductive outcomes. *New England Journal of Medicine* 332: 1113–1137, 1995.
64. Turyasingura GB. *Youth Programmes in Uganda, a State of the Art Review*. Kampala: UNFPA. 1994.
65. Korukiko L 2001 *Adolescent Health Problems, Unmet Needs, Existing Services and Important Socio-economic and Cultural Factors Influencing Adolescent Health in Five Selected Districts in Uganda*”. UNICEF Research Report, 2001.
66. Neema S. *What Traditional Birth Attendants Know and Prescribe for Malaria in Pregnancy: Insights from Uganda*. Workshop paper, Lake View Regency Hotel, Mbarara, August 2001
67. Ndomugenyi R, Neema S and Magnussen P. The Use of Formal and Informal Services for Antenatal Care and Malaria Treatment in Rural Uganda. *Health Policy and Planning* 13(1): 94-102, 1998.
68. Galiwango E. *The Social Demographic Determinant of Use of Some Maternal Health Services Among Refugees in Nakivale Settlement – Uganda*.” Master of Science in Demography Thesis, Makerere University, 2001.
69. Blanc A, Wolff A, Gage A, Ezeh E, Neema S and Ssekamatte-Seebuliba J. *Negotiating Reproductive Outcomes in Uganda*. Macro international Inc and Makerere University, 1996.
70. Neema S. *Mother and midwives: maternity care options in Ankole southwest Uganda*. PHD thesis submitted to the Institute of Anthropology, University of Copenhagen, Denmark, 1994.
71. Ssenkooba F and Pariyo G. *Implementation Cost-effectiveness for Drug Access Initiative in Uganda*. Unpublished document, 1999.

72. Birungi H *et al.* The Policy on Public-Private Mix in the Ugandan Health Sector: Catching up with Reality. *Health Policy and Planning* 16 (Suppl. 2):79-86, 2001.
73. Ministry of Public Service. *National Service Delivery Survey*. 2001.
74. Konde-Lule JK and Okello D. *User fees in Government Health Units in Uganda: Implementation, Impact and Scope*. Partnerships for Health Reform, Abt Associates Inc., Bethesda, Maryland, 1998.
75. Arinaitwe J. *Factors associated with utilization of maternity services among women who attend antenatal care in Tororo district*. MPH dissertation submitted to the Institute of Public Health, Makerere University, 1995.
76. Okuonzi SA. Uganda's worsening Health Indicators during economic growth: what is not right? *Uganda Health Bulletin* 7(4): 17-23, 2001.
77. Nuwaha F and Amooti-Kaguna B. Predictors of Home Deliveries in Rakai District. *African Journal of Reproductive Health* 3(2): 79-86, 1999.
78. Stefanini A and Kasolo J. *Maternal Mortality in Arua, Iganga, and Tororo Districts*. Ministry of Health, unpublished report, 1998.