Health Systems Development Programme

Health Systems Development

Access to and Utilisation of Professional Child Delivery Services in Uganda and Bangladesh

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## Introduction – Maternal Health in Uganda

Improving the health of women during pregnancy and childbirth is an international priority, as well as a local one within Uganda. One of the United Nations' Millennium Development Goals is to reduce maternal mortality globally by three-quarters by the year 2015, with much of this reduction expected across low income countries (United Nations, 2000). The Ugandan Ministry of Health has set its own goal of reducing maternal mortality by 70% (Uganda Ministry of Finance and Economic Planning & Macro International Inc., 1996), in line with this global effort.

The Maternal Mortality Ratio (MMR) in Uganda has been most recently estimated in the 2000-2001 Demographic and Health Survey (DHS) at 505 maternal deaths per 100,000 live births (Uganda Bureau of Statistics, 2001).

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 (Uganda Ministry of Health & WHO, 1996), with an estimated 1 woman in 10 dying from maternal causes in Uganda (the lifetime risk) (Safe Motherhood, 2002).

Causes of maternal deaths have been estimated as follows:

Figure 1 - Causes of Maternal Death in Uganda, 1995-96
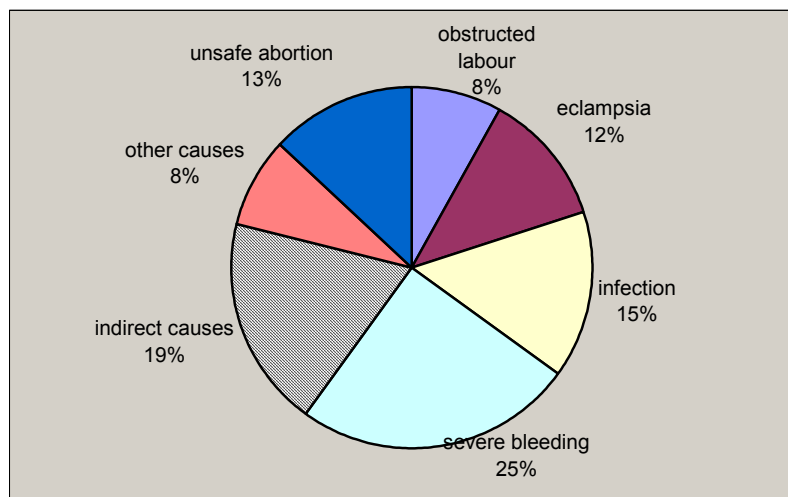
Source: Sexual and Reproductive Health Minimum package in Uganda 2000 (adapted from safe motherhood needs assessment 1995-6) (Uganda Ministry of Health, 2000)

Note – Estimates of the impact of abortion vary considerably by source

The following table presents an overview of some of the key maternal and child health indicators in Uganda over time, as well as future policy goals.

Table 1 – Uganda reproductive health indicators

	Past Trends			Future Policy Goals**
Outcome Indicators:	DHS 1988/89	DHS 1995	DHS 2000/01	(2004/05)
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	
Process Indicators				
Proportion of Women delivering by skilled attendant (%)	38	37.8	39	Increase to 50
Antenatal Care (ANC) coverage (%)				
In 1st 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 (15.7)***	22.8	Increase to 30
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

The primary means advocated internationally to achieve reductions in maternal mortality is through increasing the number of women who deliver with a skilled birth attendant – i.e. a doctor or nurse/midwife. As the table shows, however, only 39% of Ugandan women deliver with such attendance, with this rate remaining fairly constant since the late 1980s. This rate is slightly below the African average of 42%. Still there are signs of service use in other areas – most notably the use of antenatal services, with nearly 92% of women attending ANC at least once, well above the African Average of 63% (Safe Motherhood, 2001).

Still the high MMR in Uganda and low use of skilled attendance has prompted this investigation into the factors affecting women's choice and ability to use professional delivery attendance, in particular delivery in a health facility. In Uganda the lowest level facility conducting deliveries is the Health Centre III (HCIII), with many conducted in higher level facilities (HCIVs, and Hospitals/HCVs), and some conducted in private clinics as well.

Barriers to Care

A good deal of literature, both in Uganda and internationally has identified a number of barriers faced by women in seeking professional health care, particularly for maternal services such as childbirth.

Internationally common barriers include:(Ensor & Cooper, 2004; Kutzin, 1993; Thaddeus & Maine, 1994; WHO, 1998)

- Distance – In particular for rural areas with poor road access to hospitals;
- Cost – Including formal and informal cost of services, opportunity costs of attending distant services, and costs of transportation;
- Perceived Quality – Where users do not have faith in professional services;
- Socio-Cultural – Which can include a number of potential barriers including norms for women to deliver in the home, or traditional taboos opposing biomedical practices (such as the need for privacy or alternative delivery positions);
- Intra-Household Relations – Including the family relationships and dynamics, women's negotiating power, and the prioritisation of maternal health within families;

Such barriers have also been identified in Uganda. Amooti-Kaguna undertook focus group discussions with women and men in Rakai District. They found that factors affecting choice of delivery site included access to maternity services (distance barriers) and social influence from the spouse and other relatives (intra-household and socio-cultural barriers). There were also mentioned concerns with informal fees to be paid for services (cost) and rudeness by midwives in some cases (perceived quality). Further factors were also identified which raise questions as to the health seeking process. It was reported that if a woman was told the pregnancy was normal in antenatal visits she would often choose to deliver at home, which may indicate some problems with the content of or communication in antenatal visits. Women also reported that if they did not have a card from antenatal care, they would be mistreated or even abused by nurses when delivering in a facility. Finally, facilities were reported best to handle complicated cases, while traditional birth attendants (TBAs) were seen as easier and more appropriate for home deliveries when the pregnancy was 'normal' (Amooti-Kaguna & Nuwaha, 2000).

Bantebya has also identified barriers to care in Hoima District. Interviews and focus group discussions found that common barriers included social norms to deliver in the home, as well as low perceived quality of facility services. Inability to afford the costs of services was also occasionally mentioned (Bantebya Kymuhendo, 2003).

While these barriers have often been identified, both in Uganda and internationally, there is also evidence that they interact in complex ways. The perception of a 'normal' versus a complicated delivery, for instance, appears to influence where women will look to deliver, regardless of other barriers at times. Bantebya's study, for instance, has also

identified some of the complex social constructions of pregnancy and childbirth. While the study shows that many women do not seek care because childbirth is seen as woman's struggle to endure, there is also a recognition within communities that pregnancy contains risks beyond a woman's control, which may indicate some scope to seek care.

Studies in other countries have also shown that barriers such as distance may be surmountable, as evidenced in cases where individuals bypass local services to reach ones of higher quality (Akin & Hutchinson, 1999), or when Distance is given as a reason for non-use, despite health facilities being located next to commonly visited markets (Annis, 1981) (although these studies did not focus specifically on maternal health).

These findings – from within Uganda and internationally – point to a need for greater understanding of the dynamics of the barriers facing women in seeking professional delivery assistance, as well as the decision making process to see how barriers are overcome in some cases. Interviews with women who have not used services have often come up with lists of barriers such as those above. This study has attempted to understand how some Ugandan women have been able to overcome those barriers, and to identify the relative importance of different barriers.

Aims and Objectives

This study has investigated the access and barriers to professional delivery care by comparing utilization rates of facilities and interviewing recent users of facility delivery services.

The primary aims of the research were to:

- Understand what factors influence women's ability to use delivery services in facilities
- Understand more about the roles of communities and social networks in these decisions
- Learn more about the relative importance of access barriers
- Learn how some women overcome known access barriers

Specific Objectives included:

- Compare utilisation rates of all public health facilities in the District performing deliveries
- Gather data linked to quality of care at each facility
- Interview 30 women who recently (within the past year), delivered in a facility

Study Methods

This study was conducted in two countries, Uganda and Bangladesh, by members of the Health Systems Development Programme. This paper reports on the findings from Uganda only.

One District, Hoima, was selected to study. Hoima is located on the western border of the country with the Democratic Republic of Congo. It is bordered by Masindi, Kiboga and Kibaale districts, and has a border on lake Albert.

The district has a predominantly rural settlement, typical of much of the nation. The district population size is approximately 401,000 and depends mostly on agriculture, with tea and tobacco as the main crops for income. The health care system consists of a medium size hospital of 280 beds and one health centre with capacity for emergency obstetric care. In addition 28 smaller health centres provide services for uncomplicated delivery, antenatal care, family planning and essential clinical care services. The district has a hilly geographic terrain and a precarious road infrastructure, especially during wet weather. Hoima is historically the center of the Bunyoro Kitara Kingdom and its town still serves as the seat of the cultural king of the Banyoro people, who form the majority in Hoima and the neighboring districts of Kibaale and Masindi. However, there are a number of other ethnic groups in district, including members of the Butoro, Bukiga, Alur and Bugungu groups.

This work consisted of two primary elements leading to unique data sets. The elements are described as follows:

Facility Comparison – This involved gathering data from health centres performing deliveries in Hoima district so as to compare the utilization of the facilities and look for indicators of what barriers may influence the use of particular services. Fieldworkers collected data from all 14 HCIIIs in the district, both HCIVs, the District Hospital, and a private clinic.

User Interviews – 30 in-depth interviews were conducted with women who recently delivered in a health centre. The interviews were open and semi-structured, with fieldworkers investigating four main themes in the interviews: decision making, barriers to care, social networks, and community views and norms. Women were selected arbitrarily from the registers facilities visited (a name from near the top of the register was chosen, and if this individual was not available and eligible, another name was selected from near the middle or bottom) – although some purposive sampling was done to ensure a spread of across distances from the facility.

Problems with data

There were some problems with the data collected. Notably, field researchers were asked to record the number of deliveries in each facility over the last year, but also to tally the

number of deliveries per village – which required going through each delivery record. Often these total counts for deliveries were different. In cases where the tally total was lower than the overall number given by the facility, it could be due to some missing records, or some records without a village listed being left out (missing village names was noted for one Health Centre in particular, and two facilities did not have individual records, although they both had only 12 recorded deliveries in total). In some cases, counting individual records resulted in slightly higher figures than official totals (the largest discrepancy found was 12 deliveries more recorded in the tally count than originally reported). The counts of each delivery record for village was seen as more accurate, but as it was noted that missing villages led to fewer deliveries counted by village, the numbers used in this analysis was the larger of the two found - to account for both possibilities.

The number of deliveries from local areas was used to undertake analysis of willingness to travel for care. However, village names are at times repeated in the District, so in some cases it was not clear which village the woman came from. In such cases, these deliveries were not included in analyses using village location data.

Furthermore, it was not possible to discern if the addresses given on hospital records were always the place from which the woman travelled to reach care. In some cases women travel to a relative's home before childbirth. It is possible that some of the women from one sub-County delivered in a facility in another sub-County simply because they were staying with their parents, and were away from home. This can have some implications for discussion below of the 'bypassing' phenomena, where women do not use a local service to travel to another health centre instead. However, while this could cause some problems with the data, it would be expected to affect all facilities relatively equally. Furthermore, qualitative interviews with women who delivered in facilities indicated that most had planned to do so in advance, rather than planning to deliver at a relative's home.

Qualitative data was collected in local languages –although Swahili and English were also used in a few cases. Field researchers worked in teams of two, each taking notes on the interview, although one researcher would primarily ask questions while the other would take more thorough notes. These notes were then written up in English. Upon completion of the fieldwork, the Principal Investigator collected this data and went through each interview with the field researchers, asking for more information and clarification when needed. While not ideal for qualitative research, the presence of two researchers in the interview and the review of each case by the PI with the research teams was seen to help overcome data loss and misinterpretations of responses by interviewees.

Finally, the initial research plan included efforts to obtain information on costs paid by surveying women who recently delivered at each facility. Unfortunately, due to research capacity constraints, it was not possible to obtain this information, making inclusion of cost barriers impossible at this stage. It is hoped future research may enable this component to be included.

Quantitative Data and Results

Deliveries and location of deliveries

Hoima District is split into two sub-districts and 11 sub-Counties. Sub-Counties are further divided into three to five Parishes. Parishes are then divided into Villages, the smallest administrative unit. Town centres can be classified as sub-Counties or Parishes depending on the size.

18 Facilities in Hoima District were visited with data collected on numbers of deliveries in the past year, and quantitative questions asked on indicators of quality, such as staff, supply, and drug availability, along with fieldwork observations of cleanliness of facilities. The facilities included 14 Health Centre IIIs (HCIIIs), two Health Centre IVs (HCIVs), the district Hospital, and one private (religious based) health centre. Each HCIII serves one sub-County, with some sub-counties holding two HCIIIs. HCIVs serve larger sub-District areas, and the Hospital sits in Hoima town and serves the entire District.

As number of deliveries will also be affected by the population served, census data was also obtained from Hoima District offices to ascertain the female populations of villages, Parishes, and Sub-Counties.

The following table provides an overview of the range of facilities, populations served[1], and numbers of deliveries recorded or counted by field researchers

Table 2 - Overview of Hoima District Health Centres

Health Centre	Sub-County	Sub-County Female Population (2002)	Parish	Parish Female Population (2002)	Number of Normal Deliveries, past year	Number of deliveries / 1000 women in the sub-County
Dwoli HCIII	Kitoba	16291	Kiragura	3771	12	0.74
Mparangasi HCIII	Kyabigambire	14713	Kibugubya	3810	119	8.09
Karongo HCIII	Kitoba	16291	Karongo/Budaka	2487	13	0.80
Kabwoya HCIII	Kabwoya	12914	Bubogo	3124	203	15.72
Buraru HCIII	Kyabigambire	14713	Buraru	4995	53	3.60
Bujalya HCIII	Buhimba	14427	Musaijamukuru East	2358	36	2.50
Buhimba HCIII	Buhimba	14427	Kyabatalya	3129	70	4.85
Buhanika HCIII	Buhanika	9995	Buchunga	2453	31	3.10
Mukabala HCIII	Kiziranfumbi	10698	Bulimya	4660	80	7.48
Kigorobya HCIII	Kigorobya	25508	Kigorobya Town	2016	560	21.95
Butema HCIII	Buhanika	9995	Butema	2808	213	21.31
Buseruka HCIII	Buseruka	11938	Nayakabingo	3423	144	12.06

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[1] Population data from census records obtained at District offices

Bugambe HCIII	Bugambe	12404	Bugambe	1803	163	13.14
Kyangwali HCIV	*Kyangwali*	*19059*	*Kyangwali*	*3178*	*269*	*14.11*
Kikube HCIV	*Kiziranfumbi*	*10698*	*Bulimya*	*4660*	*384*	*35.89*
Hoima Hospital	*Hoima Town*	*15000*			*2531*	*168.73*
Bujumbura HCIII *	*HoimaTown*	*15000*			*12*	*0.80*
Hoima Islamic Health Centre	*Hoima Town*	*15000*			*16***	

* Bujumbura is an NGO facility linked to the Catholic church
**Records were only available for part of the preceding year at Hoima Islamic Health Centre

The following Map shows all of Uganda, as well as a close up of Hoima (and Kibaale) Districts, with points representing the sub-County centres for each sub-County possessing a Health Centre. Hoima town centre is represented by the pentagon, and major roads appear as lines on the map. Hoima District and Kibaale District are now 2 separate administrative units, but the map data obtained still had them as one whole unit. Hoima, however, basically covers the upper half of the highlighted area in this map (the dotted line was manually added to show the approximate southern boundary of Hoima district):

Figure 2 – Uganda and study area
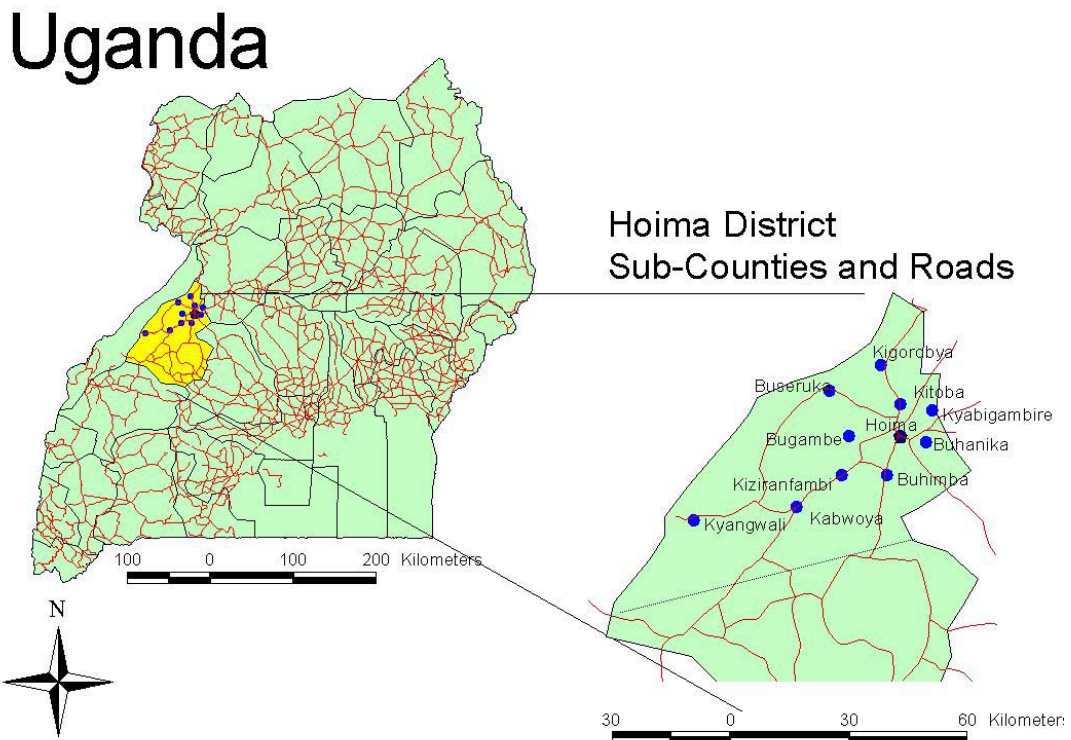
A separate printed map was also obtained from District authorities which showed specific locations of the HCIIIs. Facility locations have been reproduced below:

Figure 3 – Hoima District facility locations
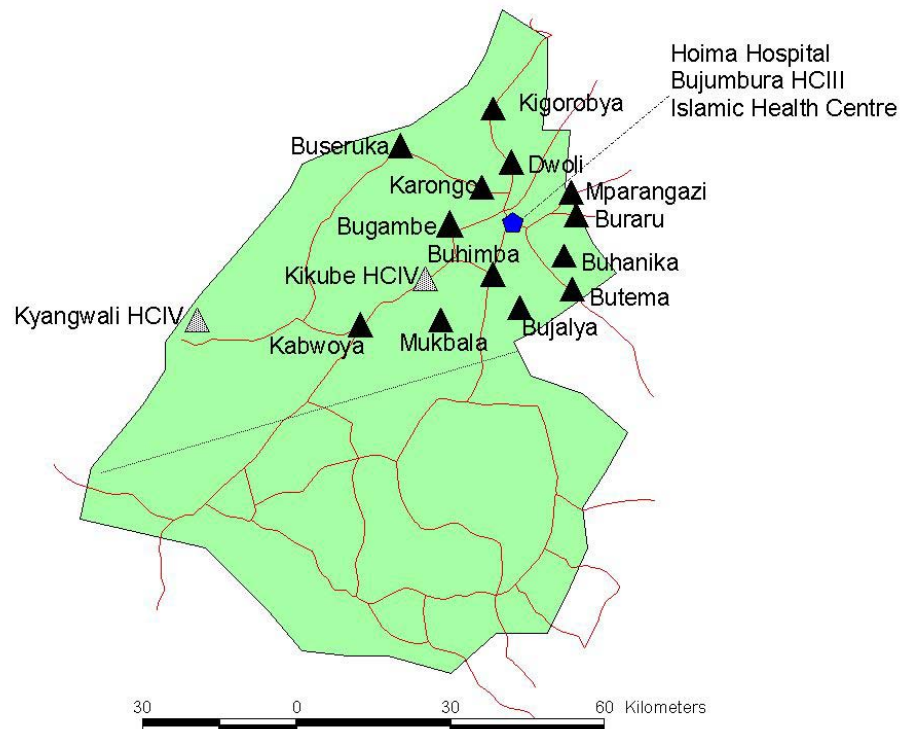
For the purposes of comparison, the HCIIIs are considered separately from the HCIVs, hospital, and private facilities. The table above shows a remarkably wide variation in numbers of deliveries in the HCIII level facilities in Hoima, from three facilities with only 12 deliveries, to 560 in Kigorobya HCIII. Population numbers for the Parish or sub-County served by the health centres can help put these numbers in better perspective, with the final column showing a ratio of the number of deliveries per 1,000 women in the sub-County. Still even with this population weighting, there is a great variation in deliveries, from less than 1 delivery per thousand women, to over 20. Further investigation found similar numbers of staff in these facilities as well, indicating potential inefficiencies in staff use.

Kigorobya, for instance, serves a female sub-County population nearly twice that of many other sub-Counties served, which could explain why so many more women delivered in this HCIII compared to others. However, even adjusting for this, Kigorobya has a very large number of deliveries, and the highest number of deliveries per 1000 women. Population figures also do not explain why Bujumbura, Dwoli, and Karongo saw so few deliveries, or why a facility such as Butema (serving the smallest sub-County population in the comparison), had the second highest number of deliveries of the HCIIIs. Bujumbura, however, is located in Hoima Town, and therefore many women may choose to attend the District Hospital instead of this HCIII.

In all HCIIIs, most women came from the local area. Between 92-100% of deliveries came from within the sub-County served for all HCIIIs with the exception of Butema which saw 79% from within the sub-County.

Deliveries from the local area

Examination of utilization rates for HCIIIs provides a number of interesting insights, but to understand more about how distance affects use, we can look at the proportion of deliveries conducted in the facility which came from within the local area e.g. parish served by the HC. For Most of the HCIIIs visited, delivery records were reviewed from the previous 12 months, recording the villages from which women came.

The following table and graph illustrate how, for the HCIIIs studies, the percentage of deliveries which came from within the parish served by the Health Centre compares to the total number of deliveries conducted in the facility.

Table 3 - Percentage of deliveries from within the parish served

HCIII	Number of Deliveries (excluding those without villages listed)	Deliveries from the Parish	Proportion from the Parish (%)
Mparangasi	119	39	32.77
Karongo	12	7	58.33
Kabwoya	203	69	33.99
Buraru	42	33	78.57
Bujalya	36	28	77.78
Buhimba	70	13	18.57
Buhanika	31	25	80.65
Mukabala	74	18	24.32
Kigorobya	552	46	8.33
Butema	213	118	55.40
Buseruka	144	88	61.11
Bugambe	163	30	18.40

Figure 4 – Proportion of deliveries from the local area

As shown, there is a good deal of spread in the data, but for facilities conducting under 50 deliveries per year, a large majority of those deliveries will be women from the parish served by the facility. For the one facility conducting a large number of deliveries (over 550), under 10% of those women came from the local parish.

These results help to show the importance of distance travelled with regard to quality or popularity of services. It would appear that many people travel outside their local area to reach the more popular services, which would indicate transportation is not necessarily as important as perceived quality. However, it is unknown how far the average travel distance was. It is also worth noting, for instance, that Buraru, Bujalya, and Busuruka HCIIIs lie off the main road network, and have poor road access. These facilities show some of the highest ratios from the local area, which can indicate the importance of the quality of transportation links.

Findings:
- *For unpopular services, women are unwilling to travel to reach them;*
- *For middle-level use services, there is still limited travelling to reach the services;*
- *Women will travel to reach the most popular facilities.*

Bypassing

Data collected also allows investigation into the number of women from a Parish served by a Health Centre who did not go to the local facility, and instead travelled outside their Parish to another Health Centre. This behaviour has in the past been identified as 'bypassing'- whereby individuals have been seen to travel past one health centre to reach a farther one of perceived better quality or lower cost (Akin & Hutchinson, 1999).

There seems to be a general desire to deliver at the HCIV or Hoima Hospital, as bypassing involved travelling to higher level facilities in over 91.5% of cases. 589 cases of bypassing were identified, of which 114 bypassed a HCIII for a HCIV, and 425 bypassed a HCIII for the district hospital.

The table below indicates how much bypassing took place for each facility by showing the number of women from each parish served by a facility who went elsewhere. A 'Bypassing Ratio' is also calculated, dividing the number of local women who went elsewhere to the number of deliveries from the local Parish. Excluded from the table below are the HCIIIs serving the same sub-County as larger facilities (a HCIV or Hoima Hospital – i.e. Bujumbura and Mukabala).

Table 4 - Bypassing of local services for delivery

Health Centre	Deliveries (past year) [T]	Deliveries from the local Parish [D]	Number of women from Parish served who delivered elsewhere [E]	Ratio of deliveries from Parish in other facilities to the number of local women who delivered in the facilty [R= E/D] (Bypassing ratio)
Dwoli	12	N/A (maximum could be 12)	62	N/A – but minimum of 5.17
Mparangasi	119	39	32	0.82
Karongo	12	7	24	3.43
Kabwoya	203	69	1	0.01
Buraru	42	33	24	0.73
Bujalya	36	28	17	0.61
Buhimba	70	13	66	5.08
Buhanika	31	25	43	1.72
Kigorobya	552	46	69	1.50
Butema	213	118	0	0.00
Buseruka	144	88	5	0.06
Bugambe	163	30	7	0.23

A 'bypassing ratio', as it is defined here, of over 1 indicates that a majority of women from the local area who delivered in health facilities travelled outside the area to another facility. A ratio under 1 indicates that most local women seeking care came to the local facility.

Graphically, the bypassing ratio[R] compared to total deliveries [T] can be shown as follows:

Figure 5 – Bypassing ratios by number of deliveries
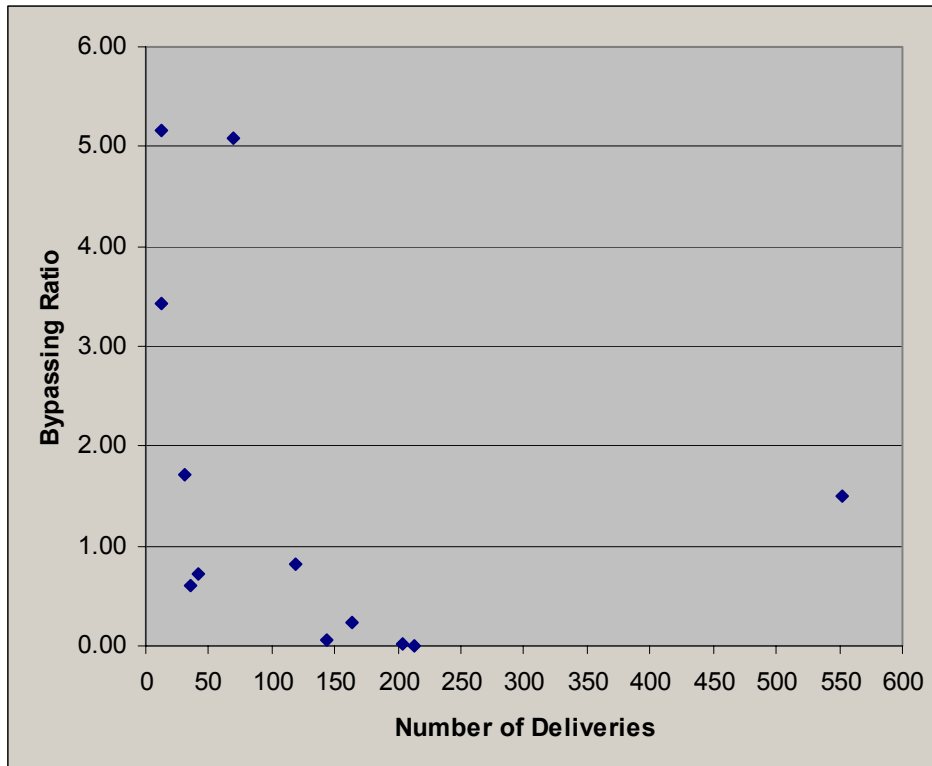
The level of bypassing, and the steepness of any curve fit to the data, can help to illustrate how important distance and transportation are as barriers to care. A steep decline, like that seen here, would indicate that women will only bypass services (and undertake lengthy transport), for a few unpopular centres. For facilities with 100 or more deliveries, there appears to be little desire or incentive to bypass and go to other facilities. The one exception appears to be Kigorobya, which had a ratio of 1.5, but over 500 deliveries. This is a bit of an outlier in several ways, however, not least of which the fact that it had over twice as many deliveries as the next highest HCIII, and local women make up a small percentage of clients served.

Dwoli, Buhimba, and Karongo health centres particularly stand out in the very large bypassing ratios (5.17 or higher, 5.08, and 3.43 respectively). Dwoli and Karongo also recoded only 12 deliveries in the previous year. Both lie in Kitoba sub-County, directly North of Hoima town. Indeed, most of the women who bypassed these facilities did, in fact, go to Hoima hospital. Two major tarmac roads also run north from Hoima town through Kitoba sub-Country, indicating that that the ease of transport to the neighbouring sub-County may have enabled more women to bypass their local service in this way,

which may not have been an option to more remote women. Buhimba sub-County also lies on a road with direct access to Hoima, but further away, so it is less clear why it would have such a high bypass ratio.

Kabwoya, Butema, Buseruka and Bugambe all stand out in having both high numbers of deliveries (100 or more), and low bypassing ratios (under 0.25). Of course the bypassing ratio and number of deliveries are not independent – as the bypass ratio uses number of local deliveries, a component of the total number of deliveries, in its calculation.

However, the fact that bypassing is high in a few low use facilities, and that facilities with high levels of bypassing tend to be close to major roads to the District headquarters, illustrates that, in fact, transportation and distance may be a significant determinant of place of delivery choice.

Findings:
- Women who bypass a local service tend to use higher level facilities
- For very low use facilities, women from the local area are willing to travel to use other facilities
- For medium and high use facilities, few women from the local area will travel to use other facilities

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Conclusions on locations of deliveries comparisons

Table 5 – Summary on local use and bypassing

Health Centre	Deliveries (past year)	Proportion from local Parish	Bypassing ratio
Dwoli	12	N/A	N/A – but minimum of 5.17
Mparangasi	119	32.77	0.82
Karongo	12	58.33	3.43
Kabwoya	203	33.99	0.01
Buraru	42	78.57	0.73
Bujalya	36	77.78	0.61
Buhimba	70	18.57	5.08
Buhanika	31	80.65	1.72
Kigorobya	552	8.33	1.50
Butema	213	55.40	0.00
Buseruka	144	61.11	0.06
Bugambe	163	18.40	0.23

These three measured factors give an indication of the importance of distance compared to quality or cost (as no cost data was obtained, it is impossible to distinguish it as a disincentive from quality). The number of deliveries, the proportion from the local area, and the bypass ratio. Combinations of these three factors and conclusions that can be theoretically drawn are as follows:

Table 6 – Relationships between deliveries, local deliveries, and bypassing

Number of Deliveries	Proportion from Local Area	Bypass Ratio	Hypothetical conclusions	Examples
Low	High	Low	- Poor transportation - Low quality or high cost - Distance may be more important a barrier than quality/cost for many women	Buraru, Bujalya
Low	Low	High	- Good transportation - Low quality or high cost - Quality/Cost more a barrier	Buhimba
Low	High	High	- Good transportation - Poor quality or high cost - Quality/Cost more a barrier	Karongo, Buhanika
High	High	Low	- Poor transportation - High quality - Transportation more a barrier	Buseruka, Butema
High	Low	High	- Good transportation - Possible quality problems - Possible good quality but easy access to higher level facilities	Kigorobya
High	Low	Low	- Good transportation - High quality	Kabwoya, Bugambe

Therefore, it can be tentatively concluded that transportation problems may be a key barrier to use of Buraru, Bujalya, and Buseruka Health Centre IIIs.

Quality or cost could be more important barriers to use of Buhimba, Karongo, and Buhanika HCIIIs.

Quality of Care indicators

Drug availability

Past studies have stated that one of the most important aspects of quality of care to facility users in Africa is the supply of drugs available (Jitta, SR, & N, 2003). To see if drug availability was linked to utilisation, questions were asked about the availability of 14 key drugs for maternity services (this list was developed with assistance of two research staff with medical degrees, one of whom had worked in obstetrics). The drugs asked about were:

1. Folic acid / iron tablets
2. Fansidar
3. Chloroquine injectable
4. Crystalline penicillin
5. IV dextrose / glucose
6. Ergometrine
7. Diazepam / vallium
8. Gentamycine injectable
9. Erythromycine
10. Paracetemol / panadol
11. Lidocaine / lignocaine
12. Other general antibiotics
13. Oxytocin *
14. Pethidine injectable / morphine *

*These last two drugs are commonly only available in hospital settings and were not expected to be available at most HCIIIs. Magnesium Sulfate was also not included as it is not typically available to HCIIIs, and regulations state that eclamptic patients should be referred to hospitals where for treatment.

Most facilities were missing several of these drugs, and as shown, there was no obvious link to number of deliveries in each facility based on drug availability:

Table 7 - Drug availability

Health Centre III	Number of Deliveries (past 12 months)	Proportion of deliveries from within the parish	Number of key drugs missing
Bujumbura [2]	*12*	*N/A*	*1*
Dwoli	12	N/A	8
Mparangasi	119	32.77	10
Karongo	12	58.33	9
Kabwoya	203	33.99	7
Buraru	42	78.57	7
Bujalya	36	77.78	7
Buhimba	70	18.57	10
Buhanika	31	80.65	8
Mukabala	74	24.32	9
Kigorobya	552	8.33	9
Butema	213	55.40	5
Buseruka	144	61.11	12
Bugambe	163	18.40	1

As shown, there is little obvious correlation between drug availability and use of the facilities. Two HCIIIs were only missing 1 drug, yet one had only 12 deliveries, and the other a relatively high 163. Similarly those with the most drugs missing (10 or 12 in one case) had 70, 119, and 144 deliveries.

Women from Parishes served by facilities with more available drugs were found to go to Hoima hospital in many cases, despite it having fewer available drugs (Hoima hospital reported missing 7 of the 14 drugs asked about).

Yet qualitative interviews have indicated that, in fact, drug stocks in the facility may not correspond to drug availability for patients. As the user interview section will show in greater detail, in almost all cases (regardless of facility and drug supply), women were asked to bring or purchase their own medications, often purchasing from shops located just outside the facility. There was also some indication that facilities may only actually dispense the drugs they have in particular cases, such as when a woman has personal links to senior facility staff. To understand user perception of quality, then, measuring the stock of drugs in a facility may not be particularly appropriate. Looking at drugs at one point in town may also be limiting as drug availability fluctuates with time (based on procurement patterns) and with utilization rates. More important to users is the cost and availability of drugs from around the facility when they have to be obtained, or the likelihood that medicines in the facility will actually be provided.

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[2] Bujumbura is included for comparison, but it is a private (NGO) facility located in Hoima town

Staff numbers

A second aspect of quality widely regarded as important is the availability or shortage in staff numbers. According to Ugandan government recommendations, Health Centre IIIs are meant to have one clinical officer, three nurses/midwives, and two nursing assistants. Questions were asked for each facility surveyed as to the number of each cadre of staff working. The numbers were fairly similar in all cases, particularly for clinical officers and midwives (none of the HC IIIs had doctors).

Table 8 - Staff numbers

Health Centre III	Deliveries (past year)	Staff Working in Facility				
		Clinical Officers	Midwives	Nurses	Nursing Assistants	Other staff
Bujumbura	*12*	*1*	*1*	*9*	*4*	*4*
Dwoli	12	0	1	1	2	1
Mparangasi	119	1	1	1	1	3
Karongo	12	1	1	2	2	1
Kabwoya	203	1	1	1	2	2
Buraru	42	1	1	1	2	2
Bujalya	36	1	1	1	1	2
Buhimba	70	1	2	0	1	3
Buhanika	31	0	1	1	1	1
Mukabala	74	1	1	1	1	2
Kigorobya	552	1	3	1	2	5
Butema	213	1	1	1	2	2
Buseruka	144	1	2	0	1	2
Bugambe	163	1	1	1	1	1

As with drug supplies, there are no obvious indications that staff numbers affects utilisation, although Kigorobya, with its unusually high number of deliveries was the only facility with three midwives. There is also limited variation in numbers, particularly for clinical officers and midwives.

The numbers above show the great variation in numbers of deliveries per midwife in the facilities – ranging from 12 per midwife in a year in three cases, to as many as 213 per midwife in Butema. It is unclear if clinical officers and nurses in the facility also regularly undertake deliveries. The professional deities of these cadres do not include maternity services unless the nurse has been trained specially as a nurse-midwife, or newly trained 'comprehensive nurses'. If these cadres do not routinely conduct deliveries, then there could be problems in the large number of facilities with only one midwife. These facilities would have difficulty in providing 24 hour delivery services over the course of the year, and large gaps in the availability of care would be expected.

Qualitative interviews have also shed light on how counting staff might not be a meaningful measure of quality. Much more important appears to be whether staff are

present and providing services. Deliveries during night hours provides one example of the importance of staff being available at all times, as . Furthermore, if staff attempt to charge women for services meant to be free, or register them as 'private patients', this too can affect women's desire to use services regardless of the simple numbers of staff. The treatment of women by staff has also been previously identified as a serious issue which can prevent some women from seeking care. These issues cannot be easily addressed by simply counting staff working at the facility.

The issue of staff availability at night was included in the facility surveys by asking the number of deliveries in the past four weeks which occurred between 5 PM and 8 AM (and the total number of deliveries in the period). Unfortunately, few facilities had records of the time of delivery.

Supplies and equipment availability

Additional questions were asked about available supplies and equipment specific to antenatal and delivery care. These included:

General supplies:
1. emergency lighting
2. gloves
3. mackintosh
4. thermometer
5. sterile gauze pads
6. suture material
7. bleach or other infection control regents
8. bulb syringe
9. needles and syringes
10. IV fluids and giving sets
11. Basic family planning supplies / contraceptives

Antenatal care equipment:
1. Tape measure
2. Adult weighing scale
3. Height measuring device
4. Fetascope
5. Blood pressure cuff
6. Uristicks (urine test strips)
7. Syphilis tests
8. Vaginal speculum (Sims)
9. Vaginal speculum (Cusco)

Delivery room equipment:
1. Baby weighing scale
2. Delee suction
3. Baby ambu bag

4. Delivery bed
5. Manual hand-operated vacuum extractor
6. Cord clamp (placenta forceps)
7. Foetal heart monitor
8. Partograph (and asked if used regularly)
9. Fetascope

Table 9 - Supply availability

Health Centre III	Number of Deliveries (past 12 months)	Proportion of deliveries from within the parish	Number of key Supplies missing	Number of Delivery room supplies missing	Number of ANC Supplies missing
Bujumbura	12	N/A	0	1	1
Dwoli	12	N/A	5	3	2
Mparangasi	119	32.77	3	3	3
Karongo	12	58.33	2	1	2
Kabwoya	203	33.99	4	2	5
Buraru	42	78.57	3	3	6
Bujalya	36	77.78	3	2	5
Buhimba	70	18.57	3	1	3
Buhanika	31	80.65	4	5	5
Mukabala	74	24.32	3	3	5
Kigorobya	552	8.33	6	5	4
Butema	213	55.40	2	4	2
Buseruka	144	61.11	6	2	3
Bugambe	163	18.40	0	2	2

As with numbers of drugs, looking at key supplies sheds little light on reasons for use of facilities. Indeed, if anything, a seeming reverse correlation is seen. Kigorobya, for instance, undertaking 552 deliveries in a year, was missing more supplies than any other facility, with 6 of 11 key supplies missing, including gloves, sterile gauze pads, and needles and syringes. It also was missing 5 of 9 delivery room supplies, being one of the few facilities to lack a cord clamp or baby ambu bag. In contrast, the most well supplied facility was Bujumbura, which had almost all supplies included in the survey, yet only performed 12 deliveries per year.

This result came as a surprise to the research team, yet there may be many other issues involved which reflect quality beyond supply availability. It could be that in some facilities supplies are not used, or not used properly, despite being available in the facility. Alternatively, it could be that facilities with high numbers of deliveries use up supplies (such as needles and gloves) quickly or lose other supplies (such as cord clamps) more easily.

Specific facility comparison

Comparing two or more facilities which have similar features in one respect, but differ in other ways can help to understand the dynamics of factors influencing use of delivery services. This section picks facilities with similar key characteristics for such comparison.

Facilities with similar numbers of deliveries, but different percentages from the area.

By comparing facilities with similar numbers of deliveries, but vastly different percentages coming from within the parish, we can understand a bit more about the importance of distance or location.

Buseruka and Bugambe

Figure 6 – Buseruka and Bugambe HCIII locations
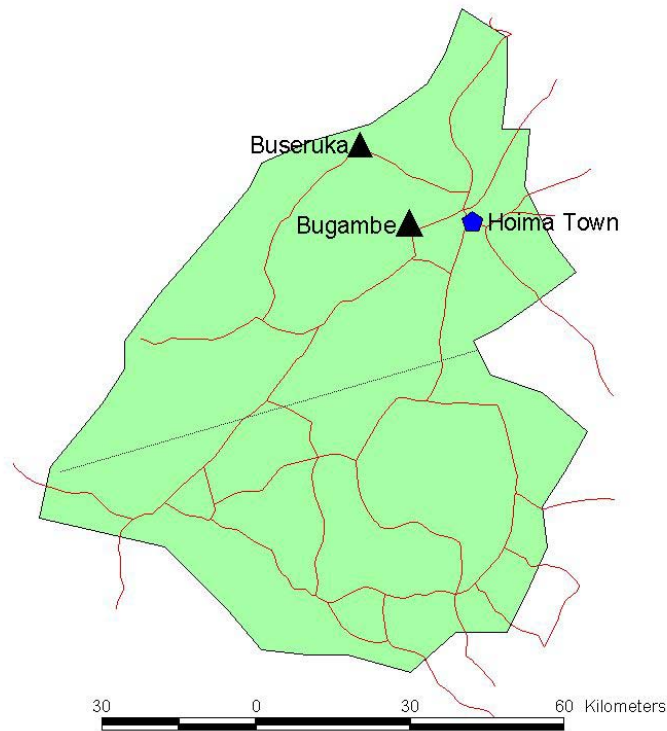
Buseruka HCIII had 144 Deliveries over the previous 12 months, with over 61% from the local Parish. Bugambe had 163 deliveries, but only just over 18% came from the local Parish. Population statistics help to shed some light on this, however. While the sub-county population of both areas is fairly similar, the Parish served by Buseruka has almost twice the female population of that served by Bugambe.. Still there appears to be an inability for Buseruka to attract women from any distance, while Bugambe does so. Interestingly in both cases, very few women from the local area bypassed the facilities to visit other health centres.

The following table compares data gathered for these two facilities

Table 10 - Buseruka and Bugambe statistics

|	Buseruka	Bugambe
Deliveries	144	163
Proportion from Parish	61.1%	18.4%
Parish female population	3,423	1,803
Bypassing Ratio	0.06	0.23
Number of Midwives and Nurses	2 – 0	1 – 1
Number of drugs missing	12	1
Numebr of key supplies missing	6	0
Number of delivery room supplies missing	2	2
Number of ANC supplies missing	3	2

Interestingly, Buseruka was lacking in key drugs and supplies much more than Bugambe. This may indicate that for facilities of this size and utilisation level, the availability of drugs and supplies may, in fact affect women's willingness to travel to use the facility. Data is too limited, however, to show strong correlations. The facilities both show low bypassing ratios, however, illustrating little desire or ability for local people to travel to other health facilities.

The location of the health centres is important to consider. Notably, Buseruka is one of the more remote locations in the District, located relatively far from Hoima town in the north of the district.

This comparison appears to show that the remote location of Buseruka may be an important factor in determining use. Most women delivering in the facility came from the local area, which would appear to indicate an inability to draw women from far away. Few drugs and missing supplies could also indicate poorer quality than might be hoped for. Yet few women from the local area travelled to other facilities to deliver. This could be because of the distance involved, or poor transportation links leading to a geographic 'entrapment' of the mothers.

Kabwoya and Butema

Figure 7 - Butema and Kabwoya HCIII locations
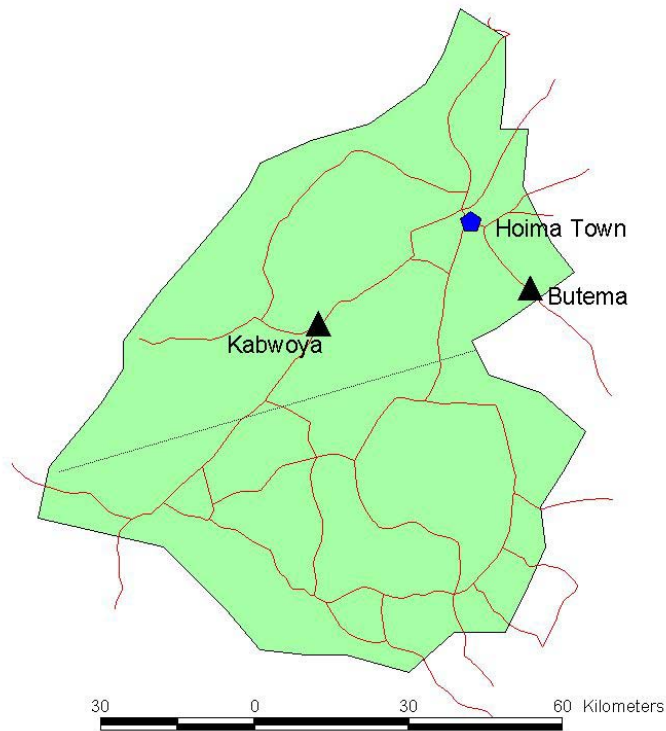
These two facilities also had similar numbers of deliveries (just over 200), but differences in the proportion from the local parish, with approximately 34% from the local parish for Kabwoya and over 55% for Butema. Kabwoya also has a larger parish female population (3124 compared to 2808).

Kabwoya, however, is another relatively remote sub-County, while Butema lies in Buhanika sub-County, and is close to Hoima town.

Table 11 – Kabwoya and Butema statistics

	Kabwoya	Butema
Deliveries	203	213
Proportion from Parish	34.0%	55.4%
Parish female population	3,124	2,808
Bypassing Ratio	0.01	0
Number of Midwives and Nurses	1 – 1	1 – 1
Number of drugs missing	7	5
Number of key supplies missing	4	2
Number of delivery room supplies missing	2	4
Number of ANC supplies missing	5	2

Unlike in the first comparison, missing drugs and supplies do not appear to explain any difference in these cases, with Kabwoya seeming to have fewer supplies of most categories, yet still a lower number of women coming from the local area.

The more remote location of Kabwoya could indicate that it is the only facility to serve women from a number of parishes, but it is unlike Biseruka, discussed above, which was unable to attract many women from other Parishes. Kabwoya does seem to be able to do so.

As has already been seen, however, women often prefer to travel to higher level health facilities. This behaviour could explain the higher rate of use from the local area for Butema, as higher level facilities may be closer for women in neighbouring Parishes. For Kabwoya, many women from other Parishes may not be close to any other facility to travel to, with the nearest higher order facility being Kikube HCIV, approximately half way to Hoima town.

Facilities with similar proportions from the area, but different numbers of deliveries

Two facilities with similar proportions from within the Parish would indicate similar distance burdens as, for those willing to come to the facility, an equal number travel from outside the local area. A number of cases can be identified for comparison from the above data to look at what other factors might influence use

Kabwoya and Mparangazi

Figure 8 - Kabwoya and Mparangazi HCIII locations
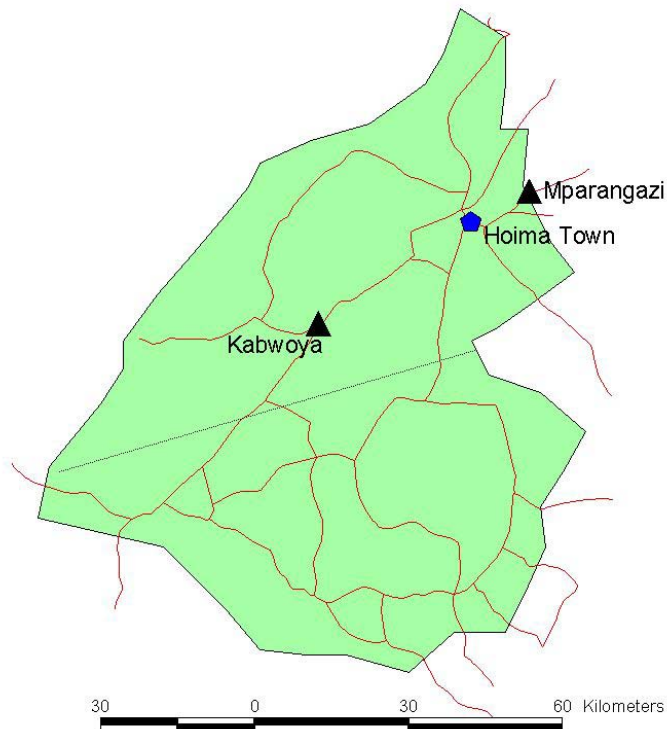
These two facilities had similar proportions of deliveries from the local parish, and both had bypass ratios below 1 – although Mparangazi's rato was much higher. Yet Kabwoya had 203 deliveries to only 119 in Mparangazi, and this is despite a higher female population in Mparangazi's local Parish.

Table 12 – Kabwoya and Mparangazi statistics

	Kabwoya	Mparangazi
Deliveries	203	119
Proportion from Parish	34.0%	32.77%
Parish female population	3,124	3,810
Bypassing Ratio	0.01	0.82
Number of Midwives and Nurses	1 – 1	1 – 1
Number of drugs missing	7	10
Number of key supplies missing	4	3
Number of delivery room supplies missing	2	3
Number of ANC supplies missing	5	3

The bypass ratio appears to explain why Mparangazi saw fewer deliveries. The two facilities have much in common, and while more drugs were missing in Mparangazi, several were also missing in Kabwoya. In terms of their location, Kabwoya is in a more remote area, while Mparangazi lies in Kyabigambire sub-County, much closer to Hoima town. The low-medium bypassing ratio, however, appears to indicate that most local women do not leave the area to deliver elsewhere, although the ratio of 0.82 is much higher than in Kabwoya. This case again emphasises the importance of finding alternative indications of quality of care, to see if the two facilities may differ in such a regard.

Buhimba and Bugambe

Figure 9 – Buhimba and Bugambe HCIII locations
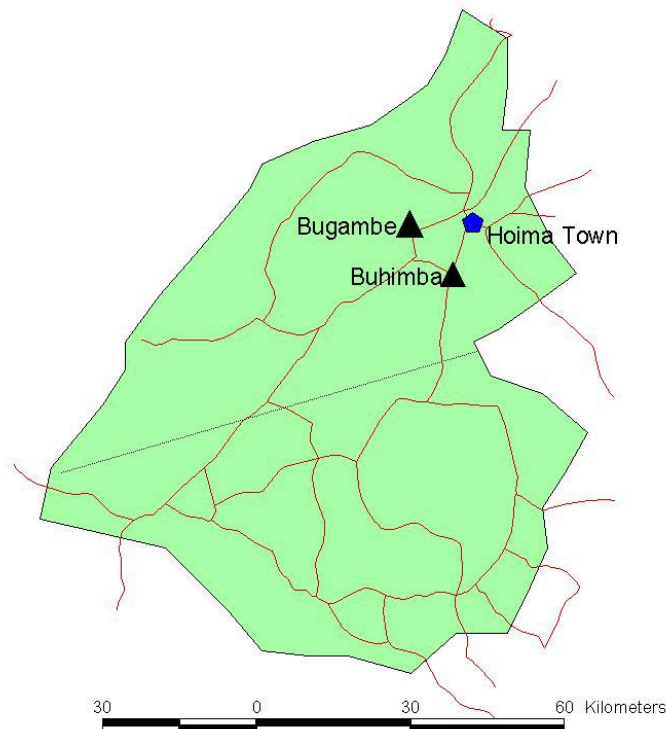
These two facilities both had low proportions of their deliveries from the local area, which would indicate attractiveness to women from other areas. Yet Buhimba had less than half the deliveries as Bugambe, despite having a much higher local female population. Furthermore, Buhimba has a much higher bypass ratio – near 1, which indicates that the number of women from the local area who bypassed the facility to deliver elsewhere nearly equals the total number of deliveries seen. Indeed, seeing how few of the deliveries were from the local area, the bypass ratio would indicate that a vast majority of local women chose to deliver elsewhere.

Table 13 – Buhimba and Bugambe statistics

	Buhimba	Bugambe
Deliveries	70	163
Proportion from Parish	18.57%	18.4%
Parish female population	3,129	1,803
Bypassing Ratio	5.08	0.23
Number of Midwives and Nurses	2 - 0	1 - 1
Number of drugs missing	10	1
Numebr of key supplies missing	3	0
Number of delivery room supplies missing	1	2
Number of ANC supplies missing	3	2

Both these facilities are located in sub-Counties which appear to be similar distances from Hoima town, although the condition of the roads in the area is unknown. In terms of quality indicators, Buhimba stands out as missing most of the drugs asked about, while Bugambe is missing only one.

Buhimba also had one of the highest bypassing ratios seen, with over five times as many local women going elsewhere than using the health centre. An initial hypothesis could be that Buhimba has better transportation access than Bugambe, but the similar distance from Hoima would cast doubt on this. The uncertainty in Bugambe's location however (as seen by two possible locations on the map), make drawing conclusions difficult.

Two facilities serving the same Sub-County

In four cases, two HCIIIs were found to be located in the same sub-County. In these cases it can be expected that there will be some 'competition' for patients, and comparison between these facilities may provide useful insights in to reasons for use.

Dwoli and Karongo

Figure 10 - Dwoli and Karongo HCIII locations
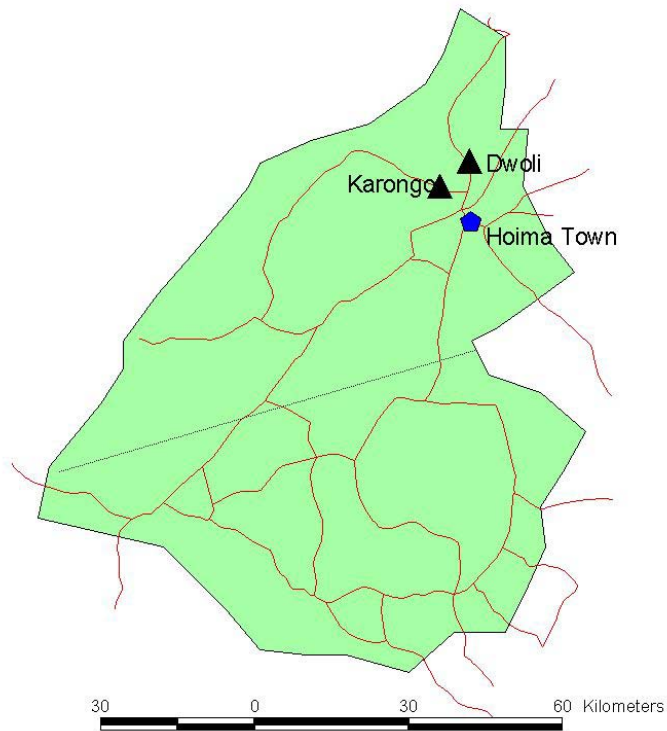
Both lie in Kitoba Sub Country. Comparison of these two facilities, however proves limiting as they both only recorded very few deliveries in past year (Dwoli recorded 12, and Karongo recoded 13, although only 12 were counted in the tally done). Perhaps more interesting is the lack of deliveries in both of these facilities. In terms of drug and staff shortages, they both fit with most others – many drugs missing and only a few staff, but not noticeably different from other facilities.

Table 14 – Dwoli and Karongo statistics

	Dwoli	Karongo
Deliveries	12	12
Proportion from Parish	N/A%	58.33%
Parish female population	3,771	2,487
Bypassing Ratio	5.17+	3.43
Number of Midwives and Nurses	1 – 1	1 – 2
Number of drugs missing	8	9
Number of key supplies missing	5	2
Number of delivery room supplies missing	3	1
Number of ANC supplies missing	2	2

The geographic placement of Kitoba sub-County, could partially explain the results. Kitoba lies directly north of Hoima town, with two tarmac roads running through the sub-county. The Sub County is not very large as well, so women may have relatively easy transportation access to larger facilities in Hoima town, including the District hospital. Indeed it was found that 62 women from the parish served by Dwoli HCIII delivered in Hoima hospital. Yet only 24 women from the Parish served by Karongo did. The female population of Dwoli's parish is approximately 50% larger than that of Karongo's parish, which would explain some of the discrepancy, but many more women from Dwoli's parish still appear to travel to Hoima for services.

Both facilities were out of most drugs asked for, however, despite having very few deliveries. This could indicate quality problems (shortages not due to use of the drugs in the first place), but as mentioned drug availability cannot be seen as a strong indicator of quality.

Buraru and Mparangasi

Figure 11 - Buraru and Mparangazi HCIII locations
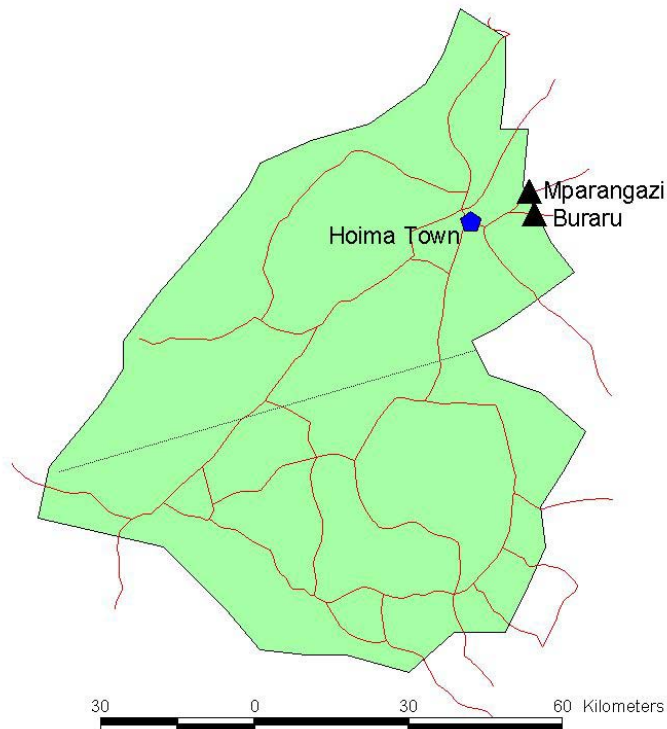
Both facilities lie in Kyabigambire sub-Country. Mparangazi appears to be more popular, however – with nearly three times as many deliveries, and a much lower proportion from the local Parish, although it has a slightly higher bypass ratio. Despite Buraru's large local female population, few deliveries were conducted and it would appear women were somewhat willing to travel to deliver elsewhere.

Table 15 – Buraru and Mparangazi statistics

	Buraru	**Mparangazi**
Deliveries	42	119
Proportion from Parish	78.57%	32.77%
Parish female population	4,995	3,810
Bypassing Ratio	0.73	0.82
Number of Midwives and Nurses	1 – 1	1 – 1
Number of drugs missing	7	10
Number of key supplies missing	3	3
Number of delivery room supplies missing	3	3
Number of ANC supplies missing	6	3

Again, it is unclear exactly why Buraru would be unpopular – but drug availability does not appear to explain the situation, with Mparangasi missing more drugs.

Buhimba and Bujalya

Figure 12 – Buhima and Bujalya HCIII locations
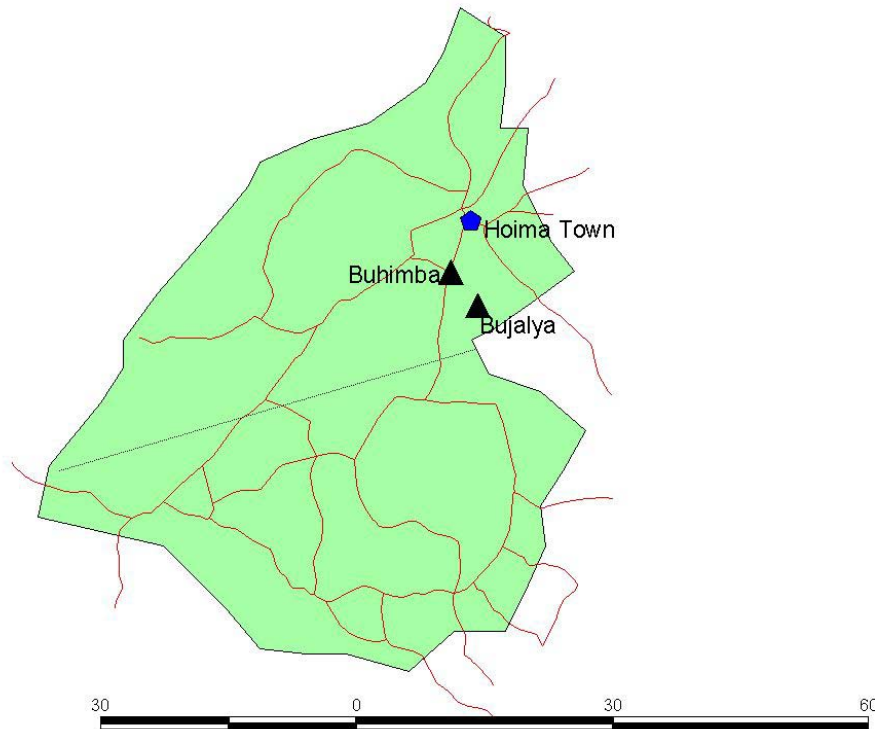
Comparison here again shows how drug supplies do not indicate use. Buhimba had almost twice the number of deliveries as Bujalya, with a much lower proportion coming from the local area. More drugs were missing in Buhimba, however. Strangely, Buhimba also had a much higher bypass ratio, although the map above illustrates it is located along a major road to Hoima Town. Bujalya is one of the few facilities which does not appear to be located on a major road in the district.

Table 16 – Buhimba and Bujalya statistics

	Buhimba	Bujalya
Deliveries	70	36
Proportion from Parish	18.57%	77.78%
Parish female population	3,129	2,358
Bypassing Ratio	5.08	0.61
Number of Midwives and Nurses	2 – 0	1 – 1
Number of drugs missing	10	7
Numebr of key supplies missing	3	3
Number of delivery room supplies missing	1	2
Number of ANC supplies missing	3	5

This is a particularly noteworthy case in that the bypass ratios are so different for two facilities in the same sub-County. The fact that most women using Buhimba were from other areas would also indicate that it has particularly good road access. It would appear that Bujalya has unique problems in transport access, which would explain why low use and high local use did not correspond to much bypassing.

Buhanika and Butema

Figure 13 – Buhanika and Butema HCIII locations
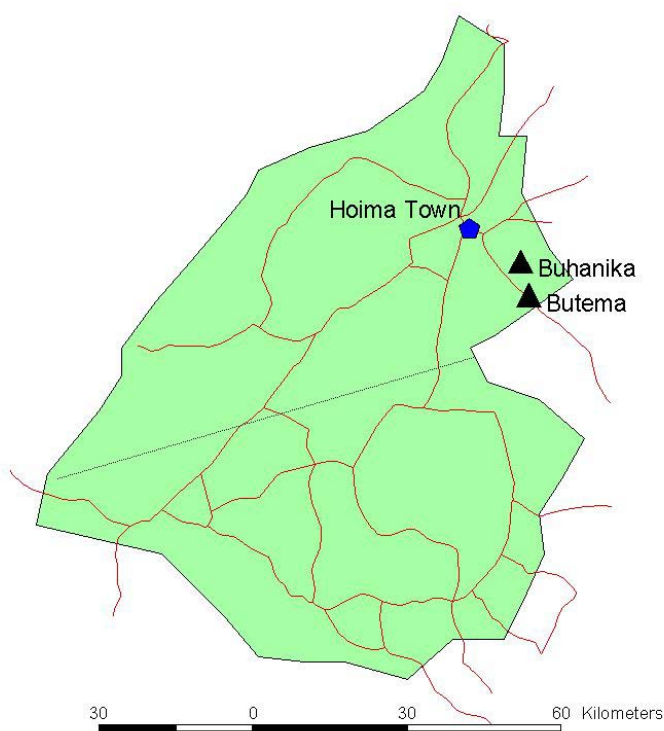
Finally, these two facilities in Buhanika sub-County show vastly different levels of use, and again appear to illustrate the importance of quality or cost within a given area. Butema has over six times as many deliveries as Buhanika, with a lower proportion from the local area. Buhanika has a high bypass ratio as well.

Table 17 – Buhanika and Butema statistics

	Buhanika	Butema
Deliveries	31	213
Proportion from Parish	80.65%	55.4%
Parish female population	2,453	2,808
Bypassing Ratio	1.39	0
Number of Midwives and Nurses	1 – 1	1 - 1
Number of drugs missing	8	5
Number of key supplies missing	4	2
Number of delivery room supplies missing	5	4
Number of ANC supplies missing	5	2

While more drugs were missing in Buhanika, Butema also was missing several drugs. This comparison appears to illustrate that quality or cost features could play a very large role in affecting decisions to use particular facilities, but again illustrates the need to measure quality more effectively. Interestingly, Buhanika is not located directly on the major road, as Butema is. In the previous case, comparing Buhimba and Bujalya, road access appeared to greatly influence bypassing, but the reverse appears to be the case here, where the facility located along the main road to Hoima (Butema) had no bypassing. While Table 6 would hypothesise that there may be transport barriers for Butema, its location on a road not far from Hoima would apparently contradict this. This would appear to indicate particularly good quality at this facility or other attractive features.

Findings:
- Distance and transport appear to be important in remote locations, where low bypass ratios were seen for remote facilities, even those indicating potential low quality (e.g. with high proportions of deliveries from the local area).
- Looking within sub-Counties with multiple facilities, however, shows that quality and/or cost appear to be important determinants of use, as vastly different numbers of deliveries were seen in facilities in the same sub-County
- For sub-Counties with very good road access to higher level facilities (Dwoli and Karongo), numbers of deliveries was low, and bypassing high.
- When two facilities in the same sub-County have vastly differing bypass ratios, this could be an indicator of quality problems in one facility, although other factors such as unique isolation of a Parish could be to explain.
- It is important to develop and use alternative measures of quality of care to help understand these comparisons

Table 18 – Summary table – HCIII statistics

Health Centre III	Number of Deliveries (past 12 months)	Proportion of deliveries from within the Parish	Bypass Ratio	Numbers of Midwives – Nurses	Number of key drugs missing	Number of key Supplies missing	Number of delivery room supplies missing	Number of ANC Supplies missing
Bujumbura (NGO)	12	N/A	N/A	1 - 9	1	0	1	1
Dwoli	12	N/A	5.17+	1 - 1	8	5	3	2
Mparangasi	119	32.77	0.82	1 – 1	10	3	3	3
Karongo	12	58.33	3.43	1 - 2	9	2	1	2
Kabwoya	203	33.99	0.01	1 - 1	7	4	2	5
Buraru	42	78.57	0.73	1 - 1	7	3	3	6
Bujalya	36	77.78	0.61	1 - 1	7	3	2	5
Buhimba	70	18.57	5.08	2 - 0	10	3	1	3
Buhanika	31	80.65	1.72	1 - 1	8	4	5	5
Mukabala	74	24.32	N/A	1 - 1	9	3	3	5
Kigorobya	552	8.33	1.50	3 - 1	9	6	5	4
Butema	213	55.40	0.00	1 - 1	5	2	4	2
Buseruka	144	61.11	0.06	2 - 0	12	6	2	3
Bugambe	163	18.40	0.23	1 - 1	1	0	2	2

Qualitative interview data

Thirty interviews were conducted throughout Hoima district with women who recently delivered in a health centre. Women were identified from facility records, and purposively chosen to cover a spread of women across the district, living a variety of distances from the health centres. Ugandan interviewers were trained and conducted the interviews in teams of two, with all teams having either one or both members women. The interviewers were trained on methods of interviewing and the objectives of the study, and gathered information on decision making processes, overcoming access barriers, and social norms and networks. The interviewers wrote up each interview in the form of a case study which were reviewed by the Principal Investigator with the interview teams.

Perhaps most remarkable was the number of women who described how they had planned to give birth in a health centre. Despite a minority of women doing so in Uganda, almost all cases reported that they had expected to do so while still pregnant.

Role of the husband

In almost all cases the woman reported receiving assistance from her husband in deciding to use care or visiting health centres, both for antenatal care and actual delivery. The interviewer's themselves were struck by the supportive role men appeared to play, and indeed, in one case of a 20 year old woman in her first pregnancy, the woman's husband, who worked in Kampala, took leave from his job to be with his wife during delivery. There were some rare exceptions to this, including a case of a 33 year old in her second pregnancy whose husband wanted her to deliver at home. The woman reported that her husband drunk a lot, and was 'lazy and careless', but other relatives, including her brother-in-law were said to be supportive and urged her husband to buy needed supplies for a facility delivery. In the end the brother-in-law helped transport the woman to the health centre himself.

The type of assistance varied, but in several cases women reported that husbands would leave money for the woman to cover pregnancy related expenses. Often, however, men control family finances, so this may not be too surprising. In other cases, however, men further provided assistance by accompanying or transporting their wives to health centres for antenatal and delivery care. Men also played an important role in arranging for transportation when they did not own or have access to a bicycle or motor cycle/vehicle. Men would arrange for the use of vehicles from friends or family, or hire private vehicles for their wives.

The importance of the husband primarily appeared to overcome the barriers of cost and distance/transportation. Much less was said about husband's roles in decision making or socio-cultural norms. These findings point to the need to target men as well as women in education and outreach campaigns to increase skilled attendance, and to focus on the financial costs of care, and the need to put money aside to cover expenses such as supplies and transport. Women often have limited power over financial matters in the household, even when their own health is at stake, and so targeting men with safe

delivery messages can help to encourage one of the most important enabling individuals in a woman's life to play a supportive role in seeking safe delivery assistance.

Social Networks

As part of the interviews, women were often asked about the norms of their community or what their friends would choose for their own delivery. Surprisingly, a number of women reported the use of facilities for delivery to be the norm in their social group. Some reported that most or all of their friends used facilities for delivery. Others commented more generally about their communities, explaining that women tended to deliver in health centres. Still others distinguished between young and older women, stating that it was the norm for young women to deliver in a facility, particularly for a first birth.

Such findings appear to contradict national and district statistical data that indicate that a minority of women in Uganda, and in Hoima Distrct, attend health centres for delivery. The opinion presented, that most women did use facilities, however could reflect a number of possible scenarios. There is of course some potential respondent bias, with users stating this to be the norm while knowing it was not so. This could occur if they believed it to be the 'correct' answer that the interviewer wanted to hear, or if they felt some stigma from using the facility, and wanted to justify its use. Yet there are other possible viable explanations. If, for some women, their friends or their communities did normally use facilities, this would point to a 'clustering' of users in the district. It may be that, rather than seeing users spread equally across the district, there may be communities or social groups who use facilities at a high rate, while other parts of the district see lower than average use.

Indeed, it would appear that for those women who reported social norms to deliver at home, but who themselves recently used facilities, there were previous problems with delivery that led to diverting from the norms. In one case, a 37 year old women who was interviewed regarding her third pregnancy stated that in her community it was the norm to deliver at home, and that she would be questioned by community members as to why she would attend ANC (although nationally ANC use is above 90%), or deliver in a facility. However, in this case, it seems to have taken several poor past outcomes from home delivery that led to the decision to use a facility. She explained that her husband's previous wife had died in childbirth, that she had also lost a child, and that she had severe bleeding after another child of hers was born. It appears to have taken all three of these problems to lead to use of facilities in the social situation where the norm was for home delivery. Interestingly, she also stated that she had no friends and weak social networks (she typically did not visit anyone, and reported no visitors in the past 2 weeks), so it may have been easier for her to break from the social norms than others in that community. In another case a 20 year old woman reported the norm to be for home delivery with TBAs, but had delivered in a health centre after she had experienced complications of her first pregnancy, reporting a retained placenta for some time. She stated that it was only this poor experience at home that led to her use of the health centre for the recent delivery.

Further surveys or follow-up work could investigate this dynamic to see if, indeed, there are clusters of service-users, identifying possible explanations for such clustering – such as geographic, cultural, or economic aspects. As far as interventions to promote use of facilities is concerned, the potential for clustering of users would indicate the usefulness of developing community based women's groups and networks which work to promote skilled attendance.

Women also mentioned age differences as a possible explanation, stating that younger women in particular used health facilities. Even in the case of the 37 year old who had been asked why she used facilities, the woman identified a trend of younger women using facilities more. Nationally this trend can be seen in existing DHS data, which is presented below. From the 2000/2001 DHS survey, the proportion of women reporting delivery (in the previous three years) at different locations is given below, and disaggregated by age, education, rural/urban location, or birth order.

Table 19 – Place of delivery, data from 2000/01 Uganda DHS

	Health facility	At home	Other	DK/missing
Type of place of residence				
Urban	80	19	0.8	0.2
Rural	31.4	67	1	0.6
Highest educational level				
No education	18.7	79.6	1.1	0.5
Primary	36.9	61.8	0.8	0.4
Secondary or higher	73	24.5	1.2	1.3
Missing	0	100	0	0
Age at birth				
< 20	47.2	51.4	0.8	0.5
20-34	35.7	62.7	1	0.6
35+	25.9	72.5	1	0.5
Birth order				
1	56.6	41.9	0.8	0.8
2-3	37.3	61.4	0.7	0.5
4-5	31.7	66	1.7	0.6
6+	27.8	71.2	0.7	0.4
National Average	**36.7**	**61.8**	**0.9**	**0.6**

It can be seen that younger women do indeed deliver in health centres more often nationally, over 47% of the time, compared to the all-age average of 36.7%. Still, this discrepancy is probably not so large as to explain the clustering effect. The use of skilled attendance by education level shows a very strong link, however, between higher educational attainment and use of facilities

In our interviews, some of those women reporting norms of use of facilities did indeed have secondary education, but there were also cases of women with this view who had no education (26 year old case), or only primary education (19 and 20 year old cases).

Finally, there were some cases where women stated that their religion (branches of Christianity –including one 20 year old self-reported 'Born-Again' Christian) insisted on use of health centres, and no traditional birth practices. It was clear that active membership in some religious groups could play a very strong role in shaping behaviour. However, there were many other Catholic or Protestant women who did not mention religion as a basis for the decision on the place of birth.

Overcoming access barriers

In general, women were asked to describe their delivery experience in the in-depth interviews. Their own stories give some indication of which barriers were faced, and how they were overcome.

It would seem that socio-cultural norms against delivery in facilities were recognised, but may not have been a serious barrier for these women. Most of them had decided to use the facilities in advance, and many stated that friends and family members similarly gave birth in health centres. However, many women were quite aware of reasons why other Ugandan women choose to deliver at home, including: beliefs about ritual handling of the umbilical cord and placenta, reliance on herbs for easy delivery, norms for women to stay in the household, fear of being 'cut' and stitched as part of a medical procedure, fear of being seen naked by strangers, and the preference for a squatting delivery position as opposed to lying prone. While these views were known to the women interviewed, most cases did not give any indication that they were under pressure due to them. In only one case a 20 year old woman in her second pregnancy reported that her friends urged her to not visit a health centre for antenatal care, but she insisted on attending due to the risks of pregnancy – she had lost her first child after a neighbour attempted to pull it out by force.

The possible clustering of communities of facility users could indicate that social norms could still be a significant barrier in communities where non-use is common. Simply because users did not face this barrier does not mean it does not matter elsewhere, and, indeed, the one case where the woman's friends urged her against visiting facilities appears to have been overcome due to a perceived risk resulting from a very dramatic experience in her first pregnancy leading to the loss of the child.

In the interviews with users, there were also no reports of stigma or discrimination from others in their community, although they were not necessarily probed directly on this, and one 18 year old in her first pregnancy did express unhappiness at being attended to by a male clinical officer in the health centre.

The position of the woman in the household also did not appear to be a common problem for users of facilities, but there were some cases where family members appeared to prefer home delivery at first. One case of a 33 year old woman in her second pregnancy has already been mentioned, where she reported her husband wanted her to deliver at home. In that case, it appears that the husband was alone in his view, as other family members, including her brother-in-law, were called upon to help the woman to use

facilities. There were occasional other mentions of in-laws preferring home delivery, but little was often mentioned of this, and it did not seem to be a difficult or problematic barrier.

While it has been explained that women often have little say in decision making, in 13 cases the respondent gave some indication that she herself played a role in the decision making process. While two of the women included in this group were teachers who earned a wage, several others had little or no formal education, and did not earn a paid income. This could indicate that either norms are changing to give women more of a voice, or simply that in-depth investigation highlights that decision making is rarely so simple. Focus groups and other research methods may elicit a common view of the 'norm' – perhaps where women have little say in the family, but in-depth interviews will show just how complex actual decision making is, and highlight that pregnant women themselves often do play a role in the decision making process.

The barriers which were mentioned tended to be those related to distance, transportation, and costs for services and supplies. As discussed, overcoming these barriers was often facilitated through support of the husband, who commonly put aside funds for delivery related care. This could be done from selling extra agricultural products or even animals in some cases. The husband also provided or negotiated transportation in many cases. However, in several cases, it was indicated that money was put aside for the delivery, or that transportation was arranged in advance, arranging to borrow a motorcycle or provide fuel, for instance. In cases such as these, the previous decision to use facilities would have played a large part in enabling the woman and her family to overcome barriers. For other women who plan to deliver at home, they may not make advance arrangements to secure and pay for transport, and it is conceivable that emergency transportation may be difficult to arrange without some prior planning.

Findings:
- *Women often stated that friends/family/local women used facilities for delivery, indicating a possible 'clustering' of users;*
- *Most interviewees planned to use facilities in advance;*
- *Among the users, the barriers most often mentioned involved transportation and costs of supplies;*
- *Arrangements were often made in advance for funds required to buy drugs and supplies, and for organising transportation.*
- *Social networks were important in both shaping delivery norms (as seen in the clustering effect), and in providing support to use services. Transportation and funds were often arranged through social networks;*
- *Women's husbands often played a larger than expected role in overcoming barriers such as cost and transport, arranging and borrowing funds and transport mechanisms.*
- *Bad experiences and outcomes in the past deliveries seem to overcome the norm against facility delivery*

Conclusions and Recommendations

This study has attempted to increase understanding of the dynamics behind decisions to use professional health facilities for childbirth in Uganda, and specifically look at use in Hoima district. The study has been fairly small-scale, however, so it is hoped that further work may be done in the future to increase the scope of the study, and investigate some of the key questions in greater depth. However, some specific conclusions and policy recommendations can already be made at this stage.

Quantitative data

The limited extent of the data makes concrete recommendations difficult, but several points have been raised:

1) Women appear to prefer delivery in higher level facilities, particularly the district hospital. The two District HCIVs had higher numbers of deliveries than all but one HCIIIs, and Hoima Hospital had significantly more deliveries than any other facility. Women who bypassed local facilities traveled to higher order facilities in over 90% of bypassing cases. In addition, some facilities serving Sub-Counties that neighbored Hoima town had very low numbers of deliveries, and high bypass ratios. Further investigation can aim to understand what it is about lower level facilities that prevent women from seeing them as a viable location to deliver – and what aspects of higher level facilities are seen as attractive for delivery which are missing at lower levels. Policy interventions at this stage could be to address known insufficiencies at lower levels, which may include staffing and supply levels, as well as transportation for emergency referral.

2) The relationship between distance and quality or cost as barriers appears to be dynamic. For very low use services (assumed to be low quality or high cost or both), small distances can prevent women from visiting, but local women will be willing to travel to reach other facilities. For middle-use facilities, distance appears to prevent women from bypassing to use higher level facilities. For the most popular facilities, women appear to be willing to travel to reach the facilities more often. In general, then, quality appears to outweigh distance in the lowest and highest use facilities, while distance appears to shape decisions more in the middle range of facilities. A clear policy implication is that there is most likely a minimum standard of services which must be reached for people to consider use of the facility, and not bypass. Further investigation is needed to see if it is quality or cost related in the low utilization facilities, but any facility with particularly low use levels can be identified for quality assessment and could be prioritized for improvements. The vast range of deliveries shows that simply monitoring numbers of deliveries per 1000 women served can be a simple systems indicator to show when investment or attention is required.

4) Stocks of basic drugs and supplies, or staff numbers, do not appear to be correlated with use of facilities. It would appear that simply counting stocks of drugs and supplies may not be an accurate indication of quality of care. Most women interviewed explained

that they had to pay for these items, or bring the items with them. Often drugs had to be purchased from nearby shops. Therefore, if the items are in stock, but not dispensed, counting them will not be a good reflection of quality of care. Similarly, if the facility is out of stock, but the items can be purchased nearby, this may have no greater impact than if a woman had to buy them from the facility itself. Alternative means to assessing quality could be to survey recent users of the facility (to try and quantify a scale of perceived quality), or undertaking staff appraisal or observation (technical quality). Counting staff numbers was also not useful, as numbers did not differ much between facilities. Given the small number of midwifes common to many facilities, it is unknown, how often skilled delivery staff was available, and if some facilities had higher periods of gaps (absence of midwife) than others.

5) The staffing numbers do not appear to be well linked to workload, with some facilities undertaking over a hundred deliveries with between one and three midwives. Apart from being an NGO, it is unclear why Bujumbura specifically has 9 nurses, although there may be heavy non-maternal health care services to justify this.

6) In terms of specific facilities included in this study: data from Buraru, Bujalya, and Buseruka Health Centre IIIs indicates that transportation barriers may be a significant problem around these facilities. Internal facility aspects such as quality or cost appear to be important barriers to use of Buhimba, Karongo, and Buhanika HCIIIs.

Qualitative data

From the qualitative interviews, several important findings were uncovered.
The most striking was the potential clustering of women into groups of users, evidenced by the number of women who stated that their friends or others they knew tended to use facilities for delivery. This would indicate that one of the most important barriers to overcome can be social norms for home delivery. It appears that many of these women are situated in groups where the norm may be for facility delivery – at least to an extent greater than national statistics would indicate. There was also no reported stigma from the decision to use a health facility, and so it would appear that, at least for groups of users, this was removed as a significant barrier. Such stigma might still exist for women who are in networks or communities of non-users, however. Interventions in this area are complicated, as often it requires more than simply targeting individuals with education messages. Working through community groups or organising women's self-help groups may be one option to try to foster networks of users. Working on education messages that address local norms and aim to build social esteem for mothers using health facilities is essential – rather than simple education messages about risks, where the information may clash with local understandings or expectations. In addition massages need to address the fears of facility delivery e.g. episiotomies and caesarean sections.

Once social norms are addressed, for the women who went to facility (who typically had planned to do so in advance), the main difficulties mentioned centred around issues of transportation, distance, and costs of supplies and other needed items. Women often

overcame these barriers through personal connections, family, and social networks. The role of the husband particularly stood out in its importance, but the in-depth studies further showed the complexity of decision making, and how at times women had a say in the decision making process, as well as the importance of other individuals. If education messages are to be used to promote skilled birth attendance, there is clearly scope to include men as well as women – particularly with the important role played by men seen. And the strategy of working through community groups can also help to establish networks of support that enable women to use facilities.

The role of social networks shows itself across all of these findings. Social networks can shape what is considered appropriate behaviour – including both norms of home delivery in some networks, and facility delivery in others. They act as agents of social control and are not 'good' nor 'bad' in and of themselves. However, in cases where facility use is seen as the norm, social networks appear to be a resource that can be drawn upon to overcome other financial and transportation barriers. It is important to recognise all the functions of social networks in encouraging, discouraging, enabling, and preventing use of services, and target interventions in communities to promote appropriate health behaviour for their membership.

At a more macro level, improving transportation links would be a complex, but useful policy strategy to improve service use. Members of the research team commented on the importance of the 'boda-boda' motorcycle taxis as a means of transport for pregnant women, and there may be scope for encouraging utilisation of these services. Potentially having a fund which can pay drivers on arrival at facilities can help overcome any costs to women, and may encourage drivers to serve areas not normally popular. The fact that, for many women interviewed, plans had been made in advance to put aside money or arrange transportation highlights the need to ensure emergency transport for those women who may have originally planned to deliver at home. A few women in the study did first attempt home delivery, and then moved to facilities, but in these cases they lived near facilities, had put some money aside, or the family had means of transport. The preparations required by other users therefore highlights a potential problem that needs to be addressed.

Ensuring proper funding of health services, by improving supplies and increasing salaries to reduce incentives to charge for supplies, will also certainly help reduce out of pocket costs, and is another system-level intervention which may be important to increasing use of services. One woman noted that ANC is free, but women often have to pay for delivery care, which may explain why ANC use is so much higher than delivery care. A policy priority could be to ensure that both services are free of charges, or that past attention and resources to ANC be broadened to include delivery care as well. It is clear that informal fees continue to exist for services, despite the governments elimination of official payments for services, and so reforms must look to understand the incentive structures in place that lead to informal charges.

As a whole this study has provided a first step in exploring some of the key elements of decision making for facility based delivery. Improving maternal health outcomes will rely on a vast scope of interventions, improving the health system as a whole, yet an important element will be in encourage and increase use of those facilities which do exist. Many questions raised in this study could be explored further, but the findings do point to some specific areas of potential policy intervention – both in terms of particular facilities in Hoima which appear to face barriers to their use, as well as with regards to how to promote facility use at a larger social level.

Map data (obtained 2004):

Road networks - http://www.maproom.psu.edu/dcw/
Digital Chart of the World Server – Penn State University Libraries

Sub-county locations courtesy of the DIVA-GIS website:
http://www.cipotato.org/DIVA/data/DataServer.htm

Facility locations manually copied from: Maps of the Geography Department, Makerere
Univeristy "Hoima district health infrastructure facilities" map

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