Executive Summary

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Introduction

This study evaluates provider and consumer costs, along with selected quality indicators, for six maternal health services provided at public and private hospitals, health centers, and community practitioner sites in Uganda. The study examines costs of providing the services in order to examine the reasons behind cost differences encountered, assess the efficiency of service delivery, and determine whether management improvements might achieve cost savings without hurting quality. This assessment is important to Uganda and many other African countries with ambitious goals for improving maternal health, but scarce public health resources and limited government budgets. It is also important for Ugandan considerations about contracting options for private providers and related performance incentives.

The study also evaluates the costs that consumers pay to use the maternal health services, along with the contribution that revenues from fees for services make to recovering health facility costs. This assessment is important to the efforts of many Ugandan health facilities to introduce user fees as a cost recovery mechanism, to help pay for quality maternal care and to do so in a way that consumers, especially the poor, can afford.

Methodology

The Partnerships for Health Reform (PHR) conducted this study in collaboration with the Makerere University Institute of Public Health (IPH). The PHR and IPH team collected data on the costs of delivering six maternal health services—antenatal care, normal deliveries, cesarean deliveries, post-abortion care, postpartum hemorrhage complications, and eclampsia complications—during 1998 at a public and a mission hospital, a public and a mission health center, and by 17 midwives and 20 traditional birth attendants in Masaka District of Uganda. The field team collected data during one week at each of the four health facilities and spent several other weeks collecting data from the independent community-based practitioners.

At these sites, the field team collected data on total operating costs (e.g., personnel, drugs, supplies, material, utilities, overhead expenses) directly associated with providing the maternal health services (direct costs), as well as related support costs (indirect costs). For a variety of reasons, the study does not include capital and investment costs. It does include several measures of structural quality and a few measures of process aspects of quality. Data collection techniques included personnel observation studies to obtain data on time allocation of personnel, facility
quality checklists, provider interviews to determine lines of treatments and time use, facility record reviews, and client exit interviews on expenditures and client satisfaction.

The Ministry of Health (MOH) and PHR-IPH team jointly planned the field study and selected the study sites. The four public and private health facilities included in the sample are among the best in Uganda and have received substantial amounts of MOH and donor assistance. Data from these well-managed and well-stocked facilities are thus not representative of public or of private facilities in Uganda. The rationale for this choice was that there is little point in costing poor quality services. Therefore, the data and conclusions from this analysis are best understood as case studies of four health facilities and of a small sample of independent community practitioners. The case study data can, however, be used to illustrate financing and efficiency issues that the Ministry of Health could address in its efforts to strengthen maternal health services in Masaka and elsewhere in the country.

**Provider Costs**

Estimated total (direct plus indirect) operating costs of routine maternal health services in the four health facilities in Masaka District were less than $7.00 for antenatal care (ranging from $2.21 at the public health center to $6.43 at the mission health center) and under $35.00 for normal delivery (ranging from $2.68 at the public health center to $33.90 at the public hospital). Costs were higher for obstetrical complications due to the use of more and higher-level personnel and materials. For example, costs of a cesarean section ranged from $73.10 (public hospital) to $86.48 (mission hospital) and from $19.97 (mission health center) to $57.60 (mission hospital) for post-abortion complications. The estimates compare with other estimates of maternal health care costs such as the World Bank estimate of $90.00 per case for antenatal and delivery services (World Bank 1993).

As expected, total costs per service were generally highest at hospitals, reflecting greater use of drugs and higher employment of skilled personnel. The mission health center, however, had higher costs for antenatal care ($6.43) than either the public hospital ($4.18) or the mission hospital ($5.20), because a physician rather than nurse midwife conducts antenatal clinics at that facility.

With respect to the composition of costs, study findings show that while personnel time costs were the most important component for normal deliveries and eclampsia, material costs made up more than half of direct costs for the other four maternal health services. Indirect costs of support staff time, non-patient contact time that personnel spend, and pro-rated shares of maintenance and utilities ranged from 20 percent to 60 percent of total costs of delivering the maternal health services included in the study. Indirect costs for both hospitals are similar for all of the six services; hospital indirect costs are higher than the two public health centers' indirect costs for all services, but the mission health center has higher indirect costs than either hospital for two of the four relevant services.
Provider Efficiency

These case studies provide several indications of the relative efficiency of the various providers in the sample. Health provider costs in the sample reflect different mixes of staff and medications and other material, as well as different staffing patterns. The two mission health facilities had higher material costs than the two public health facilities, while the public hospital has higher personnel costs for four of the six services. In contrast, the mission health center had higher labor costs than the public health center for all three services the center provided.

Reflecting differences in utilization levels in relation to staffing, midwives at the mission hospital delivered more babies per year on average (68 deliveries per year) than at the public hospital (39 per year). Public health center midwives delivered the most babies per year (116 per year per midwife) followed by private midwives (108 per year). Most international standards suggest that a nurse midwife could perform 15 to 20 births per month, or 180 to 240 births per year, though an additional midwife would be needed in a facility setting to cover for leave time and women needing services at the same time.

Provider Quality

When quality considerations are taken into account, the study shows that the public hospital has laboratory equipment, but does not always conduct lab tests when needed. The two mission health facilities have more drugs available and perform more lab tests than the public health facilities in the case study. Only about half of the clients at the public facilities said that they had received prescribed drugs at the public facilities, while all mission clients said they had received the drugs prescribed for them.

The study did not include observation of drug prescribing practices to be able to determine if overprescribing might be occurring by providers with access to greater supplies. Anecdotal evidence, however, suggests that inappropriate prescribing practices may exist at these facilities. On the other hand, percentages found for prescription of sexually transmitted disease drugs match the prevalence of these diseases in Uganda.
Client Costs

According to patient exit interviews at the four health facilities, total costs that patients paid for maternal health services ranged from $3.00 or less for an antenatal care visit, from $2.26 (public health center) to $22.75 (mission hospital) for a normal delivery, and from $13.22 (public hospital) to $59.24 (mission hospital) for a cesarean section.

User fees are often lower than other costs paid by the patient. In the case of antenatal care, user fees are less than typical transport ($0.56 to $1.26) and other costs combined at all facilities but the mission health center. User fees at the public hospital are also less than transport ($3.83) and other costs ($3.03) combined that are associated with a normal delivery or a cesarean. At the mission hospital, however, the high fees do exceed the other costs ($4.49) associated with a normal delivery or complicated obstetrical care. It should be noted that clients using the public health facilities in these case studies often incurred additional costs to fill prescriptions they received at the facility.

Cost Recovery

Because patients generally paid much higher fees, the mission facilities studied usually recovered a higher proportion of their costs than did public facilities. For example, the mission hospital recovered 55 percent of normal delivery costs, against recovery rates of 23 percent at the public health center and 13 percent at the hospital.

As expected, cost recovery rates are higher when compared with the costs of material and medication directly related to the maternal health service—the cost component that user fees are most often designed to cover.

Conclusions

Findings from these case studies suggest that no simple conclusion can be drawn about relative costs of care, efficiency, or quality at different levels of care (hospital vs. health center vs. community practitioner) or at public and private providers. Higher total costs are not necessarily associated with higher quality or with a higher level of health facility. Variations in staffing patterns and use of medicines, laboratory tests, and other supplies suggest that no single model of efficient or cost-effective maternal health care exists.

Higher material costs in the two mission facilities than at the public ones were associated with relatively higher structural quality, however.
Facilities do not appear to have set their fees systematically in relation to costs or to have set specific objectives related to cost recovery rates for particular services or particular costs. Consumers face a confusing array of fees—sometimes covering part, all, or more than the costs of medications and other supplies—and do not know what they are paying for or, perhaps, what they will be charged for any given maternal health service.

Both public and private health providers have inefficiencies and could make better use of their resources. Evidence collected for this study suggests that changes in (1) drug supply, (2) staffing patterns, and (3) efforts to increase utilization might produce the greatest efficiency gains. Higher utilization rates are likely to be needed to absorb the time of a core number of midwives who must be on staff to provide 24-hour coverage at the hospitals and health centers. In all four facilities maternal health services represent less than 10 percent of total patient days; specifically in the mission health center, the figure is less than 5 percent. Midwives are delivering many fewer babies than they could and all staff appear to have large amounts of time spent on administrative duties (11–41 percent) or unoccupied (6–13 percent).

### Recommendations

#### Efficiency

> Since most of the facilities in these case studies do not appear to be functioning at capacity for maternal health services, these facilities should take steps to encourage higher utilization rates—with the goal of improving maternal health outcomes, as well as efficiency. Alternatively, the facilities, especially hospitals, should bring staff allocated to maternal care more in line with current utilization levels.

> Data across all providers in these case studies suggest that overall efficiency of resource use could be improved by encouraging mothers to use health centers rather than hospitals for antenatal care and for delivery. The MOH could encourage delivery in health centers, or with trained providers, for the 85 percent of uncomplicated cases, while strengthening early diagnosis of problems, communications, and referrals for the small but important percentage of obstetrical complications requiring more specialized care. However, it will be important to improve the availability as well as use of materials and equipment in these facilities.

> Specifically in the public hospital in this study, administrators should consider streamlining staffing. For example, if the public hospital cut the number of midwives from 25 to seven, each midwife would perform on average 142 deliveries per year (in contrast to 39 now) and costs per delivery would be reduced by 40 percent. Since these average patient care rates are well within quality standards, this cost saving could likely be made without sacrificing quality of midwife services at the hospital.
The two public facilities should also improve their drug supplies and revise their fee structure to assure that fees cover the costs of medications and other material. Fees that cover the costs of medications will provide enough funds to keep drugs in stock, improve utilization, and save patients the additional cost of traveling to pharmacies to fill prescriptions at commercial market prices.

At the mission health center, administrators should consider improving efficiency through posting midwives rather than medical officers to provide routine services and reserve care by physicians for obstetrical complications.
Quality

> An assessment would be useful at both mission providers and private midwives to assess whether overprescribing of drugs is taking place.

> A more thorough assessment of maternal health care quality in the four facilities would help greatly in the interpretation of these cost data and in making recommendations for increased efficiencies that would not hurt and might improve quality of care.

> To improve quality, cost-effectiveness, and efficiency of care, the four facilities should review time allocation of midwives and establish norms for time needed for antenatal visits, availability for deliveries, administrative activities, and personal time. The MOH may find it useful to conduct a similar review for its health facilities in general.

Financing Policy

> The MOH should consider helping districts establish fees that are more in line with needs to assure that at least an adequate stock of medicines and supplies exists and that the fees are also within the ability of its client population to pay. Availability of generic medicines at public health facilities would save people money compared with the extra transport costs and higher commercial pharmacy fees they now pay when drugs are out of stock at the public facility. Based on experience in other countries in the region, regular availability of basic medicines at reasonable prices at public health facilities should also improve utilization, especially for the poor.

> Variations in cost and efficiency found in this study suggest that, in its considerations of contracting mechanisms with mission health facilities or independent private midwives, the MOH should examine each private provider on a case-by-case basis to determine what a reasonable reimbursement rate would be. Other studies in Uganda of mission health provider costs support this recommendation.

> At the time of data collection for this study, the MOH was considering contracting arrangements with private health facilities. Costs in this study could be used as a starting point in negotiating contract rates for maternal health services with the specific mission health facilities in this sample. But several modifications should be made if this evidence is to be effective in helping the MOH extend access to quality, cost-effective maternal health services at prices the population can afford. For example:

™ The MOH would not want to "lock in" the inefficiencies in the mission provider staffing and medication practices that are evident in this study. The MOH should build in performance incentives that would encourage private mission or commercial health providers to operate more efficiently, as well as to maintain quality.

™ The MOH may not want to reimburse the mission providers fully for indirect costs, especially considering likely inefficiencies in these costs in general. It
may also not be appropriate to allocate inefficiencies in other service delivery to maternal care.

The MOH may wish to conduct a study of income levels of current users of mission maternal health services to see if special contractual arrangements and related costs need to be incorporated to assure extension of services to poorer mothers.

The MOH should assess the benefits and current costs of subsidies it provides to mission health facilities, in comparison with a new contracting arrangement and in comparison with the marginal costs and benefits of strengthening maternal health services at public health facilities.

> In considering premium, capitation, or other prepayment rates that the population would pay for maternal health services under any contractual arrangement, the MOH should take into account several factors other than the specific maternal health costs that this study provides. For example:

The MOH should review fees the facility charges for all health services and costs of delivering all health service to determine premiums and patient co-payments that would apply most effectively risk-spreading and cost-sharing principles among maternal and other health care services.

To encourage the most effective spreading of risks and costs, the MOH might consider eventually including maternal health services as part of a broader package of services under such schemes, rather than as a separate package with separate premiums or capitation rates.

Premium, capitation, or prepayment rates would need to include the costs of care at several facility or provider levels to cover the need for referral for obstetric complications or emergencies.

> In both public and mission facilities, more systematic price setting should take place to ensure that cost recovery goals are reached.

> Before establishing final guidelines on fees for maternal health services in the public sector, an in-depth study should be conducted of the population's willingness and ability to pay for maternal and other health care services, along with their current health spending and utilization patterns, reasons for choosing public and private providers, and dimensions of quality they consider important. These aspects of consumer demand should be analyzed by income group to see what differences exist between higher- and lower-income households.