



## Health systems factors influencing maternal health services: a four-country comparison

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### Abstract

It is widely understood that maternal health care relies on the entire health system. However, little empirical, country-specific, research has been done to trace out the ways in which health system elements can shape maternal health outcomes. This study seeks to redress this situation, by providing an example of how a health systems approach can benefit the understanding of maternal health services. A comparative analysis was conducted based on extensive case studies of maternal health and health systems in Bangladesh, Russia, South Africa, and Uganda. A number of cross-cutting health system characteristics affecting maternal health were identified by comparing these diverse settings. The most important common systems issues underlying maternal health care were found to be the human resource structures, the public–private mix of service provision, and the changes involved with health sector reforms. Specific country contexts can further determine many factors influencing maternal health outcomes and service performance. Systems issues were found to influence the access to and utilization of services, quality of care provided, and ultimately maternal health outcomes. This paper provides a first step in tracing out how such broad systems issues actually work to influence maternal health.

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*Keywords:* Health systems; Maternal health; Uganda; South Africa; Bangladesh; Russia

### 1. Introduction

It is widely acknowledged that most maternal mortality is avoidable, with proven technical interventions well understood [1,2]. Access to basic surgery for

caesarean sections, blood supplies for hemorrhage, and drugs for eclampsia and infection can avert a large proportion of maternal deaths, and some authors have argued that provision of these technical emergency interventions has featured too low on policy agendas [3,4]. Others have discussed the effective organization of delivery care—by discussing the merits of home versus hospital delivery, alternative birth attendants, or maternal waiting homes to improve referrals of

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complications [5–7]. There have also been calls for social interventions to increase the age of first pregnancy, and to encourage contraceptive use [8–10].

However, according to Graham, “it has long been recognized that maternal health services are dependent on the functioning of the entire health system” [11: 703], and there has been a growing appreciation in the maternal health literature of the importance of approaching issues from a health systems perspective. Despite a large international focus on delivering cost-effective technical interventions, many middle and low-income countries seem unable to establish systems that effectively provide these required solutions. While the technical aspects of services needed to promote maternal health have been identified and used for decades in the developed world, these do not operate in isolation. The health systems factors that shape the use and effectiveness of existing services or technical inputs are less well understood.

To date, there appear to have only been a small number of conceptual studies discussing the links between health systems and maternal health. Campbell, for instance, has drawn on Roemer’s work to highlight the importance of various larger system components, such as resources, organization, management, and economic support for the delivery of maternal services [1]. Others have identified how health sector reforms such as decentralization, privatization, and sector-wide approaches to health financing might possibly improve or hinder maternal or reproductive health provision [2,10,12], with McDonagh and Goodburn reviewing the limited existing evidence on this subject [13]. These works recognize the importance of structures and organizational elements on the outcomes and utilization of services, yet there is still large gaps in knowledge on how key systems characteristics affect maternal health care.

Comparison of statistics across different countries illustrates that similar levels of technical inputs, such as numbers of emergency facilities, or percentages of births with a skilled attendant, can lead to very different maternal health outcomes—as seen, for instance, in the relatively high Maternal Mortality Ratio (MMR) in Mexico and the Former Soviet Union, despite near universal hospital delivery [1]. A health systems approach can aid in identifying the essential systemic elements that affect how such technical inputs eventually lead to the availability, use and quality of maternal health ser-

vices. This paper presents a comparative systems-based analysis of maternal health care in four countries—two low income (Uganda and Bangladesh) and two middle income (South Africa and Russia).

While each country is a unique case, the results of the comparative study specifically highlight three key areas where health systems play significant roles in shaping how specific inputs can work to improve maternal outcomes. The first is the use and quality of human resources, in particular skilled birth attendants. Second is the importance of achieving an appropriate mix of public and private services, and the implications for quality and accessibility of care to women. The third is the impact of health sector reforms, and specifically user fees, on maternal services. Our discussion of vastly different country case studies illustrates how in each of these the setup and operation of the health systems, in conjunction with these inputs, influence maternal health service provision and eventual outcomes.

## 2. Objectives and methods

Four maternal health studies from Bangladesh, Russia, South Africa, and Uganda [14–17], were undertaken in 2001–2002 in the framework of the Health Systems Development Program—an international collaboration of researchers investigating the role of health systems in protecting the health of the poor. Maternal health was chosen to study as it illustrates some of the greatest discrepancies between rich and poor nations [4] and is a priority issue in many low and middle income countries. Furthermore, maternal problems are easily diagnosed, effective medical treatments exist, and failure of care is measurable. A global reduction in maternal mortality of three-quarters by 2015 has also been defined as one of the United Nations’ millennium development goals [18]. However, provision of maternal care is dependent on a wide range of cross-cutting health system characteristics and thus represents a useful entry point to understanding how health systems respond to the needs of the poor.

In each country a literature review was undertaken of published sources found through international databases (including Medline/Pubmed and the International Bibliography of Social Sciences), and unpublished (‘grey’) literature—including policy documents, program reports, and student dissertations. Key in-

formants were identified through ‘snowball sampling’ to fill gaps or clarify the available information and to suggest other relevant literature. Each study also drew upon existing datasets, including demographic and health surveys (DHS), and national statistics for relevant data. The accuracy, completeness and rele-

vance of the analyses to the actual situation were then discussed at stakeholder workshops in each country with members of government, maternal health professionals, non-government organizations and donors involved in maternal health work. The following [Table 1](#) gives an overview of the scope of country-specific in-

Table 1  
Overview of review methodology

	Publications/ international reports—cited	National reports/‘grey’ literature—cited	Existing datasets	Type of key informants consulted	Other
Bangladesh	14	37	DHS: 1993–1994, 1996–1997, 1999–2000	National Government	Additional Primary Research: survey of facilities; survey of health workers; survey of users Additional statistics from UN agencies
			Government Statistics	NGO	
			National Surveys	Health Workers Service Users	
Uganda	16	55	DHS 1995, 2000–2001	National Government	Additional statistics from Safe motherhood and WHO country office
			Government Statistics National Surveys	Academic NGO Donors	
South Africa	15	36	DHS 1998	National Government	Data from report on Confidential enquiry into maternal death Additional statistics from UN agencies
			District Health Information System National Surveys National Perinatal and Reproductive Health Conference Proceedings	Provincial Government NGO Academic	
				Health Workers Donors	
Russia	20 (many published in Russian language journals)	35	Government Statistics	National Government	Additional statistics from the US Centre for Disease Control
			National Reproductive Health Surveys Tula Oblast Pregnancy Outcomes Dataset	Regional Government NGO  Health workers Academic	

formation included. Papers that were addressing general maternal health issues and not country-specific were also reviewed, but are not included in the count of cited works below.

Findings from the case studies were then analyzed together, initially comparing common maternal health outcomes and indicators. A second step involved identifying common systems-level issues that are crucial for maternal outcomes in each settings, which were then compared and contrasted. A number of common health systems themes emerged. Although the specific impact of each of these depends on the local context, there are important similarities in how they operate across countries.

### 3. Human resources and skilled attendance

The first area identified in the comparison was the importance of health systems played in shaping maternal service provision, in particular the effectiveness of skilled birth attendance. Internationally, the primary intervention recommended for reducing maternal mortality is an increase in skilled attendance at birth—normally classified as delivering with a doctor, nurse or midwife. This technical intervention has been recommended as the sole process indicator to guide progress towards achievement of the millennium development goal of maternal mortality reduction [18]. Yet while skilled attendance is no doubt essential, maternal outcomes from deliveries, which do take place with such attendants will still be affected by the systems in which they occur. Graham et al. examined the relationship between maternal mortality and skilled attendants at delivery in a number of countries, and found that it was not a simple linear one [19]. They suggest that there may be range of factors influencing the considerable divergence from a linear relationship. One such factor was the notion of what constitutes a skilled attendant—doctors and trained midwives are commonly accepted as such, but studies in many countries also include other medical staff as trained attendants, even if they have little midwifery training. Furthermore, Maine and others have argued that the accessibility of emergency services – both for those delivering with a skilled attendant and those who have decided not to – will also play a large role in shaping maternal outcomes exclusive of the use of skilled at-

tendance [4]. Once skilled attendants are in place, they will require resources, motivation and systems to actually provide mortality-reducing services. Thus, from a health systems perspective, there are questions around how people access attendants, what happens when a skilled attendant is reached, and the quality of care received.

Reducing maternal deaths requires all elements of a health system to function in coordination. Skilled attendants themselves must be embedded in functioning networks. For example, there is evidence that maternal mortality in Sri Lanka and Malaysia have significantly decreased, partly through a more extensive use of midwives. Yet in both these countries, increases in the number of women attended by skilled personnel took place along side widespread health and social improvements—such as greatly increased female education, and improving access to treatment of complications at rural health facilities [20,21]. It is unclear how effective simply increasing the percentage of deliveries with skilled attendance will be if done without regard for these broader issues. While skilled attendance is measurable through routine national statistics, and allows relatively unambiguous international comparisons, understanding the combinations of health system conditions under which the skill attendants can fulfill their role requires more specific investigation.

#### 3.1. Country insights on skilled attendance

Across the four countries compared in this study, basic indicators illustrate the complexity of the relationship between skilled attendance and maternal mortality. For instance, while Uganda has over three times the skilled attendance rate of Bangladesh (39% of births as opposed to only 12.1% in Bangladesh), estimates of MMR tend to be higher in Uganda—505 compared to recent estimates of 322 or 440 in Bangladesh. There are a number of possible explanations for this outcome. Assuming that the clinical needs are similar (which could be subject to investigation), it could be that quality of hospital care is lower in Uganda, so that emergencies are not referred quickly or treated effectively. One study found only 57% of Ugandan hospitals able to administer general anesthesia [22]. In terms of staff to handle complications, there are also significantly more physicians per capita in Bangladesh—with 20 physicians per 100,000 population [23], compared to

only 5.3 in Uganda [24]. Additionally, Bangladesh is a densely populated country, with relatively few geographic barriers, which might indicate that there is a reasonably quick and easily accessible emergency referral system in contrast to most African settings. Another explanation could be that Bangladeshi women may be more willing and able to seek care for emergencies once complications arise, even if the initial delivery was conducted at home. Finally, Uganda's higher levels of HIV/AIDS in the childbearing population may also influence its MMR.

In Russia and South Africa, while skilled attendance rates are near universal (over 95% and 86%, respectively), the outcomes are worse than might be expected, with MMRs of 40 in Russia and 150 in South Africa (compared to an EU average of 5.5 and Central and Eastern Europe average of 14.3 in 2000 [25]). This is despite an excess staff capacity in Russia, with more than twice the number of midwives per 100,000 people than in several Western and Eastern European countries [26]. The South African case study in particular has illustrated how measuring skilled attendance is only a first step in understanding the determinants of maternal health outcomes. According to that country's confidential enquiry into maternal deaths between 1999 and 2001, "problems in the care of women by health care workers occurred in more than half of the maternal deaths, with the problem being the worst at primary health care level" [27]. Common problems were poor diagnosis, and poor monitoring of patients, as well as failure to follow standard protocols. There have also been a number of studies that have documented poor quality of care given to women. The most striking example being work done by Jewkes et al. that documented physical and verbal abuse of women in midwife obstetric units in Cape Town [28]. This suggests that the context in which staff work, the quality of human resource management, and issues around health care worker motivation are as important as whether staff are present or not.

In Russia, investigation has also illustrated that in cases of near universal skilled attendance, there can still be great variation in practices with an effect on quality and outcomes. Review of data from 2002 in one region (Tula Oblast) indicated wide variations in workload and medical practices observed in different maternal care facilities, and generally, in the way the health system operates. Thus, the rate of episiotomies varied

from 9 to 80%, with little association to facility capacity or staff characteristics. Process indicators such as hospitalization of pregnant women similarly varied independently from numbers of staff or workload (across different facilities, between 50% and 100% of women were hospitalized in the course of their pregnancy). The reasons can in part be traced to a health system, which has shifted from a highly regulated and hierarchical system, to a decentralized system with unclear regulatory channels. There are indications that facility management seeks to retain excess human resources and infrastructure in order to retain levels of funding [29].

The comparative analysis shows that even the most recommended intervention to prevent maternal mortality, skilled attendance for delivery, relies heavily on how the system functions—in particular the availability and quality of staff to handle emergencies, and strategic placement of attendants, with access to referral networks. The analysis further shows that the structure of human resources within the system will greatly influence the behavior of health providers resulting in variation in quality of care received.

#### 4. The private sector role

A second area highlighted by the comparison of these countries, where the importance of systems is evident, relates to the concept of private provision of maternal services. In many countries the private sector can play a significant role, as planning and saving for antenatal and delivery care is possible to a much greater extent than with other health needs. This then allows for greater decision-making and choice to the individual. Yet while it would be useful to find an obvious conclusion that private practice helps or hurts maternal health, the role and impact of the private sector on maternal health will vary considerably based on the particular ways private practice fits into the health system. Comparative analysis illustrates that the important question is not how much privatization to have, but how private providers operate. Specifically, five key aspects to the arrangement of private care include:

- the services offered by the private sector;
- the groups and locations served by the private sector;
- the impact the private sector has on the public sector;

- linkages between private maternal health providers and other health services;
- the existence of private practice among public sector employees—including charging of informal fees.

#### 4.1. Country private sector structures

South Africa spends approximately 8.5% of its GDP on health care, but almost 60% of this expenditure occurs in the private sector which predominately serves the 23% of the population with private health insurance (Wolvardt and Palmer, 1997). According to the DHS, 9% of women give birth in private facilities. This rises to 63% of white South Africans.

The private sector has been undergoing rapid growth in the last two decades employing an ever increasing proportion of doctors and other health care providers. Although hospitals and medical specialists serving those with private health insurance consume much of these funds, there are also many general practitioners who work in townships and rural areas providing services to predominately poor people, some who have medical insurance and some who pay cash for services.

In Russia, the private sector is only slowly emerging, and still has a very limited role in maternal service provision. Most of the care during pregnancy and delivery is rendered at hospital level, and there is almost no private hospital sector. However, the absence of a formal private sector does not eliminate incentives for informal privatization of certain elements of care. Evidence from Eastern Europe where the system remains similar shows that informal payments for maternity care are higher than other services due to the planned nature of the event, prolonged contact with the system, and user willingness to contribute [30–34].

In Uganda, many areas are served by private practitioners, although specialized clinics will usually be located in town centers. Traditional healers are common, particularly at local levels, with individuals often choosing between traditional and modern medical practitioners. Some larger private non-profit facilities also exist across the country. Client perceived quality of the private medical sector is high. Key to this perception is the flexibility of visit times and shorter time spent queuing [35]. Private non-profit hospitals have been found to have more diagnostics and service equipment compared to the public hospitals [36]. However, a survey done in 1997 found that, in the majority

of private premises, while doctors were licensed to run the clinics (and supposed to be present), it was nurses who often ran the clinics in their absence [37]. Poor prescription practices have also been documented, especially where clinics sell drugs as a method of raising revenue [38].

Like Uganda, Bangladesh sees a private sector consisting of a heterogeneous mix of agencies with varying forms of ownership, motives and value orientations [39]. There are a large number of different actors, both medically trained and unqualified undertaking private practice. Unqualified practitioners include traditional herbalists, spiritual healers, homeopathic healers, and non-qualified practitioners who purport to practice biomedicine. In urban areas, the private sector is dominated by medically qualified practitioners. However, in rural areas, the unqualified cadres provide the majority of services. In urban settings, the public sector provides a larger proportion of hospital services and preventive care, while the private sector is consulted for a majority of outpatient care. In general, individual private providers are small-scale enterprises with limited capacity, negligible interaction with the public sector, with little regulation. Demand for their services, however, has been found to be high [40].

#### 4.2. Private sector impacts on maternal health

The variety of country experiences shows that the private sector's impact on maternal health will be dependent on the population groups served. South Africa possesses a well developed private sector with private facilities from primary to tertiary level, yet the wealthy elite use private services more than other groups. Little research has been done on the quality of care in the private sector, but data from the 1998 South African Demographic and Health Survey indicates some private sector over-medicalization, with a caesarean section rate of 37.3% [41]. A small-scale study comparing the quality of ANC care given by private GPs in a poor urban area, and the quality of care provided by government clinics found that the quality of care among private GPs was superior [42]. This contrasts with other research in the same area that found that in terms of STD care, GPs provided poor quality services, especially to cash paying patients [43]. A high-wage paying private sector can have detrimental impacts on public

services, as skilled health workers can be drained from the public service in cases where there is wide income inequality—but the relationship between the two sectors is often complicated. Research carried out in 1999 suggests that 75.2% of South African medical specialists work in the private sector [44]. Women delivering in the public sector may face poorer quality services due to the ‘brain drain’ to the private sector. Additionally, the public health system has struggled to make abortion services easily accessible, despite liberal abortion laws, mainly due to the reluctance of health care workers to provide the service. Instead a number of private non-profit organizations have played an important role in making safe legal abortions widely available, although there are still some continuing unsafe ‘backstreet’ abortions in the country.

Even greater challenges are seen with abortion services in Russia, where out-of-facility abortion widely exist despite the availability of this service in the formal sector. Abortion related complications contribute to approximately 25% of maternal mortality in Russia, and studies indicate that a large proportion of these deaths (90% in one study [45]) are a result of illegal or out of facility abortions. Little has yet been documented about who provides these abortions (qualified staff, other practitioners, or women themselves), who uses them, and why, yet it is clear that these services are not well linked to other health infrastructure. Abortion is legal and widely available in Russia, yet clearly many women do not use official channels. An underground or illegal private sector providing services such as these may not have any impact on skills in the public sector, but without proper procedures, or good links to emergency referrals, such services can greatly increase women’s health risks.

In our low income countries of study, the private sector plays different roles. The private for profit facilities are often used most by the wealthy, but low income countries often struggle with managing the informal non-biomedical private sector to which many women turn for services, most commonly the traditional birth attendants (TBAs). TBAs attend a large proportion of deliveries in Bangladesh and Uganda, but this classification can include a wide number of groups, from elderly relatives delivering the occasional child, to government trained individuals who may have links to health facilities. Some NGO private facilities also serve rural or poorer areas, commonly seen with

mission hospitals. In some areas, rather than competing with public facilities, these facilities are the only alternative for poor rural women. This, instead, can raise issues of coordination and regulation when the private sector may be supplementing the state, rather than competing with it. In urban areas of Uganda and Bangladesh, however, there are thriving private sectors similar to that seen in South Africa (although smaller in scale), which serve the elite wealthy communities.

#### 4.3. ‘Informal’ private care

The above discussion illustrates the importance of the structure of the private sector to influence maternal service provision. Two other specific informal private activities were also found to greatly shape how the overarching notion of ‘private services’ can influence maternal health care. These are the levying of informal user fees, and so called ‘dual practice’—whereby public service providers also undertake private practice, often clashing with their formal responsibilities, during normal working hours. Informal payments undermine policies to provide free services and unfairly disadvantage those who cannot afford to pay. Dual practice will further reduce service availability for non-paying users by redirecting resources to fee-payers.

In Bangladesh, public sector health care providers are commonly involved in dual practice to supplement income. Professional private sector maternal care in Bangladesh is mainly provided through urban and town based clinics, often run by public sector health workers. Laboratory tests, limited antenatal and postnatal care, and deliveries by caesarean section are the main services offered. In many areas, these services may only be available at private facilities. Current research the authors are undertaking found very few caesarean deliveries done in public health facilities of one district, and women interviewed who had ultrasonograms during pregnancy had all done so at private clinics. Reports were made that doctors commonly referred delivery cases to their private clinics for caesarean sections (at times when apparently not medically necessary), where they could charge high fees. A government study further found that most doctors are able to double their income by engaging in private practice [39]. However, the inability to obtain essential services such as ultrasound or caesarean delivery without going through private channels can specifically threaten the poorest of

women, who may not have the resources to raise funds in cases of emergency.

Similar problems exist in Uganda, where leakage of drugs from the public to the private sector is high and many informal private activities take place in public facilities, such as fee charging, or selling of supplies [46]. These appear to be common survival strategies, however, for low-paid health staff, with one study finding the greatest source of income to health workers being the resale of drugs. Health workers further explained that charging informal fees in the maternity department was more lucrative than other in- or outpatient departments. Some discriminatory charging was found, however, where informal charges were highest in a facility serving wealthier clients, but the study concluded that informal fees did constitute an access barrier to the poor, and drug shortages similarly decreased utilization [47].

In contrast, there is no evidence that the charging of informal fees is a serious problem in South African health care services. Although health care providers express dissatisfaction with remuneration, the salaries are paid regularly and do provide a living wage. The government has been attempting to better regulate health care providers to ensure that dual practice does not occur during official working hours. Little research has been done on this topic, but anecdotal evidence suggests that some doctors, especially senior doctors, are away from their posts tending to private patients when they are officially meant to be working for the state. Many nurses working in the public sector ‘moonlight’ in the private sector in their days off to supplement their income. Finally, the evidence in Russia is limited, but reports from people interviewed suggest that informal payments are common for maternal services, including payments for elective caesareans and epidural anaesthesia, as well as for allowing a partner to be present during labor, or to allow rooming in of newborns.

The impact of such practices can, therefore, be mixed. There is limited evidence of the impact of informal exchange on clinical quality of care, but income from informal payments, drug re-selling, and dual practice provides an incentive for staff to serve in poorly funded health systems. While informal charging may be unethical and undermine free provision policies, they may also be important for staff motivation and retention. In poorer areas, it is essential to know who has to pay informal fees, and how much of a barrier

they pose to the poor and marginalized. In all these ways the scope and role of the private sector can influence resources available in the public sector, affect the choice and access to services, and lead to potential inequalities in outcomes. It is these structures, rather than the actual amount of private sector involvement in maternal health care that will shape how the private sector will influence maternal outcomes.

## 5. Health sector reforms

The final area which this study has identified as illustrative of the causal pathways linking health system technical inputs and maternal health care outputs is that of health sector reforms. Many low and middle income countries have instituted sets of health sector reforms in recent years in order to improve the efficiency of the health sector and to address problems such as resource shortages, and poor health outcomes. Common reforms seen include decentralization of health administration and funding from central to lower levels, integration of previously separate health services, privatization of services, and financial reforms affecting the collection and payment of health sector funds [48,49].

Of the few articles that have attempted to look at the links between health systems and maternal health, one focus has been to discuss how such reforms could impact maternal care. McDonagh and Goodburn look at this issue retrospectively, identifying how maternal health service use and outcomes changed after reforms were undertaken [13]. But little has been done to describe the causal pathways that link complex reforms such as decentralization or sector-wide approaches to health financing actually impact on maternal services. Health sector reforms are complex processes, affecting the local systems in which individuals work—shifting incentive structures, regulatory mechanisms, and paths of accountability. They can also alter the macro environment of the health system, reorganizing staff numbers and placements, and creating new structures and hierarchies within the health sector. Despite this complexity, in all four countries of study, the importance of reforms in influencing maternal health care was evident.

Empirical studies have often found that reforms can produce negative impacts on maternal service provi-

sion and use, as the change process can strain working relationships or overload health workers [50–52]. However, the case of Russia illustrates that lack of reform could be equally problematic, as maternal health indicators such as the MMR have declined, but still lag behind the levels reached in other former communist countries of Central and Eastern Europe. The Soviet health care system provided widespread universal access to specialist services, often with a strong emphasis on quantity of care, and in many ways the system has remained unchanged, while funding has fluctuated. The lack of reform of maternal care is remarkable given the widespread changes occurring in the social and political system, such as regional autonomy and health system decentralization. Despite declining funding, and the attempts to de-medicalize pregnancy through shifting of some care to general practitioners, rates of hospitalization and invasive treatments remain extremely high. Declining birth rates and vacant maternity beds have similarly not shifted the focus of care, instead potentially providing incentives to hospitalize women more often and for longer periods—especially as the norms regulating financing of maternal health facilities are still tied to the number of beds.

### 5.1. Finance reforms—country experience

One of the most common health sector reforms that have been undertaken has been the introduction of user fees for public services. A number of authors have already discussed how imposition of such fees may reduce use of maternal services in low income countries, and how fees for emergency care may be particularly problematic [53–55]. But the impact of changing the user fee system will depend greatly on the structure of payments and access barriers existing in the system. Our study countries have differing experience with user fees. In Bangladesh, official user fees are not charged for maternal services, but the importance of unofficial fees has already been mentioned. In Uganda, user fees were rolled out across the health sector in 1992–1993, but subsequently removed in 2001. South Africa also used to have user fees, but maternal and child health fees were removed in 1994.

The effect of the user fees in Uganda has been shown to have improved motivation of health workers [56], but

led to decreases in service utilization [53]. The overall effect on consumers was detrimental, as funds were often not invested in quality improvements. Following the removal of user fees, combined with improved funding for drugs, analysis showed widespread increases in health service use for many services, although there are contrasting reports of whether professional deliveries have shown an appreciable increase [57,58]. It is possible fee removal would have a smaller impact on facility deliveries, as fees have been found to be only a small fraction of the expenses for women's health services [53].

In South Africa, after coming to power in 1994 one of the first commitments of the ANC government was the provision of free health care for pregnant women and children under the age of six. There have been no national evaluations of the impact of this reform. A review of the literature, including a number of small-scale studies, carried out by Schneider and Gilson suggests that there was some initial increase in utilization of services, but this was not sustained. This may be partly explained by the fact that fee collection before the abolition of fees was on a rather haphazard basis with wide-scale exceptions for the poor and hospitals not refusing to provide services if women could not pay the fees [59].

While evidence indicates fees decrease maternal service use, removal of fees will not necessarily improve maternal care utilization or outcomes. In some cases, informal fees may be significantly higher than any official fees charged in the first place. Furthermore, there are a number of other essential barriers to use of services that have been identified, which may operate over and above financial concern. In both Uganda and Bangladesh, common barriers have been identified including socio-cultural norms to deliver at home or with traditional birth attendants, perceived low quality of care of facilities, and physical accessibility problems. Access barriers will work in dynamic and mutually reinforcing ways, and the costs of services will only be one component affecting service use, especially as official fees are often meant to improve quality of care. While it may be possible to say that eliminating service fees will encourage use if all other things are held equal—in actual health systems, very rarely will all other factors be held equal. Our cases show just how other systems elements linked to user fees – including informal payments and other access barriers – must be

understood to see how reforming the fee structure will impact maternal care.

## 6. Conclusions

This article has presented findings from a comparative analysis of four country case studies investigating maternal care from a health systems perspective. The approach illustrates how larger systems processes are likely to influence the outcomes from a given set of inputs to maternal care. In particular, looking at two low- and two middle-income countries has identified three common elements where systems arrangements can greatly shape resulting maternal health. However, it also must be recognized that while common themes have been identified, a great deal is further dependent on the local context. This study has instead emphasized that what is important is analysis of the structures underlying maternal care, looking at the causal pathways between technical interventions and maternal outcomes.

The importance of human resources underlies most health services. For maternal care specifically, skilled delivery attendance has been highlighted as essential for reducing maternal mortality. Yet the extent to which a skilled attendant can do this is dependent on the larger systems in which (s)he operates. High levels of skilled attendance combined with inappropriate mix between doctors and midwives or misallocation of staff can lead to sub-optimal maternal outcomes when provider practices are shaped in ways to reduce effective or efficient care. A corollary to this is that some areas with very low levels of skilled attendance may see lower mortality rates than in other regions, which score higher on this indicator. The ability to reach emergency facilities and the quality of emergency care in dealing with life-threatening complications will no doubt explain some of these discrepancies.

The scope and nature of the private sector can also play a large role in maternal service provision. But in situations characterized by high levels of income inequality, such as South Africa or urban Uganda, the private sector can attract large numbers of skilled providers out of the public sector, detrimentally affecting public services. In poorer areas, however, some professional private services may exist where no public services are available, as in rural Uganda and

Bangladesh (with NGO or mission facilities). In this case, the private sector may be playing an essential and important role to supplement the work of the public sector—with concerns more for integration and coordination with other parts of the health system.

When the private sector acts in informal ways, there similarly can be mixed results for maternal services. If illegal or semi-legal services are being offered, as may be the case of abortion in Russia, this may distance providers from the rest of the health system, thereby increasing risks to women if complications occur. If the informal system is closely linked to formal practice, however, such as in the case of informal payments to providers in low income areas, or private practice being undertaken on public time, the quality results may not be as dramatic. Instead, these practices can undermine state policies to provide free maternal services, and can benefit the wealthy or decrease use by the poor. However, informal incentives may also support public sector workers in positions that might otherwise go unfilled.

Finally, health sector reforms, such as changing fee systems, are currently being implemented in many countries. This study illustrates that reforms will not have universally positive or negative effects. Instead, their impact on maternal health care will depend on the structure of the health system implementing them. Indeed, the lack of reforms seen in Russia after the transition from the Soviet period corresponds to a lack of progress in many health indicators. In other countries, reforms around user fees have produced differing results. Investigating the specific ways reforms change the health system environment however, illustrates that there is no simple linear correlation between a set reform and impact. Instead the structure of the system and way the reform is initiated will shape the outcome. For instance, user fee introduction may reduce use of services, but removal may not increase use due to a number of possible interlinked access barriers, including informal fees and low perceived quality. The incentive structures available to health staff, the regulatory frameworks at hand, and norms of practice within the facility all shape the use and impact of both formal and informal fees.

Investigations such as this illustrate an approach to better understand how health systems affect maternal health care, and allow greater understanding of health system functioning more generally. In order to achieve

the millennium development goal of a global reduction in maternal mortality, technical interventions have to be accompanied by adjustment in settings of the health systems within which these services take place. Too often interventions are proposed and implemented in a vertical manner, without consideration of larger systems issues, resulting in disappointing outcome results. While the interventions needed to reduce maternal deaths are well known internationally, much more complex is the ability to implement them effectively within the constraints of the existing system.

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