REPRODUCTIVE HEALTH matters

FEATURE

Impact of health systems strengthening on coverage of maternal health services in Rwanda, 2000–2010: a systematic review

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Abstract: *From 2000 to 2010, Rwanda implemented comprehensive health sector reforms to strengthen the public health system, with the aim of reducing maternal and newborn deaths in line with Millennium Development Goal 5, among many other improvements in national health. Based on a systematic review of the literature, national policy documents and three Demographic & Health Surveys (2000, 2005 and 2010), this paper describes the reforms and the policies they were based on, and provides data on the extent of Rwanda's progress in expanding the coverage of four key women's health services. Progress took place in 2000–2005 and became more rapid after 2006, mostly in rural areas, when the national facility-based childbirth policy, performance-based financing, and community-based health insurance were scaled up. Between 2006 and 2010, the following increases in coverage took place as compared to 2000–2005, particularly in rural areas, where most poor women live: births with skilled attendance (77% increase vs. 26%), institutional delivery (146% increase vs. 8%), and contraceptive prevalence (351% increase vs. 150%). The primary factors in these improvements were increases in the health workforce and their skills, performance-based financing, community-based health insurance, and better leadership and governance. Further research is needed to determine the impact of these changes on health outcomes in women and children.* © 2012 Reproductive Health Matters

Keywords: health care financing, health policy and programmes, childbirth, skilled attendance at birth, reproductive health services, Rwanda

Achieving Millennium Development Goal 5 (MDG 5) on reducing maternal mortality and morbidity by 75% and universal access to reproductive health remains a major developmental challenge for most sub-Saharan African countries, including Rwanda. Of the estimated total of 358,000 maternal deaths worldwide in 2008, sub-Saharan Africa and South Asia account for 87%.[1] The three main causes of maternal deaths globally are haemorrhage, sepsis and unsafe abortion, which together account for approximately half the deaths. WHO estimates that unsafe abortion accounts for 18% of maternal deaths in Eastern Africa, making unsafe abortion a significant reproductive health issue in Rwanda.[2] A recent national study estimated the rate of induced abortion at 25 per 1,000 women aged 15–44, or approximately 60,000 abortions annually.[3]

Although all the essential strategies for reducing maternal and newborn deaths are known: family planning and access to other reproductive health services, safe abortion, skilled care during pregnancy and childbirth (including emergency obstetric care), and post-partum and post-natal care,[4] for many women and newborns, appropriate care remains unavailable, unused, inaccessible or of poor quality.[5,6] The challenge for most sub-Saharan African countries is to rapidly scale up essential interventions. For skilled care at delivery, coverage

 Doi: 10.1016/S0968-8080(12)39611-0

Table 1. Rwanda maternal-newborn health and family planning: major policy events, 1999–2010

Year	Policy
1999–2000	Pilot project on community-based health insurance
2000	Standard Demographic and Health Survey
2001	Pilot projects on performance-based financing in Butare and Cyangugu provinces
2005	Rwanda Health Sector Policy (including Sexual and Reproductive Health) Standard Demographic and Health Survey
2006	Facility-based childbirth policy Performance-based financing contracts introduced in all districts Community-based health insurance mandatory for Rwandans National family planning policy
2007	Government declares family planning a development priority
2008	Health facilities made autonomous Community health program enhanced Maternal death reviews institutionalized Interim Demographic and Health Survey
2010	Standard Demographic and Health Survey

is far lower than the global targets set by the special session of the UN General Assembly in 1999: 80% by 2005, 85% by 2010, and 90% by 2015.[7] To achieve this, during the last decade, Rwanda has implemented major health sector reforms and policies (Table 1) that have focused on innovative health financing mechanisms, including performance-based financing and community-based health insurance.[8–10]

Aspects of health system strengthening in Rwanda since 1999

We have used the framework of the six health system building blocks defined by the World Health Organization[11] to describe Rwanda's health sector reforms. These cover: health workforce; service delivery; financing; leadership and governance; medical products, vaccines and technologies; and information. For each component, we summarize the situation, major changes over the decade and interactions among the components.

Good progress has been reported in improving the health status of the general population in Rwanda between 2000 and 2005. However, large differentials were also found in health outcomes across the country with, for example, under-five mortality rates in rural areas (233/1,000 in Eastern Province) remaining over one and a half times those in urban areas (124/1000 in Kigali city), and the gap has not narrowed over time.[12] The Government of Rwanda's response was to speed up health sector reforms, particularly through the roll-out of performance-based financing and community-based health insurance schemes, to increase availability, access and use of basic health services across the country in line with MDG targets.

Health workforce

The 1994 genocide devastated the Rwandan population and its economy. It also exacerbated a number of development constraints which existed before 1994. The already poorly developed productive infrastructure was completely destroyed, including most of the health facilities, and the nation was robbed of a generation of trained professionals in major areas such as health and education.[13] In the post-genocide context, the shortage of health workers was exacerbated by inadequate training of new health workers, uneven distribution of existing staff, and weak performance because of inadequate knowledge and low motivation. The government responded between 2005 and 2008 by increasing the number of trained health care providers in public service, most of them in rural areas, including nurses, midwives and general doctors.[8] At community level, the Ministry of Health gave traditional birth attendants a new scope of work – as community mobilizers for maternal and child health rather than as unskilled providers for home delivery.[14]

Service delivery

Until 2005, most pregnant women in Rwanda had their babies at home, assisted by traditional birth attendants. In 2006, a facility-based childbirth policy was launched, with the goal of providing all pregnant women with a full package of antenatal, childbirth and post-partum care, essential newborn care for their babies and prevention of mother-to-child transmission of HIV. Preventive and curative services for maternal health in Rwanda are delivered through a network of 395 peripheral health centres, 40 district hospitals, and three referral hospitals that have played a key role in reducing

DIETER TELEMANS / PANOS PICTURES

Students practise on dolls at a skills development class, Kigali Health Institute, Kigali, Rwanda, 2007

geographical barriers to health services. Under these arrangements, almost entirely in the public health system, health centres (with a catchment area of 20,000–25,000 population) handle family planning, antenatal care, normal childbirth, postpartum care and basic emergency obstetric care. District hospitals (serving 150,000–250,000 people) provide comprehensive emergency obstetric care, post-abortion care and are also responsible for the referral system.[15]

The use of modern contraceptives had dropped from 13% in 1992 to 4% in 2000.[16] Rwanda is one of the most densely populated countries in Africa. The government considered family planning an essential intervention, not only from the perspective of reducing maternal and child deaths, but also for addressing poverty, prevention of unwanted pregnancy, unsafe abortion, and population-related issues. In 2006, the Rwandan Ministry of Health launched a new family planning policy, whose strategies included sensitization of the population, outreach services and specific performance-based incentives.

Financing

During the last decade, the Government of Rwanda has been able to mobilize both domestic and external financial resources for the health sector, increasing its total health expenditure from $16.94 per capita in 2003 to $45.42 per capita in 2008,[17] thus exceeding the amount of US$34.00 per capita recommended by the World Health Organization for a country to be able to provide basic health services to its population. Absolute spending per woman of reproductive age increased from US$6.12 (2002) to US$8.40 (2006), with maternal health care accounting for 73%, 22% for family planning and 5% for other areas such as adolescent health.[18]

The performance-based financing model has been implemented nationwide in Rwanda since 2006. Funds are provided to health facilities on the basis of performance contracts. Payments are linked to services (outputs) delivered with specific coverage and quality of care targets for the following key interventions: antenatal care (at least four visits), facility-based childbirth, postpartum visit, family planning and prevention of mother-to-child transmission of HIV. This scheme contains strong potential incentives for providers to ensure high quality services, with greater efficiency and accountability for the health system.[17]

In 1999, the government introduced a community-based health insurance scheme as a long-term strategy to address financial barriers to health care for

all, as recommended by the World Health Organization, with special attention to protecting the most vulnerable people – the poor, widows, orphans, and people living with HIV – from catastrophic expenditure. Communities play a role in day-to-day management of community-based health insurance, including mobilizing and registering members, collecting membership fees and clearing bills from health facilities. Since 2006, community-based health insurance membership has been extended to all citizens. This allows most people access to health care and medicines, after paying their annual contribution of RWF 1,000 (US$2), plus a 10% co-payment for each episode of illness.[8–10,17] Coverage estimates in the Demographic and Health Surveys have shown that 68% and 78% of all Rwandan households had health insurance in 2008 and 2010, respectively.[19]

Leadership and governance

The government of Rwanda recognized in 2000 the importance of addressing maternal and reproductive health issues in order to reduce poverty, in a country with a population of 10.6 million (2010), of whom the majority are female (52%), young (65% under 25 years of age), and living in rural areas (83%), with a high total fertility rate of 4.6.[13,19] For performance-based financing to be effectively implemented, all health facilities have been granted administrative and financial autonomy, in line with the decentralization process going on in the country.[10,17]

Medicines

To optimize the use of resources and improve the availability of quality medicines, the Rwandan government's policy has been to purchase generic medicines (pre-qualified by the World Health Organization) whenever possible. Since the policy also recommends using only medicines on the national essential medicines list to treat the most common diseases, drug and therapeutic committees were established in all district and referral hospitals to promote rational drug use. In the context of decentralization, an active distribution network for pharmaceuticals and supplies was operational in 23 out of 30 districts in 2010. A coordinated procurement and distribution system of drugs for tuberculosis, HIV/AIDS and related health commodities is also in place.[20]

Information

To help manage performance-based financing, the government uses a password-protected website as a resource for performance information. The website also serves as an entry point for a national database of contracts and indicators to measure the quality and quantity of health services (see http://www.pbfrwanda.org.rw).[20] Because the accessibility of information heightens openness about funding and results, this information system has fostered a spirit of healthy competition and collaboration between health facilities within and across districts. Database users enter and monitor their own progress against agreed targets, but they also see the progress of and payments to other participating health facilities. Measures have been established to validate data and verify reporting that services were effectively delivered.[17] These examined the extent to which more women in Rwanda began using delivery care with a skilled attendant, institutional delivery, including emergency obstetric care, and modern contraceptive methods.

Study methodology

We sought evidence of the impact of health systems strengthening on maternal and newborn health services in Rwanda based on a review of the literature and of the health system changes that we believe have contributed to scaling up essential maternal-newborn health interventions in Rwanda.[12] This paper reports the findings as regards maternal health. We did a systematic literature search in PubMed for articles published between 2005 and 27 October 2011 using the following search terms: *Rwanda, health, health system, maternal, institutional deliveries, birth, leadership, governance, information, supply chain, logistics, workforce*, and variations of the keywords *financing, contraceptive, contraception, pay-for-performance, performance-based financing, pharmaceuticals, pharmacy,* and *human resources*. Although grey literature on this topic exists, we limited the review to peer-reviewed publications.

Two authors (BKT and ACL) independently reviewed the papers returned by the search terms for relevance by screening title, abstract and medical subject headings. If both reviewers deemed the article relevant, the full-text paper was retrieved for further review. Disagreements were resolved by consensus. There were 285 potentially relevant papers, of which 29 full-text articles were selected for in-depth review. The references in those articles were manually tracked, yielding one additional article for review. Sixteen papers were excluded

as they covered policy changes before 2005 or were unrelated to maternal health indicators, or were commentaries or personal reflections. Fourteen peer-reviewed articles were reviewed in depth (Table 2).

We also reviewed documents available from Rwanda government websites, including national policy and strategic planning documents, evaluation data and technical reports from between 2005 and 2011. We extracted evidence about coverage and utilization of maternity services and the major factors driving reported changes and data on these services from the 2000, 2005 and 2010 Rwanda Demographic and Health Surveys (DHS), for the preceding three five-year periods.[19,21] Focusing on national results, we examined trends in the following MDG5-related indicators: antenatal care; births with skilled attendance, births in health facilities, and contraceptive prevalence (modern methods).

To describe the trends in the selected indicators, we used measurement with weighted averages and annual percentage changes. Weighted averages were applied to percentage distribution of live births reported in the DHSs by service provider (for skilled birth attendance) and by place of delivery (for births in health facilities), and for the percentage of currently married and sexually active unmarried women who had ever used any modern contraceptive method (for contraceptive prevalence). The relative annual percentage change was also calculated, as the difference between two values in a time series, divided by the starting value, and multiplying by 100. The annual percentage change is the total percentage divided by the number of years.[19,21]

Findings

Coverage of key maternal health interventions

In 2000–2010, most pregnant women in Rwanda had at least one antenatal visit, including women from rural areas, who managed to reach the level of women from urban areas starting in 2005 (Table 3). The coverage for four antenatal visits significantly improved after 2005, with an annual percentage change for 2006–2010 (33.2%) over five times higher than that for 2001–2005 (5.6%). However the proportion of women who made four antenatal visits remained relatively low (35.4%), as compared with WHO recommended standards.[22]

The annual percentage increase in the total proportion of births with skilled attendance between 2001–2005 and 2006–2010 was nearly threefold, from 5.2% to 15.4% (Table 3). This change stemmed almost entirely from significant progress in attended births in rural areas, which rose from 24.9% in 2000 to 34.6% in 2005 to 67.2% in 2010. For institutional deliveries, including emergency obstetric care, the annual percentage change for 2006–2010 (29.2%) was nearly 20 times higher than for 2001–2005 (1.5%).

Similarly, the annual percentage increase in the contraceptive prevalence rate among married women was significantly higher for 2006–2010 (70.2%) than for 2001–2005 (30%). The most significant gains in terms of utilization of maternity services, both preventive and curative, have been reported in rural areas, where most poor women live.[23]

Rwanda's progress in coverage of the key maternal health interventions has been more rapid in 2006–2010 than in 2001–2005 (Figure 1): four or more antenatal care visits (22.1% increase vs. 2.9%); skilled birth attendance rate (77% increase vs. 26%); institutional delivery rate (146% increase vs. 8%); contraceptive prevalence rate (351% vs. 150%). The year 2006 was the point when the facility-based childbirth policy, performance-based financing, and community-based health insurance were scaled up.

Major factors driving changes in maternity care coverage

Health workforce

In addition to adequate deployment, training, supervision, and new scopes of work, increased salaries and performance incentives appear to have increased both the quantity and quality of health services delivered.[10,17] For maternity services specifically, while waiting for graduation of new midwives from the five nursing and midwifery schools in Rwanda, the health system used general nurses, who received in-service training in midwifery, with supervision and coaching from district health teams. General physicians have also been trained to provide comprehensive emergency obstetric care (e.g. caesarean section) at the district hospital level.[8,15]

Performance-based financing

Several studies have reported convergent findings about the positive effects of performance-based financing on maternal health services coverage and quality. Basinga et al (2011) evaluated the scheme in Rwanda and showed that it has had a

Table 2. Studies reviewed on the impact of health systems strengthening on coverage of maternal health services

Study	Study design and size	Objectives/conclusions
Basinga et al, 2011[9]	Randomized trial 166 facilities; 2,158 households	Incentivizing health care providers on use and quality of child maternal services in health care facilities resulted and in increased institutional deliveries by 23% and preventive care visits for children <2 years by 56% and children <5years by 132%.
Dhillon et al, 2011[34]	Regression analysis n=25,000	Reducing financial barriers on utilization of primary health care resulted in 0.6 additional annual visits for curative care per capita.
Holmes, 2010 [not cited]	Observation n/a	Factors in Rwanda's being on track to meet the MDGs include decentralization of health services and mobile technology innovations for maternal health.
Hong et al, 2011[14]	Multivariate analysis 10,644 households	Impact of being insured for delivery home; health facility; skilled (or unskilled) delivery. Uninsured women are more likely to deliver babies at home. Insurance increases likelihood of delivery in facility with skilled attendant.
Kalk et al, 2010[39]	Cross-sectional literature review; semi-structured interviews; analysis of factors using descriptive statistical analysis 2,600 hits for "performance-based financing" in Medline and other grey literature; 69 interviews	Analysis of strengths and weaknesses of the Pay for Performance (P4P) approach in Rwanda. Increased total health expenditure, salaries for health staff, and introduction of health insurance schemes are examples of confounding factors that impede attribution of outcome and impact effects to any single approach such as P4P.
Kalk et al, 2005 [not cited]	Document review; key informant interviews Five district hospitals, 69 health centres, 14 medical doctors, 200 nurses	Community involvement in rural health insurance schemes mobilizes resources, pools risk, and ensures financial access in times of need.
Kantengwa et al, 2010[40]	Letter to editor n/a	Improvements in quality of health services cannot be attributed solely to implementation of performance-based financing.
Kayongo et al, 2005[15]	Participatory evaluation and quantitative tracking of process indicators 150,000 women of reproductive age	When emergency obstetric care (EmOC) was promoted, quality of EmOC services improved, case fatality rate declined from 2% to 0.9% in Rwanda, met need for EmOC increased from 16% to 25%, and caesarean section rate increased from 1.8% to 3%.
Logie et al, 2008[8]	Descriptive n/a	Donor and external aid coordination with national community-based health insurance.
Meessen et al, 2006[42]	Descriptive 2 referral hospitals, 23 health centres, 387,840 population in 2002	Innovative contractual approach resulted in greater autonomy in health facilities and is a feasible and effective strategy to improve health centre performance.
Rusa et al, 2009[24]	Time-series with two-staged implementation 2 million population in 2005; 3.8 million population in 2006	Performance-based financing had a positive effect on utilization rates and service quality at health centres.
Saksena et al, 2011[25]	Summary statistics and regression models 6,800 households (about 34,000 individuals)	Mutual health insurance coverage is associated with significantly increased utilization of health services and a higher degree of financial risk protection.
Soeters et al, 2006[10]	Patient surveys 240 and 320 households	Performance-based financing improves health service delivery and use of services, decreases out-of-pocket health expenditures, and reduces catastrophic user fee payments.
Wakabi 2007[30]	Observation n/a	Maternal health gains can be partially attributed to mutuelles de santé (community health insurance) and a government policy that women can deliver a child at a health centre at no cost if they have completed 4 standard antenatal visits.

Table 3. Levels of coverage (% of women surveyed) for four maternal health indicators, DHS data, 2000, 2005, 2010, Rwanda[19,21]

Indicator	Scope of survey and of improvement	DHS 2000 (n=10,421)	DHS 2005 (n=11,321)	DHS 2010 (n=13,790)
Antenatal care (at least 1 visit)	Urban (%)	94.8	92.8	98.3
	Rural (%)	91.9	94.7	98.0
	Weighted average (%)	92.3	94	98
	Annual % change		**0.4**	**0.9**
Antenatal care (4 visits +)	Urban (%)		17.6	40.4
	Rural (%)		12.6	34.7
	Weighted average (%)	10.4	13.3	35.4
	Annual % change		**5.6**	**33.2**
Births with skilled attendance	Urban (%)	68.2	63.1	82.4
	Rural (%)	24.9	34.6	67.2
	Weighted average (%)	31	39	69
	Annual % change		**5.2**	**15.4**
Births in health facilities	Urban (%)	65.2	54.9	82
	Rural (%)	19.8	23.8	67.1
	Weighted average (%)	26	28	68.9
	Annual % change		**1.5**	**29.2**
Contraceptive prevalence	Urban (%)	14	21.2	47
	Rural (%)	2.6	8.6	44.9
	Weighted average (%)	4	10	45.1
	Annual % change		**30**	**70.2**

significant positive impact on institutional deliveries. It had the greatest effect on those services that had the highest payment rates and needed the least effort from the service provider. Moreover, because the analysis isolated the incentive effect from the resource effect in performance-based financing, the results indicate that an equal amount of financial resources without the incentives would not have achieved the same gain in outcomes.[9] The performance-based financing budget rose from US$0.8 million in 2004 to US$8.9 million in 2007, with 60% to 100% increases in remuneration of health service providers.[17]

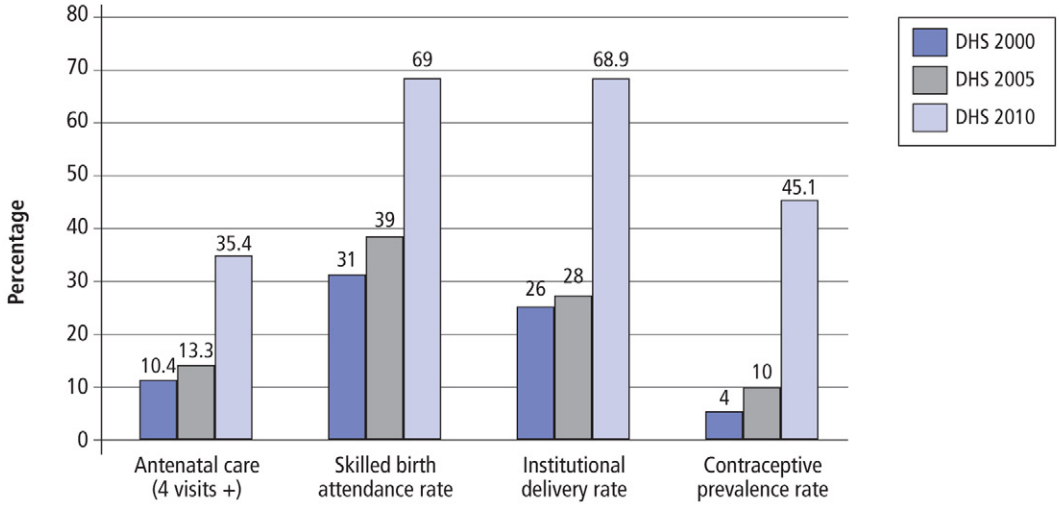
Rusa et al (2009) also evaluated the effects of performance-based financing on the performance of 85 selected health centres in Rwanda, covering about 3.8 million people, between 2005 and 2007. They concluded that a positive effect on utilization was seen only for activities that had not previously been well organized, including institutional deliveries. The quality of services – defined as the compliance rate with national and international norms – rose considerably for all services.[24]

Community-based health insurance

Financial access to health care has greatly improved with community-based health insurance, allowing most vulnerable women to gain access to maternal health care services and medicines, including emergency obstetric services. Saksena et al, using statistical modelling, have shown that insurance coverage is associated with significantly increased utilization of health services in Rwanda. Indeed, individuals in households that had coverage used health services twice as much when they were ill as those in households that had no insurance.[25] Insurance coverage is also associated with a higher degree of financial risk protection. The incidence of catastrophic health expenditure was almost four times less than in households with no coverage.[26]

The percentage of households with health insurance whose out-of-pocket health expenditure as a share of their capacity to pay exceeded 40% was 2.2%, compared to 8.6% for those that didn't have health insurance.[26] To reduce the financial burden, particularly for the very poor, the government of Rwanda in 2011 introduced a new stratified

Figure 1. Trends in selected maternal health indicators, 2000–2010[19,21]



contribution system where those households with higher income would pay higher premiums than poorer households. For those judged too poor to pay, the premium is now fully subsided by government. Today, this national "pro-poor policy" covers about 16% of the population (nearly 1 million people), who are identified by community members at village level.[27]

Leadership and governance

Post-genocide Rwanda confronted the challenge of rebuilding the health system while simultaneously re-establishing a social and political order based on inclusiveness, reconciliation and unity. Reform strategies have included decentralization, results-based management and community participation. Under the reform launched in July 2005, health districts were incorporated into 30 administrative structures as departments of health and social services. Health officials responsible for district-level service delivery and management began to report directly to locally elected officials. The government's interest in decentralization was in part driven by the performance link between decentralization and improved service delivery. Performance-based contracts reference a traditional Rwandan practice called *imihigo*, where groups or individuals would make public commitments to particular actions and then strive to live up to their pledges, with failure being associated with shame and dishonour. The contracts include about 15 health-related indicators and have helped galvanize local support and encouraged mayors and other district authorities to become advocates for public health and increase their local health budgets.[28] In 2008, all health facilities were granted financial and administrative autonomy. The legal framework established was expected to allow smooth implementation of the national performance-based financing scheme, with results-based contracts between health facilities and local governments.[9]

Criteria for remuneration under results-based contracts are both quantitative and qualitative. Quantitative indicators include the number of antenatal care visits, expected vs. actual number of births in facilities or referred to hospitals, and total number of new users of modern family planning methods. Qualitative aspects include partograph correctly and completely filled out; mother and newborn alive (if delivery in health facility); antenatal records correct and complete; proportion of women with caesarean delivery according to national guidelines; and written invitation sent within a week after non-attendance at a family planning appointment.[9,10,24]

A study conducted in 2009 on good governance and health in Rwanda concluded that decentralization

has had a positive impact on health governance, mostly related to accountability, responsiveness, efficiency and effectiveness. And these have contributed to improved health results because of the increased number of births taking place in health facilities as opposed to at home. However, both capacity gaps, information and reporting overload related to the number of indicators to be reported on have slowed down the pace and quality of implementation.[28]

Discussion

The maternal mortality ratio in Rwanda dropped by 51%, from 1,100 per 100,000 live births in 2000 to 540 per 100,000 live births in 2008.[1] Although we have not shown a causative relationship between the health sector reforms implemented and improvements in maternal health outcomes, we believe the documented progress has resulted from a holistic approach with a focus on universal coverage.[29–31]

Previous research has shown that financial incentives through performance-based financing can improve both use and quality of health services, because they motivate providers to translate their knowledge of good health care into better practice.[8–10,17,24] On the other hand, Ireland et al (2011) argue that results-based and economically-driven interventions do not, on their own, adequately respond to patients' and communities' needs, upon which health system reforms should be based. They also think the debate on performance-based financing is hampered by insufficient and unsubstantiated evidence that does not adequately take context into account nor disentangle the elements of the performance-based financing package.[32]

Soeters et al (2011), who reported on a performance-based payment experiment in the Democratic Republic of Congo, found that performance-based subsidies lowered direct payments to health facilities for patients, who received comparable or better services than those provided at a control group of facilities that were not financed in this way.[33] In Rwanda, similar performance-based financing pilot models were implemented in Butare and Cyangugu between 2001 and 2005. The results showed better outputs for districts involved in the programme than those with similar characteristics that did not participate. Based on these positive results the government of Rwanda decided in 2006 to scale up the performance-based financing scheme to the national level.[8–10,17]

Rwanda still faces major hurdles in achieving universal access to health care, including for reproductive health. In spite of the important improvements that have taken place, about one third of pregnant women in Rwanda still deliver their babies at home assisted by unskilled birth attendants or unassisted. Hong et al (2011) suggest that being insured may lift financial barriers and encourage women to deliver their babies in a health facility with a skilled attendant. Nonetheless, when they controlled for health insurance status in multivariate models, socioeconomic inequalities persisted in Rwanda for institutional delivery and skilled birth attendance. They argue that these inequalities should decline when the insured population increases, however.[14]

Although based on a single local pilot, the findings of Dhillon et al (2011) in Mayange district of Rwanda suggest that to achieve improved health outcomes, short-term objectives should include improved service delivery and reduced financial barriers. The paper also argues that higher utilization rates may be achieved if more people are enrolled in community-based health insurance and co-payments are eliminated.[34] It recommends that health leaders in Rwanda undertake more studies to elucidate the impact of insurance enrolment and co-payment subsidies on utilization, health outcomes and costs.[34–38]

When analyzing the strengths and weaknesses of the performance-based financing rolled out in the Rwandan health sector since 2002, Kalk and co-authors reported one particular side effect, called "gaming the system", that seriously threatens to affect the quality of health services. They argue that paying for performance unintentionally promotes falsifying of data to obtain more money and that its focus on improving indicators, rather than systemic changes, can be regarded as counter-productive.[39]

In response to this problem, a national policy of "zero tolerance for corruption" was established by the government in 2006, which instituted mechanisms to prevent gaming the system.[27] A close monitoring and supervision structure has been put in place at district level to avoid over-reporting. The central level has been conducting on a regular basis unannounced evaluations and thorough investigation of suspicious output reports. In addition, mechanisms put in place to prevent service providers from falsifying data include on-site verification of data and validation of receipt of services by a random sample of patients who are recorded

as having received those services, who can then be asked to provide feedback on the quality of the services. Links have also been established with citizens to strengthen the accountability of national policymakers and local government officials.[28,40–42]

Under performance-based financing, service providers have to complete health records and forms properly and completely, since the data provide the basis for part of their remuneration. More specifically, the scheme rewards facilities based on quantity of services but condition the quantity payment on the quality of services, one of the quality indicators being no stock-out of essential tracer medicines (e.g. oxytocin to prevent post-partum haemorrhage) registered at the facility in the previous three months.[9,10,17,24] Further research is needed to support development of systems that would help quickly monitor and keep the consequences of gaming to a minimum.

The most important limitations of these reforms to date have been: first, the insufficient capacity of the national health system to fully overcome the problem of too few trained and skilled health care providers, and second, inadequate mechanisms for identifying poor women who need to be subsidized for obtaining community-based health insurance, particularly in rural areas, who might not otherwise gain access to maternity services.

Further, restrictive abortion laws in Rwanda have not allowed the health system to effectively address unsafe abortion deaths and morbidity.

Conclusion

Since 2000, more women in Rwanda have begun to receive maternity care with a skilled attendant and in a facility. More women have also begun to use modern family planning methods, particularly in rural settings, where most poor and vulnerable women live. The primary factors in these improvements have been increasing the health workforce and their skills, performance-based financing, community-based health insurance, and good governance. Further research is needed to determine the impact of these changes on maternal health outcomes.

Acknowledgements

The authors thank the Rwanda Ministry of Health teams who have provided relevant reports and all of those who have provided support during the completion of the study.

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Résumé

De 2000 à 2010, le Rwanda a appliqué des réformes globales du secteur sanitaire pour renforcer le système de santé publique, afin de réduire les décès maternels et néonatals, conformément à l'objectif 5 du Millénaire pour le développement, parmi beaucoup d'autres améliorations de la santé nationale. Sur la base d'une analyse systématique des publications, des politiques nationales et de trois enquêtes démographiques et sanitaires (2000, 2005 et 2010), l'article décrit les réformes et les politiques sur lesquelles elles étaient fondées, et renseigne sur l'étendue des progrès du Rwanda dans l'élargissement de la couverture de quatre services clés pour la santé des femmes. Les progrès ont commencé en 2000–2005 et se sont accélérés après 2006, principalement dans les zones rurales, quand les autorités ont généralisé la politique nationale d'accouchement en institution, le financement basé sur les performances et l'assurance maladie communautaire. De 2006 à 2010, les augmentations suivantes de la couverture ont été enregistrées par rapport à 2000–2005, en particulier en zone rurale, où vivent la plupart des femmes pauvres : accouchements avec assistance qualifiée (augmentation de 77% contre 26%), accouchements en institution (augmentation de 146% contre 8%) et prévalence de la contraception (augmentation de 351% contre 150%). Ces avancées étaient principalement dues à l'augmentation du nombre et des compétences du personnel de santé, au financement basé sur les performances, à l'assurance maladie communautaire et à la consolidation du leadership et de la gouvernance. De nouvelles recherches sont nécessaires pour déterminer l'impact de ces changements sur l'état de santé des femmes.

Resumen

Desde el año 2000 hasta 2010, se implementaron en Ruanda reformas integrales al sector salud para fortalecer el sistema de salud pública, con la finalidad de disminuir las tasas de muertes maternas y de recién nacidos en línea con el Objetivo 5 de Desarrollo del Milenio, entre muchas otras mejoras en salud nacional. Basado en una revisión sistemática de la literatura, documentos de políticas nacionales y tres Encuestas Demográficas y de Salud (2000, 2005 y 2010), este artículo describe las reformas y las políticas en las cuales se basaron, y expone datos sobre los avances en ampliar la cobertura de cuatro servicios clave de salud de las mujeres. Los avances ocurrieron entre 2000 y 2005 y se aceleraron después del 2006, principalmente en las zonas rurales, con la ampliación de la política nacional referente al parto institucional, la financiación basada en el desempeño y el seguro médico a nivel comunitario. Entre 2006 y 2010, se efectuaron los siguientes aumentos en cobertura, comparados con el plazo del 2000 al 2005, particularmente en zonas rurales, donde vive la mayoría de las mujeres pobres: partos con asistencia calificada (un aumento del 77% frente al 26%), parto institucional (un aumento del 146% frente al 8%) y prevalencia de uso de anticonceptivos (un aumento del 351% frente al 150%). Los principales factores en estas mejoras fueron los aumentos en la fuerza laboral en salud y sus habilidades, financiación basada en el desempeño, seguro médico a nivel comunitario y mejor liderazgo y gobernancia. Aún se necesitan más investigaciones para determinar el impacto de estos cambios en la salud de las mujeres.