

Task shifting to optimise the roles of health workers to improve the delivery of maternal and child healthcare

Full Report

This policy brief was prepared by the Uganda country node of the Regional East African Community Health (REACH) Policy Initiative.

DRAFT: 17 May 2010

Who is this policy brief for?

Policymakers, their support staff, and people with an interest in the problem that this policy brief addresses

Why was this policy brief prepared?

This policy brief was prepared to summarize the best available evidence about the problem which it addresses and solutions to that problem

! This evidence-based policy brief includes:

- A description of a health system problem
- Viable options for addressing this problem
- Strategies for implement these options

X Not included: recommendations

Executive Summary

A shorter version of this Full Report is available in the Executive Summary.

What is an evidence-based policy brief?

Evidence-based policy briefs bring together global research evidence (from systematic reviews) and local evidence to inform deliberations about health policies and programmes

What is a systematic review?

A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from this research



Authors

Harriet Nabudere, MD, MPH *

Delius Asimwe, MA *

Rhona Mijumbi, MD, MSc, MPH *

On behalf of the REACH, Uganda Task Shifting Working Group**

*Regional East African Community Health (REACH) Policy Initiative, Uganda and Supporting the Use of Research Evidence (SURE) for policy in African Health Systems Project, College of Health Sciences, Makerere University, Kampala, Uganda

**Members of the working group, in addition to the named authors, include: Dr. J.C. Lule, Dr. Charles Karamagi, Dr. Miriam Sentongo, Mr. Charles Isabirye, Prof. Nelson Sewankambo

Table of contents

Preface	4
The problem	6
Policy options	13
Implementation considerations	27
Appendices	36
Glossary, acronyms and abbreviations	40
References	41

Preface

The purpose of this report

The purpose of this report is to inform deliberations among policymakers and stakeholders. It summarises the best available evidence regarding the design and implementation of policies for extending the use of non-medically trained primary health care workers (“task shifting”) to deliver cost-effective maternal and child health interventions.

The report was prepared as a background document to be discussed at meetings of those engaged in developing policies for task shifting and people with an interest in those policies (stakeholders). In addition, it is intended to inform other stakeholders and to engage them in deliberations about those policies. It is not intended to prescribe or proscribe specific options or implementation strategies. Rather, its purpose is to allow stakeholders to systematically and transparently consider the available evidence about the likely impacts of different options for task shifting.

How this report is structured

The executive summary of this report provides key messages and summarises each section of the full report. Although this entails some replication of information, the summary addresses the concern that not everyone for whom the report is intended will have time to read the full report.

How this report was prepared

This policy brief brings together global research evidence (from systematic reviews) and local evidence to inform deliberations about optimising the use of different cadre of health workers to deliver cost-effective MCH services. We searched for relevant evidence describing the problem, the impacts of options for addressing the problem, barriers to implementing those options, and implementation strategies to address those barriers. We searched particularly for relevant systematic reviews of the effects of policy options and implementation strategies. We supplemented information extracted from the included systematic reviews with information from other relevant studies and documents. (The methods used to prepare this report are described in more detail in Appendix 1.)

Limitations of this report

This policy brief is based largely on existing systematic reviews. For options where we did not find an up-to-date systematic review, we have attempted to fill in these gaps through other documents, through focused searches and personal contact with experts, and through external review of the report.

Summarising evidence requires judgements about what evidence to include, the quality of the evidence, how to interpret it and how to report it. While we have attempted to be transparent about these judgements, this report inevitably includes judgements made by review authors and judgements made by ourselves.

Why we have focused on systematic reviews

Systematic reviews of research evidence constitute a more appropriate source of research evidence for decision-making than the latest or most heavily publicized research study.^{1,2} By systematic reviews, we mean reviews of the research literature with an explicit question, an explicit description of the search strategy, an explicit statement about what types of research studies were included and excluded, a critical examination of the quality of the studies included in the review, and a critical and transparent process for interpreting the findings of the studies included in the review.

Systematic reviews have several advantages.³ Firstly, they reduce the risk of bias in selecting and interpreting the results of studies. Secondly, they reduce the risk of being misled by the play of chance in identifying studies for inclusion or the risk of focusing on a limited subset of relevant evidence. Thirdly, systematic reviews provide a critical appraisal of the available research and place individual studies or subgroups of studies in the context of all of the relevant evidence. Finally, they allow others to appraise critically the judgements made in selecting studies and the collection, analysis and interpretation of the results.

While practical experience and anecdotal evidence can also help to inform decisions, it is important to bear in mind the limitations of descriptions of success (or failures) in single instances. They can be useful for helping to understand a problem, but they do not provide reliable evidence of the most probable impacts of policy options.

Uncertainty does not imply indecisiveness or inaction

Many of the systematic reviews included in this report conclude that there is “insufficient evidence”. Nonetheless, policymakers must make decisions. Uncertainty about the potential impacts of policy decisions does not mean that decisions and actions can or should not be taken. However, it does suggest the need for carefully planned monitoring and evaluation when policies are implemented.⁴

“Both politically, in terms of being accountable to those who fund the system, and also ethically, in terms of making sure that you make the best use possible of available resources, evaluation is absolutely critical.” (Julio Frenk 2005, former Minister of Health, Mexico)⁵

The problem

Summary

Framing of the problem:

- *There is a shortage and maldistribution of medically trained health professionals to deliver cost-effective maternal and child health (MCH) services.*
- *'Task shifting' - a process of delegation whereby tasks are moved, where appropriate, to less specialized health workers – is one way of addressing this problem.*
- *Task shifting has been used informally as a pragmatic response to the health workforce shortage in Uganda - without a clear policy, planning, or monitoring and evaluation.*
- *As a consequence, some of this task shifting is in conflict with current health professional regulations and licensure.*
- *Furthermore, the lack of an explicit policy limits the extent to which task shifting can be implemented and coordinated effectively, efficiently and equitably.*
- *Although the primary problem that task shifting (expanding health worker roles) is intended to address is Uganda's health workforce shortage, it may also affect the distribution of health workers, health worker performance (quality of care), and healthcare costs.*
- *Options for expanding the roles of health workers for MCH services may also affect other roles for each cadre of health workers outside of MCH.*

Size of the problem:

- *Lack of access to effective healthcare is a major cause of unnecessarily high maternal and child mortality.*
- *For example, only 42.1% of mothers delivered with a skilled provider, traditional birth attendants assisted 23% of deliveries and 24.9% of deliveries were assisted by relatives or other unskilled helpers. The percentage of under-five children with fever who received anti-malarials on the same or next day was 28.9%. Only 35.7% of children received basic vaccinations by one year of age. 88% of the population lived in rural areas that are under served by higher cadres in the health workforce.*

Factors underlying the problem:

- *The health sector strategic plan overemphasizes care delivery by health professionals*
- *Current information systems inadequate for human resource planning*
- *Health workers lack incentives to expand their roles*
- *The support supervision system is not functioning adequately*
- *There is both support and resistance to task shifting*

Background

The world is experiencing a chronic shortage of human resources for health with at least 57 countries (36 in Sub-Saharan Africa) facing a crisis.⁶ The shortage of healthcare workers is a global problem, but low and middle-income countries, where HIV/AIDS has taken the greatest toll particularly on the health workforce, are affected most acutely.⁷ ‘Task shifting’ - a process of delegation whereby tasks are moved, where appropriate, to less specialized health workers – is one way of addressing this problem.⁶ In this way, more efficient use is made of the health workforce to improve access to health care.

A collaboration of national governments, civil society, professional organisations and international organisations initiated a series of broad consultations addressing the human resource crisis through task shifting starting in February 2007. The Ugandan Ministry of Health, as one of the partners, chaired the committee that produced the initial draft guidelines and recommendations, which were globally reviewed and revised in December 2007.⁸ The first global conference on Task Shifting was convened by the World Health Organisation (WHO) in January 2008 in Addis Ababa, Ethiopia, where the WHO Global recommendations and guidelines for task shifting were formally launched.⁶

Following these developments, the Ugandan Ministry of Health initiated a process to formulate a national policy on human resources for health aimed at reorganizing and decentralizing the health workforce using the generic principles adopted at Addis Ababa. The intended policy aims to address poor access to healthcare through optimizing roles of health workers by shifting tasks from more to less specialised health cadres that are trained to meet specific healthcare needs.⁹

Discussions with key policymakers in the Ministry of Health identified the need for a policy brief to inform the development of national policy for task shifting, specifically for improving access to maternal and child health (MCH) care.

A number of factors contribute to poor access to health care in Uganda. These include inadequate infrastructure, supplies and financing, as well as inadequate human resources for health. The shortage of healthcare workers is exacerbated by inequitable distribution and poor performance.¹⁰ This brief seeks to summarize the best available evidence and provide a variety of task-shifting options with which to inform an explicit policy on task-shifting in Uganda.

Framing of the problem

The focus for this policy brief is ‘task shifting’, as determined by the current policymaking process in the Ministry of Health. However, we have chosen to use the term ‘optimising health worker roles’ to clarify that the focus is primarily on expanding the roles of less specialised health workers to deliver MCH interventions that are currently not accessible for the majority of the population.

Task shifting (optimising health worker roles) is being proposed as a solution to a problem. It is important to clarify what the problem is that this solution is intended to address in order to ensure that appropriate options and implementation strategies are considered. The primary problem that optimising health worker roles is intended to address is Uganda's health workforce shortage. Other problems that could be affected include the distribution of health workers, health worker performance (quality of care), and healthcare costs.¹⁰ Optimising health worker roles is one of many strategies that could be used to address all of these problems. Thus, it is important to consider how options for expanding the roles of health workers will address the underlying problems described below and how they might complement or conflict with other strategies for addressing Uganda's health workforce shortage, improving the distribution of health workers, their performance and efficiency.

Task shifting is based on one or more of the following assumptions:

- that there is under-utilised capacity among less specialised health workers,
- that it is desirable and possible to change priorities or roles of less specialised health workers to include tasks from more specialised health workers, or
- that the number of less specialised health workers can be increased to accommodate increased responsibilities.

The decision to focus on maternal and child healthcare was influenced by discussions with key policymakers in the Ministry of Health. The Uganda National Health Research Organisation conducted a survey of policymakers on priority health policy issues in the short and medium-term. Maternal and child health was cited as an area of current policy interest, and task shifting is an ongoing theme under discussion by policymakers in the Ministry of Health.⁹

MCH is a broad area covering a large proportion of the population that is particularly vulnerable and could serve as a model for other areas such as HIV/AIDS. However, the current policy discussions in the Ministry of Health regarding task shifting are more broadly focused on the health workforce as a whole, not limited to a specific area of care. Thus, although this policy brief focuses on task shifting in maternal and child health, we will take into consideration relevant evidence for other areas of care, as well as identifying limitations in the application of the policy options that are considered for other areas.

Size of the problem

Uganda is making slow progress towards meeting the Millennium Development Goals (MDGs) for maternal and child health. MDG 4 refers to reduction of under-five mortality by two-thirds between 1990 and 2015. MDG 5 refers to reduction by two-thirds of the maternal mortality ratio during the same period.¹¹ The Ugandan maternal mortality ratio is still high at 440 per 100,000 live births. The under-five and infant mortality rates are 140 and 82 per 1000 live births, respectively.¹²

Lack of access to effective healthcare is a major cause of unnecessarily high maternal and child mortality.¹³ The Uganda Demographic and Health Survey (2006) reported percentage of pregnant mothers receiving antenatal care from a skilled provider at least once at 93.5%. However, only 42.1% of mothers delivered with a skilled provider, traditional birth

attendants assisted 23% of deliveries and 24.9% of deliveries were assisted by relatives or other unskilled helpers.¹⁴ The percentage of under-five children with fever who received anti-malarials on the same or next day was 28.9%. Only 35.7% of children received basic vaccinations by one year of age.¹⁴ The Uganda Population Census (2002) showed that 88% of the population lived in rural areas that are under served by higher cadres in the health workforce.¹⁵

The annual health sector performance report for 2006/7 showed improvement in some indicators over the previous year, but these were still under desirable targets - for immunisation, facility-based maternal deliveries, intermittent preventive treatment for malaria in pregnancy and under-fives with fever receiving malaria treatment within 24 hours among others. Stagnated indicators included the tuberculosis notification rate and outpatient attendance at health facilities.¹⁰

In 2002, Uganda had a total of 2,919 medical doctors with 71% working in the central urban region which is inhabited by only 27% of the total population. 64% of the nation's total of 20,186 nurses and midwives are also working in the central urban region (Table 1). There are 3,785 clinical allied health professionals, 15,228 nursing aides/assistants, and 4,530 traditional practitioners/faith healers countrywide.¹⁶ Table 2 shows cross-country comparative health workforce ratios.

Table 1: Healthcare personnel per population*

Health cadres	Total number of health cadres in Uganda (2002)	Health cadre per 100,000 population (Uganda)
Medical doctors	2,919	12
Allied health professionals	3,785	16
Nurses and midwives	20,186	83
Nursing assistants	15,228	63

*Uganda Population 2002 = 24.4 million people (Uganda Bureau of Statistics 2002)¹⁵

Table 2: Healthcare personnel per population – cross-country comparison*

Health cadres	Health cadre per 100,000 population							
	South Africa	Botswana	Ghana	Zambia	Tanzania	Malawi	USA	UK
Medical doctors	69.2	28.7	9.0	6.9	2.3	1.1	230	256
Nurses	388.0	241.0	64.0	113	36.6	25.5	1212	937

*Source: World Health Report 2006.¹⁷

Forty-seven percent of the approved positions in the public sector are vacant.¹⁸ The statistics available regarding distribution between public and private not-for-profit health services indicate that 53% of the total health staff are in government facilities at district level, 30% at private not-for-profit health facilities at district level and 17% are in regional and national hospitals and the Ministry headquarters. No data are available regarding health workers in private for-profit facilities.

Uganda is recognized as one of the countries implementing task shifting as a pragmatic response to the health workforce shortage at an informal level. The AIDS pandemic has necessitated stretching of the already overwhelmed workforce. As a result, nurses are now undertaking tasks that were formerly the responsibility of doctors, including: managing milder opportunistic infections in HIV, determining eligibility for antiretroviral therapy (ART), and treating side-effects of ART. Correspondingly, some nursing work has been taken on by community health workers who have training but no professional qualifications, including: counselling and testing for HIV, undertaking clinical triage, and monitoring adherence to ART. Newer types of health cadres, such as expert patients with HIV and ART aides, are trained to support clinical triage, HIV education and counselling, and provide ART adherence support. This has occurred with integrated management for childhood illnesses and training of traditional birth attendants in maternal healthcare, as well as for HIV/AIDS care.^{19,20,21}

The National Health Policy (1999) and Health Sector Strategic Plan II (2005/06 – 2009/10) support the establishment of village health teams (VHTs) to facilitate the process of community mobilization for health action.^{22,23} The VHTs are trained and equipped with key messages and health commodities (including medicines) for delivery of an integrated package of care at the household level. However, much of the task shifting that has occurred has been without a clear policy, planning, or monitoring and evaluation. Moreover, some of this task shifting may be in conflict with current health professional regulations and licensure.

Factors underlying the problem

A number of factors underlie the problems of a health workforce shortage, inequitable distribution of health workers, poor health worker performance, and inefficient use of health workers. Deciding on and implementing appropriate options for optimising the roles of health workers to address those problems requires consideration of these factors, including: governance arrangements, financial arrangements, consumer attitudes, health workers' attitudes and motivation, and organizational constraints.

The health sector strategic plan emphasizes minimum staffing norms for each level of service delivery in the national health system.²⁷ These staffing norms prescribe specific roles for each health cadre limiting development of new healthcare delivery arrangements. This limitation overemphasizes delivery of care by professional health cadres perpetuating the problem of poor access to health services particularly in rural areas. This is reflected by restrictions in regulations and statutes of the health professionals councils, which do not permit flexibility and responsiveness to the rapidly changing health environment.²⁴

The way human resources are planned, trained, placed and managed within the service impact on quality, character and current costs of healthcare provision. However, current information systems are paper-based and inadequate. Reporting of health information data in Uganda is done through district health offices that collect and summarise data from sub-districts and over 2,000 health facilities; including government and private not-for profit units. Reporting from private practitioners has been very difficult as there has been no sustainable motivation for them to report and therefore information on the patients they administer is in most cases not included in the health management information system. Computerisation of the HMIS in Uganda has been a slow process due to financial and technical limitations.²⁵ This makes deployment and service delivery arrangements very difficult.

Health workers lack incentives to expand their roles. CHWs are not paid and reimbursement systems of other health workers do not provide incentives for appropriate delivery of cost-effective interventions. Non-financial incentives are also inadequate. Ugandan health workers are dissatisfied with their jobs, especially their compensation.²⁶ On average midwives earn between USD 75 (Ush 150,000) and USD 125 (Ush 250,000) per month. Salaries have increased little despite increasing costs of living. A registered nurse is paid about USD 200 (Ush 400,000), which is far below what they are paid in other countries. An enrolled nurse earns USD 135 (Ush 270,000) and lower cadres about USD 115 (Ush 230,000). Health workers in government facilities earn less than those working with the private sector. This draws health workers away from government facilities that are already understaffed.²⁷ Health workers also often have poor living conditions with inadequate housing and lack of social amenities, particularly in rural areas.¹⁸ Non-material incentives are also often lacking.

There is a support supervision system and a quality assurance unit in the Ministry of Health that is responsible for supervision. However, the system is not functioning adequately. Because resources are limited, only more accessible health facilities tend to receive supervision visits, and only a few times per year. Furthermore, a top-down, control-oriented approach mostly focuses on collecting data without addressing local staff's performance needs.²⁸ In addition, many health workers fear supervision, mainly due to perceived or real misuse of authority by supervisors. In Uganda, one out of four interviewed health workers reported physical, verbal or emotional abuse from their supervisors²⁹ Local leaders are responsible for supervising and monitoring the activities of civil servants. However, these accountability mechanisms have been found to be lacking.³⁰

The task shifting that has occurred has been without a clear policy, planning, or monitoring and evaluation. Moreover, some of this task shifting may be in conflict with current health professional regulations and licensure with some health workers feeling that problems that arise can backfire on the concerned health worker who does not have legal protection for additional tasks. For example, nurses are concerned that if something goes wrong when they admit patients, the Nursing and Midwifery Council cannot protect them. This impedes nurses from taking on more responsibilities.³¹ Professional protectionism is also an issue. Many professionals are reluctant to cede tasks to others for fear of being undermined. For example, some doctors are reluctant to have clinical officers perform any type of surgery.³¹ Nurses' organisations have protested against moves toward the development of a cadre of

comprehensive nurses that would supervise deliveries as well as deliver primary care to a rural population.³²

In addition, there is both support and resistance to task shifting. There are varied views on task shifting. Those in favour of task shifting see it as a potential solution to Uganda's dual problem of lack of skilled personnel and high demand for services. Those opposed to task shifting see it as a quick fix and an approach that could dilute the quality of care and compromise the health system in the long term.^{33,34} Donor and international agencies widely support task shifting,^{33,34} although WHO is now opposed to training TBAs.³⁵

Policy options

Summary

Policy option 1: Optimise the use of lay health workers

- Lay health workers (community health workers and traditional birth attendants) can potentially deliver most MCH interventions for which there is evidence of cost effectiveness in primary care.
- Expanding the use of community health workers may reduce morbidity and mortality in children under five and neonates.
- Training traditional birth attendants may improve perinatal outcomes and appropriate referrals.
- The cost-effectiveness of expanding the roles of lay health workers and training traditional birth attendants is uncertain.
- Given the limitations of the currently available evidence, rigorous evaluation of the impacts of expanding the use of lay health workers and monitoring of resource use and activities (particularly the delivery of cost-effective MCH interventions) is warranted.

Policy Option 2: Optimise the use of nursing assistants

- Expanding the use of nursing assistants in facilities might increase the time available from nurses, midwives and doctors to provide care that requires more training, but the impacts of expanded the use of nursing assistants on the quality and costs of care are uncertain.

Policy Option 3: Optimise the use of nurses, midwives and clinical officers

- Expanding the use of nurses and midwives to deliver cost effective MCH interventions in areas where there is a shortage of doctors would probably improve MCH outcomes and reduce inequities.
- Expanding their use would require strategies to ensure that they can be recruited and retained in underserved communities.
- The costs and cost-effectiveness of doing this are uncertain.

Policy Option 4: Optimise the use of drug dispensers

- Expanding the use of drug dispensers to promote and deliver cost-effective MCH interventions and improving the quality of the services they provide could potentially improve health outcomes and reduce inequities.
- However, the impacts and cost-effectiveness of doing this are uncertain.

The four options are complementary, with the primary aim of ensuring the optimal use of different cadres of health workers to ensure universal delivery of cost-effective MCH services (such as those in Appendix 2). An underlying principle is that care should be provided at the lowest effective level; i.e. by the least specialised and centralised health worker that can provide appropriate (cost-effective) care. We have therefore focused on expanding the use of primary health care providers who are not medically trained. Barriers to expanding the use of these four cadres of health workers and strategies for addressing them are described below under ‘Implementation considerations’.

Policy option 1: Optimise the use of lay health workers

A lay health worker is not a health care professional but is a member of the community who has received some training to promote health or to carry out some healthcare services.³⁶ Lay health workers may receive varying degrees of training and support. Lay (non-professional) health workers include community health workers (CHWs) and traditional birth attendants (TBAs). Lay health workers can potentially be used to deliver a broad range of promotional, preventive and treatment interventions, including most MCH interventions for which there is evidence of cost-effectiveness in primary care (such as those in Appendix 2). Expanding the use of community drug distributors who are also lay health workers is being considered together with expanding the use of professional drug dispensers resented in Policy option 4.

Current use in Uganda

CHWs have been recognized as partners in health care delivery in Uganda. Research by Family Health International carried out in two central districts of Uganda showed that, with training, these community-based health workers can give accurate information on how to use pills and can identify conditions that rule out using pills in some clients. In addition it is advantageous that CHWs live in the same areas as their clients, because then they can monitor their clients’ adherence.

A study evaluating the ability of CHWs to assess rapid breathing in under-5 year olds and exploring caretaker interpretation of pneumonia symptoms in western Uganda concluded that CHWs could recognize pneumonia in children and that there was consistency in the interpretation of severity, cause and treatment of the condition.³⁷ Seventy-one percent of the CHW assessments were within ± 5 breaths/minute of the gold standard. The sensitivity of CHW classification was 75% and the specificity was 83%. In another non-randomized community trial of administration of contraceptive injections by CHWs in Uganda in 2007, 95% of their clients were “satisfied” or “highly satisfied” with services, and 85% reported receiving vital information, for example on side-effects. In addition there were no serious injection site problems in either group and there was no significant difference between continuation to second injection (88% among clients of community-based workers, 85% among clinic-going clients), nor were there significant differences in other measures of safety, acceptability and quality.³⁸

TBAs have also been found to represent an important component of the healthcare system in resource-limited settings and are presently responsible for 50% of deliveries in developing countries. In Uganda TBAs represent one of the practices of traditional healing systems and constitute 12.3% of traditional healers.^{39,40}

Anecdotal evidence suggests that TBAs are seizing an opportunity left by gaps in the health care system. They have organized themselves into a registered association with about 60,000 members, which is attracting expectant mothers to their side.⁴¹ On average one million babies are born in Uganda every year. While the majority of mothers (over 70%) visit antenatal clinics during the first months of pregnancy, they opt to stay away at the moment of birth with only 42% of mothers delivering with a skilled provider.¹⁴

Impacts of optimising the use of lay health workers

A recently updated (2010) systematic review found 82 randomised trials of interventions delivered by lay health workers (paid or voluntary) in primary or community health care and intended to improve maternal or child health or the management of infectious diseases.³⁶

They found that (Table 5) using lay health workers as an add-on to usual care:

- *Probably increases immunisation coverage and breast feeding*
- *May increase care seeking behaviour for children under five and reduce morbidity and mortality in children under five and neonates*

Table 5: Using lay (community) health workers as an add on to usual care

Patients or population: Mothers or children under five

Settings: Mixed (high-income countries for immunisations, mixed for breast feeding, low-income countries for morbidity and mortality in children)

Intervention: Lay health workers (LHWs) (members of the community who are not health professionals and have received some training to promote health or to provide some health care services)

Comparison: Usual care (varied across studies)

Outcomes	Impact			Number of studies	Quality of the evidence (GRADE)*
	Without Lay health workers	With Lay health workers	Relative change		
Mortality in children under five	5 per 100 children	4 per 100 children	25% relative reduction	3	⊕⊕○○ Low
Neonatal mortality	4 per 100 infants	3 per 100 infants	24% relative reduction	4	⊕⊕○○ Low
Morbidity in children under five (e.g. fever, diarrhoea)	50 per 100 children	43 per 100 children	14% relative reduction	7	⊕⊕○○ Low
Care seeking for children under five	20 per 100 children	27 per 100 children	33% relative increase	3	⊕⊕○○ Low
Completed infant immunisations	50 per 100 infants	61 per 100 infants	22% relative increase	4	⊕⊕⊕○ Moderate
Initiation of breastfeeding	50 per 100 mothers	68 per 100 mothers	36% relative increase	12	⊕⊕⊕○ Moderate
Exclusive breastfeeding	20 per 100 mothers	36 per 100 mothers	178% relative increase	10	⊕⊕⊕○ Moderate

*GRADE Working Group grades of evidence

⊕⊕⊕⊕ **High:** We are confident that the true effect lies close to what was found in the research.

⊕⊕⊕○ **Moderate:** The true effect is likely to be close to what was found, but there is a possibility that it is substantially different.

⊕⊕○○ **Low:** The true effect may be substantially different from what was found.

⊕○○○ **Very low:** We are very uncertain about the effect.

Limitations: This is a good quality systematic review with only minor limitations.

Impacts of expanding the use of traditional birth attendants

A traditional birth attendant (TBA) is a person who assists the mother during childbirth and who initially acquired her skills by delivering babies herself or through an apprenticeship to other TBAs (WHO 1992).⁴² A systematic review found four studies of the effects of additional training for TBAs. They found that (Table 6):⁴³

Providing as little as two to three days additional training for TBAs:

- *May reduce maternal, perinatal and neonatal mortality and stillbirths*
- *May have mixed effects on maternal morbidity*

Table 6: Training traditional birth attendants (TBAs)

Patients or population: Pregnant women and newborns

Settings: Rural communities in Pakistan, Malawi, Bangladesh and Guatemala

Intervention: Training of TBAs, delivery kits, training of lay health workers to support TBAs

Comparison: TBAs who had not received additional training

Outcomes	Impact			Number of studies	Quality of the evidence (GRADE)*
	TBAs without additional training	TBAs with additional training	Relative change		
Maternal mortality	Uncertain	Uncertain	26% relative reduction (Confidence interval: from a 22% increase to a 55% reduction)	1	⊕⊕○○ Low
Perinatal mortality	12 per 100 mothers	9 per 100 mothers	27% relative reduction	1	⊕⊕○○ Low
Neonatal mortality	4 per 100 babies	3 per 100 babies	29% relative reduction	1	⊕⊕○○ Low
Stillbirths	7 per 100 babies	5 per 100 babies	29% relative reduction	1	⊕⊕○○ Low
Puerperal sepsis	4 per 100 mothers	1 per 100 mothers	82% relative reduction	1	⊕⊕○○ Low
Haemorrhage	25 per 100 mothers	16 per 100 mothers	38% relative reduction	1	⊕⊕○○ Low
Obstructed labour	5 per 100 mothers	6 per 100 mothers	24% relative increase	1	⊕⊕○○ Low

*GRADE Working Group grades of evidence

⊕⊕⊕⊕ **High:** We are confident that the true effect lies close to what was found in the research.

⊕⊕⊕○ **Moderate:** The true effect is likely to be close to what was found, but there is a possibility that it is substantially different.

⊕⊕○○ **Low:** The true effect may be substantially different from what was found.

⊕○○○ **Very low:** We are very uncertain about the effect.

Limitations: This is a good quality systematic review with only minor limitations.

A recent review (2009) found low to moderate quality evidence that traditional birth attendant training may improve linkages with facilities (referral rates) and improve perinatal outcomes including a 30% reduction in perinatal mortality rate and an 11% reduction in birth-related neonatal mortality rate.⁴⁴ There was also moderate quality evidence that community health workers reduced perinatal mortality by 28% and early neonatal mortality (during the first week of life) by 36%.

Equity, costs, monitoring and evaluation

There is an existing network of community health workers and TBAs providing care to underserved populations that could be targeted for further training. TBAs currently conduct 24% of deliveries. Provision of training and expanding the roles of TBA could potentially reduce inequities in service delivery. Improvements in appropriate referrals, however, would require access to trained and equipped healthcare professionals.

Darmstadt and colleagues estimated costs of TBA training per TBA ranging from US\$44 in Uganda to US\$45-\$95 in Ghana, Mexico and Bangladesh.⁴⁴ Cost-effectiveness by the same review found a TBA assisting 30 births a year would save 1 baby every 1000 births at a cost savings of USD 3630 per life saved. Costs for community health worker training in India came to USD 7 for a cost savings of USD 150 per death averted.

LHWs could potentially reduce the costs of health care if substituted for professionals, by providing care at a level closer to local service users. However, there is a lack of data on the costs and cost effectiveness of using LHWs.³⁶ A recent systematic review (2009) of the cost-effectiveness of LHW interventions for vaccination promotion and delivery identified few relevant studies.⁴⁵

Expanding the use of community health workers and providing training for TBAs may be a cost-effective approach to improving MCH outcomes and reducing inequities. However, given the limitations of the available evidence, consideration should be given to rigorously evaluating their cost-effectiveness prior to or in conjunction with scaling up. Careful planning is needed to ensure that LHWs are used and trained to deliver an appropriate package of cost effective interventions (such as those listed in Appendix 2) and that effective training and support) are provided (see 'Implementation considerations'), as well as ensuring the availability of necessary supplies and access to healthcare professionals and facilities for referrals. Given the limitations of the currently available evidence, monitoring of resource use and activities (particularly the delivery of cost-effective MCH interventions) is warranted.

Policy Option 2: Optimise the use of nursing assistants

Various terms may be used to describe nursing assistants, including nursing auxiliaries, nurse extenders and health care assistants. Nursing assistants may have various degrees of training, but they have less training than registered or qualified nurses.

Current use in Uganda

In Uganda nursing assistants are the majority of staff at every level of service delivery, particularly in rural areas.²³ In addition to vaccinations, nurses and nursing assistants have been found to be in charge of assessing and diagnosing patients and prescribing treatment. Without adequate numbers of physicians working in rural areas, nurses may have to step into the role of a primary care provider. For example, a volunteer at a private rural health centre in Eastern Uganda observed that nurses and nursing assistants would evaluate their patients and request further laboratory investigations. In between patients, they would do inventory, stock the facility, and make sure that the health centre was compliant with government and district standards. Optimally, they would also discuss with patients' lifestyle issues, such as balanced nutrition, personal hygiene, and family planning.⁴⁶

Impacts of optimising the use of nursing assistants

There is a paucity of information on the impacts of expanding the use of nursing assistants. Two reviews of the evidence regarding nursing skill mix found significant limitations to the current evidence.^{47,48} Studies of the impacts on quality and costs of different uses of nurses and nursing assistants/auxiliaries are almost entirely descriptive and from high-income countries. Buchan and Dal Poz concluded that there is "limited support for the suggestion that redistribution of certain tasks in nursing could be possible and could contribute to strategies for meeting the demands of changes within health care delivery." However, "any reallocation of task, and substitution of qualified by unqualified staff, should be based on sound evidence and not merely on staff availability, service demand or apparent costs."⁴⁷ There is descriptive evidence that suggests that qualified nurses spend a considerable amount of time on non-nursing duties and that hiring lower grades of staff can increase the availability of trained nurse time. However, there are concerns that handing over some nursing to less skilled workers might reduce the role of the nurse and skills that are an integral part of nursing.

A recent review (2009) found that nurse-aides could provide intrapartum supervision to enable midwives or doctors to handle obstetric emergencies.⁴⁹ In a study in rural Zimbabwe, nurse-aides were trained to conduct low-risk deliveries to enable doctors and nurses to manage primigravidas and high-risk deliveries. Nurse-aides conducted 57% of all deliveries with a perinatal mortality rate of 5 per 1000, suggesting that nurse-aides could competently attend appropriately identified low-risk births in this setting

Expanding the use of nursing assistants in facilities might increase the time available from nurses, midwives and doctors to provide care that requires more training, but the impacts of expanded use of nursing assistants are uncertain.

Equity, costs, monitoring and evaluation

Nursing assistants are cheaper to train and pay than qualified nurses, midwives or doctors. However the impact of expanding their use on the delivery of cost-effective MCH interventions and the cost-effectiveness of doing this is uncertain. It is also uncertain what, if any impact this might have on equity. There are logical reasons to consider increasing the use of nursing assistants in facilities where there is a shortage of skilled nurses, midwives and

doctors. Given the paucity of evidence, rigorous evaluation is warranted before doing this on a large scale, as well as monitoring of the use of resources, the delivery of cost-effective MCH interventions and patient outcomes.

Policy Option 3: Optimise the use of nurses, midwives and clinical officers

A range of primary care services normally provided by doctors have been transferred to nurses, midwives and clinical officers in many countries. The expectation is that they can provide as high quality care as doctors at lower cost or improve access to care where there is a shortage of doctors.

In sub-Saharan Africa, clinical officers are healthcare providers with a diploma in clinical medicine, surgery and community health following three years of training. Clinical officers work either independently or with a medical officer to provide healthcare services to largely rural populations. The basic training is roughly similar. However the scope of practice is as varied. In Uganda training takes place in clinical officer training schools. Internship is not required to be registered as a clinical officer. In other countries healthcare providers with comparable training and responsibilities may be called physician assistants, assistant medical officers, or nurse practitioners.

Current use in Uganda

In Uganda clinical officers, along with other allied healthcare professionals, play a pivotal role in the delivery of primary healthcare. Their role is now extending to incorporate surgical obstetric skills and other tasks normally undertaken by medical professionals working in secondary healthcare facilities. A study of the role that the clinical officers currently play in Ugandan found that they are highly involved in the delivery of emergency, surgical and obstetric services to their respective communities.⁵⁰

There has been reluctance to legalise task-shifting to clinical officers and nurses due to concerns about the quality of care provided. Nonetheless, Uganda and other countries in sub-Saharan Africa have expanded the use of clinical officers to treat HIV patients.⁵¹

Impacts of optimising the use of nurses, midwives and clinical officers

Nurses

A systematic review evaluated the impact of doctor-nurse substitution in primary care.⁵² The review has some important limitations (Table 7). They found that:

- *Nurses and physicians may lead to similar health outcomes for patients.*
- *It is uncertain whether there is any difference in the cost of care provided by nurses compared to the cost of care provided by physicians.*

Table 7: Substitution of doctors with nurses in primary care

Outcomes	Impact	Number of studies	Quality of the evidence (GRADE)*
Patient outcomes	Nurses and doctors may lead to similar health outcomes for patients.	4	⊕⊕○○ Low
Quality of care	Not reported.		
Patient satisfaction	On average patients are probably more satisfied with care provided by nurses, but some prefer care provided by nurses and some prefer care provided by doctors.	3	⊕⊕⊕○ Moderate
Direct costs	The lower salary costs of nurses may be offset by their increased use of resources or lower productivity so that there may be little if any difference in the cost of care provided by nurses compared to the cost of care provided by doctors. Because the difference in salary between nurses and doctors may vary from place to place and over time, the net saving, if any, is likely to depend on the context.	2	⊕○○○ Very low
Indirect use of resources	Patients cared for by nurses are probably hospitalised more, but probably are not referred more to hospitals and probably do not have more emergency visits.	3	⊕⊕⊕○ Moderate

*GRADE Working Group grades of evidence

⊕⊕⊕⊕ **High:** We are confident that the true effect lies close to what was found in the research.

⊕⊕⊕○ **Moderate:** The true effect is likely to be close to what was found, but there is a possibility that it is substantially different.

⊕⊕○○ **Low:** The true effect may be substantially different from what was found.

⊕○○○ **Very low:** We are very uncertain about the effect.

Limitations: The review on which this summary of findings is based had some important limitations. The search only goes up to 2002 and only articles written in English or Dutch were included. Some analyses were potentially misleading.

Midwives

Another systematic review compared midwife-led care versus other models of care (obstetrician-led, family doctor-led and shared models of care) for childbearing women.⁵³ All of the included evaluations were conducted in high-income settings (Table 8). They found that midwife-led care:

- Reduces the use of instruments for vaginal births
- Probably reduces overall foetal loss and neonatal death, antenatal hospitalisations, and use of intrapartum analgesia.
- Probably leads to little or no difference in the incidence of low-birth weight or preterm birth

Table 8: Midwife-led care for childbearing women

Patients or population: Childbearing women

Settings: High-income countries

Intervention: Midwife-led models of care

Comparison: Other models of care

Outcomes	Impact			Number of studies	Quality of the evidence (GRADE)*
	Without Midwife-led care	With Midwife-led care	Relative change		
Overall foetal loss and neonatal death	5 per 100 babies	4 per 100 babies	17% relative reduction	10	⊕⊕⊕○ Moderate
Antenatal hospitalisation	20 per 100 mothers	18 per 100 mothers	10% relative reduction	5	⊕⊕⊕○ Moderate
Intrapartum analgesia	20 per 100 mothers	17 per 100 mothers	14% relative reduction	9	⊕⊕⊕○ Moderate
Instrumental vaginal birth (forceps/vacuum)	20 per 100 mothers	17 per 100 mothers	14% relative reduction	10	⊕⊕⊕⊕ High

*GRADE Working Group grades of evidence

⊕⊕⊕⊕ **High:** We are confident that the true effect lies close to what was found in the research.

⊕⊕⊕○ **Moderate:** The true effect is likely to be close to what was found, but there is a possibility that it is substantially different.

⊕⊕○○ **Low:** The true effect may be substantially different from what was found.

⊕○○○ **Very low:** We are very uncertain about the effect.

Limitations: A good quality systematic review with only minor limitations. All of the studies in this review were conducted in high-income countries.

Nurse practitioners

Nurse practitioners are nurses who have undergone further training to work autonomously; making independent diagnoses and treatment decisions. A systematic review assessed evidence regarding substitution of doctors with nurse practitioners in providing safe, effective, and economical primary care management of patients.⁵⁴ It found (see Table 9):

- *Nurse practitioners compared to doctors probably have longer consultations and order more laboratory investigations*
- *Patients are probably more satisfied with nurse practitioners*
- *There is probably little or no difference in the number of prescriptions, return consultations or referrals*
- *There may be little or no difference in the quality of care or patient outcomes*

It is uncertain whether similar outcomes could be expected when substituting clinical officers for doctors in Uganda. Although there are some descriptive studies of expanding the use of clinical officers, there appear to be few, if any, evaluations of the impacts of doing this.⁵⁵

Table 9: Substitution of doctors with nurse practitioners in primary healthcare

Patients or population: All presenting patients in primary care

Settings: Primary care in Canada, the UK and USA

Intervention: Nurse practitioners

Comparison: Doctors

Outcomes	Impact	Number of studies	Quality of the evidence (GRADE)*
Health status	There was no difference in health outcomes between doctors and nurse practitioners	7	⊕⊕○○ Low
Patient satisfaction	Patients were more satisfied with care provided by a nurse practitioner than by a doctor.	5	⊕⊕⊕○ Moderate
Quality of care	Better for nurse practitioners than doctors	6	⊕⊕○○ Low
Consultation length	Significantly longer consultations for nurse practitioners compared to doctors	5	⊕⊕⊕○ Moderate
Investigations	Nurse practitioners ordered for significantly more laboratory investigations than doctors	5	⊕⊕⊕○ Moderate
Prescriptions	There were no significant differences between nurse practitioners and doctors	4	⊕⊕⊕○ Moderate
Return consultations	There were no significant differences between nurse practitioners and doctors	6	⊕⊕⊕○ Moderate
Referrals	There were no significant differences between nurse practitioners and doctors	2	⊕⊕⊕○ Moderate

*GRADE Working Group grades of evidence

⊕⊕⊕⊕ **High:** We are confident that the true effect lies close to what was found in the research.

⊕⊕⊕○ **Moderate:** The true effect is likely to be close to what was found, but there is a possibility that it is substantially different.

⊕⊕○○ **Low:** The true effect may be substantially different from what was found.

⊕○○○ **Very low:** We are very uncertain about the effect.

Limitations: The review on which this summary of findings is based had some important limitations. The search only goes up to 2002. Some missing information regarding selection of studies and description on heterogeneity of studies.

Equity, costs, monitoring and evaluation

Given the scarcity of obstetricians and medical officers serving disadvantaged populations in Uganda, particularly in rural areas, using midwives has the potential to reduce inequities in access to antenatal and postpartum care, provided midwives can be recruited and retained in underserved communities. Similarly, nurses or clinical officers could potentially provide a majority of cost-effective MCH interventions in primary care, such as the ones listed in Appendix 2, and may be easier to recruit and retain in underserved areas than doctors. Evidence from some studies in the review on midwife-led care suggest that midwife-led care is cost effective and produces comparable outcomes to other models of care. However, it is uncertain how transferable those results from high-income countries are to Uganda. It is also uncertain whether substituting nurses for doctors is cost-effective. There is not sufficient data to determine the cost-effectiveness of expanding the use of clinical officers (or nurse practitioners). Expanding the use of clinical officers would entail the cost of expanding training programmes, since there is an insufficient supply to fill currently available positions.

Expanding the use of nurses, midwives and clinical officers where there is a shortage of doctors would probably improve MCH outcomes and reduce inequities, provided they are recruited, supported and retained in underserved communities. Consideration should be given to incentives and regulations that will encourage this. Given the uncertainty about costs and cost-effectiveness, it would be important to monitor resource use, the delivery of cost-effective MCH interventions and patient outcomes; and to evaluate the cost-effectiveness of expanding the use of nurses, midwives and clinical officers in Uganda.

Policy Option 4: Optimise the use of drug dispensers

Drug dispensers can be trained pharmacists, but often are not. Many people buy medicines from retail drug shops, because they are convenient and often have drugs available when public health facilities are out of stock. Drug dispensers in these shops often lack basic qualifications and training. Inappropriate dispensing of medicines resulting in inappropriate patient use is one of the key factors driving drug resistance around the world. Drug dispensers are also consulted for health advice on problems of all kinds.

Drug dispensing is often overlooked by health planners during the development of health care delivery. This oversight is unfortunate, because poor or uncontrolled dispensing practices can have a detrimental impact on the health care delivery system. All of the

resources required to bring a drug to the patient may be wasted if dispensing does not ensure that the correct drug is given to the right patient in an effective dosage and amount, with clear instruction, and in packaging that maintains the integrity of the drug.

Among the cost-effective interventions listed in Appendix 2, the use of drug dispensers could be expanded for promotional interventions, such as promoting appropriate care seeking, provision and promotion of preventive interventions, such as clean delivery kits and insecticide-treated bednets, and treatment interventions, such as improved management of diarrhoea and malaria.

Current use in Uganda

There is scant information regarding experience with expanding the use of drug dispensers in Uganda. The Government of Uganda with funding from the Gates Foundation recently launched Accredited Drug Dispensing Outlets (ADDO) in Kibaale district, in western Uganda. The ADDO program was adopted from Tanzania's experience with government accreditation of new shops called *Duka La Dawa Muhimu* (Swahili for "essential drug shop"). The ADDO is intended to ensure adherence to standards related to better products and service quality with a key objective of improving awareness of the importance of pharmaceutical quality and treatment compliance.⁵⁶

Impacts of optimising the use of drug dispensers

A review looked at the quality of private pharmacy services in low and middle-income countries.⁵⁷ Most of the 30 included studies have highlighted shortcomings in advice-giving and the supply of medicines. The included studies were all descriptive and do not provide evidence of the impacts of expanding the use of drug dispensers. However, given the important role that drug dispensers play, it is important to find effective strategies to ensure that they provide good quality services or that the services which they provide are shifted to other cadres of health workers.

An older systematic review (2000) found that expanded use of outpatient pharmacists targeted at patients may decrease the use of specific health services – such as hospital admissions and ambulatory care visits – and may improve patients' compliance with drug therapy.⁵⁸ However, differences in health systems, attitudes towards drug dispensers, training of drug dispensers and legal restrictions may limit the applicability of the findings from this review, especially because all but two of the studies were conducted at single sites in the United States. A number of studies of expanding the use of drug dispensers in low and middle-income countries have been conducted since that review was last updated, but this evidence has not yet been systematically reviewed.

→ *The impacts of expanding the use of drug dispensers to promote and deliver cost-effective MCH interventions are uncertain.*

Equity, costs, monitoring and evaluation

Drug dispensers are an important source of care for disadvantaged populations with limited access to doctors. Improving the services they provide and expanding the use of drug dispensers to promote and deliver cost-effective MCH interventions could potentially reduce

inequities. The cost-effectiveness of doing this is uncertain. A systematic review of studies of expanding the use of drug dispensers in low and middle-income countries and a rigorous evaluation of expanding the use of drug dispensers and improving the quality of the services they deliver in Uganda should be considered prior to scaling up their use.

Implementation considerations

Summary

- *Implementing changes in the roles of health workers requires other health system changes. It is also an opportunity to address other health system problems.*
- *Enablers of expanding health workers' roles to deliver effective MCH care include:
The policy environment in Uganda is supportive of task shifting, with political support and commitment of the Ministry of Health
There is widespread support for improving MCH care
Demand for care is unmet and there is a shortage and uneven distribution of health professionals
Health facilities are widely available and the hierarchical organisation of the health system provides a structure for delegating tasks to less specialised health workers, referring patients who need more specialised care, and providing supportive supervision
Mothers feel more comfortable with health workers with less training and people in rural areas prefer free public health services that are close to home
There is international support for task shifting
Successful task shifting is already occurring in Uganda and internationally*
- *At the same time, implementation strategies are needed to effectively address barriers to all four options described in this policy brief, including:
Developing a clear policy to ensure optimal use of health workers based on which cadres can deliver cost-effective MCH interventions efficiently and equitably, and costing studies
Outreach by community health workers and drug dispensers, community mobilisation, mass media campaigns and the reduction or elimination of out of pocket costs to promote appropriate care seeking behaviour and use of health services
Educational meetings, outreach visits, audit and feedback to improve health workers' and managers' knowledge and competency, and to improve referrals
Other strategies to improve referral processes, including:
 - *Strategies to implement referral guidelines such as structured referral sheets and the use of financial incentives to motivate appropriate referrals*
 - *Reduction or elimination of out-of-pocket costs, which may deter patients from completing referrals*
 - *Community referral and transport schemes*Adequate payment, pay for performance, and non-financial or material incentives to motivate health workers*
- *Monitoring and rigorous evaluation of the impacts of task shifting policies are warranted in light of important uncertainties regarding all of the policy options and implementation strategies discussed in this policy brief.*

Optimizing the role of health workers is just one solution to improving the delivery of maternal and child health care and addressing other health system challenges. Implementing changes in the roles of health workers requires other changes. It is also an opportunity to address other health system problems. Implementation strategies can capitalise on enablers of optimising health workers' roles as well as addressing barriers to doing so. The focus here is primarily on barriers and strategies to address them.

A process is already underway to develop a policy and guidelines for task shifting in Uganda.³¹ Other enablers of optimising health workers' roles to deliver effective maternal and child health care include:

- There is widespread support for improving maternal and child health care
- Demand for care is unmet and there is a shortage and uneven distribution of health professionals
- Health facilities are widely available and the hierarchical organisation of the health system provides a structure for delegating tasks to less specialised health workers, referring patients who need more specialised care, and providing supportive supervision
- Mothers feel more comfortable with health workers with less training and people in rural areas prefer free public health services that are close to home
- There is international support for task shifting
- Successful task shifting is already occurring in Uganda and internationally

Evidence regarding barriers to expanding the use of health workers and strategies to address them is summarised in Table 10.

Table 10. Key barriers to optimising the roles of health workers and implementation strategies

Barrier	Mothers' knowledge and care seeking behaviour	
	Distance to service points, perceived quality of care and availability of drugs are key determinants of utilisation of health services provided by all cadres of health workers. Other barriers include a perceived lack of skilled staff in public facilities and lack of knowledge. ^{59,60,61}	
	Mothers tend to trust that health workers are appropriately trained and competent, and to be more content with nearby providers. ⁶² In many cases, especially in the rural areas, they may not even be aware of which cadre of health worker is attending to them. ^{63,64,65}	
	There is a general perception that services are of low quality in the public sector, with chronic gaps such as shortages of essential supplies, particularly in urban areas. ⁵⁹ In more rural areas people tend to be keen to utilize free public health services. ⁶⁶	
	<i>Implementation strategies</i>	<i>Evidence</i>
	<p>Outreach by CHWs and drug dispensers</p> <p>CHWs and drug dispensers can be used to teach mothers and promote appropriate use of health services.</p>	<p>The results of three randomised trials suggest that lay health workers may increase the likelihood of seeking care. However, the evidence is of low quality, due to a wide confidence interval that includes no effect and unexplained differences in their effectiveness across the three trials.³⁶ Cost data are not available, but would include the cost of training, supervision, incentives, and increased use of health services. More appropriate use of services and fewer complications, on the other hand, could result in savings.</p>
	<p>Community mobilisation</p> <p>Community mobilisation may include active community participation, contextualization of information in the local customs and culture, involvement of a broad range of key stakeholders, home visitation and peer counselling.</p>	<p>There is moderate quality evidence that community mobilisation probably increases demand for skilled obstetric care and institutional births. More intensive and participatory mobilisation strategies may be more effect. Limited cost data suggest that the cost of community mobilisation programmes may vary between 1 and 6 USD per person.⁶⁷</p>
	<p>Mass media campaigns</p> <p>Mass media information on health-related issues may induce changes in health services utilisation, both through planned campaigns and unplanned coverage.</p>	<p>There is low quality evidence from interrupted time series analyses that mass media interventions may have an important role in influencing the use of health care interventions.⁶⁸</p>

Patient education materials

A wide range of patient education materials can be used to inform mothers about health care.

Overall there is insufficient evidence to support the use of interventions that provide information or education as a single component to improve adherence, knowledge or clinical outcomes - they are generally ineffective. However, there is some evidence that interventions including a patient education or information component in conjunction with other interventions can improve immunisation rates and adherence.⁶⁹

Reduction or elimination of out-of-pocket costs

User fees may be reduced or removed completely for some or all women and children and for some or all types of MCH care.

Other ways of reducing or eliminating out of pocket costs include voucher schemes, community-based health insurance schemes, community loans for emergency transport and care, and conditional cash transfers (payments conditional on utilisation of services such as immunisations or prenatal care).

The elimination of user fees and other financial schemes to remove financial barriers may increase coverage rates of skilled birth attendance and the use of other services. However, strategies to increase demand for services need to be accompanied by actions to ensure the supply side can cope with the increased demand.^{67,70} Utilization among the poor increased much more rapidly after the abolition of fees than beforehand.

Utilisation increased when all fees at first level government health facilities in Uganda were removed in 2001. However, the incidence of catastrophic health expenditure among the poor did not fall. The most likely explanation is that frequent unavailability of drugs at government facilities after 2001 forced patients to purchase from private pharmacies. Informal payments to health workers may also have increased to offset the lost revenue from fees.⁷¹

Conditional cash transfer programmes can increase in the use of health services, including prenatal care and institutional delivery. They have had mixed effects on immunisation coverage. The cost-effectiveness of conditional cash transfer programmes, compared with supply-side strategies and other policy options, has not been evaluated.^{67,72}

Community-based health insurance schemes may increase institutional delivery rates when obstetric care is included in the insurance package, as well as the use of other services. However, the financial viability of small-scale programs may be tenuous and uptake may be inequitable. National health financing strategies may be more sustainable.^{67,73}

Health workers' knowledge and competency

Barrier

Additional training is required for all cadres of health workers to ensure appropriate delivery of cost-effective interventions, such as those listed in Appendix 2.^{59,61,74,75,76,77} Over 60% of institutions for training health workers do not have adequate infrastructure and buildings. There is a critical shortage of tutors in health training institutions due to inadequate tutor training and non-appointment of qualified tutors.⁷⁸

The Ministry of Health has the authority to ensure the quality of continuing education and has addressed this in its strategic plan and in policy guidelines. However, it is not clear whether it has the necessary resources to ensure adequate continuing education for expanding the use of each cadre of health workers or who is accountable for ensuring adequate continuing education.

Implementation strategies

Evidence

Educational meetings, outreach visits, audit and feedback

Educational meetings (training workshops), educational outreach (a personal visit by a trained person to health workers in their own settings) and audit and feedback (a summary of performance over a specified period of time given in a written or verbal format) can be used alone or in combination with each other and other interventions to improve health worker practice.

Educational meetings alone or combined with other interventions, can improve health worker performance. The effect is most likely to be similar to other types of continuing medical education, such as audit and feedback, and educational outreach visits. Strategies to increase attendance at educational meetings and using mixed interactive and didactic formats may increase the effectiveness of educational meetings. Multifaceted interventions may not be any more effective than educational meetings, outreach visits or audit and feedback alone.^{79,80,81,82,83,84}

Incentives for health workers

Ugandan health workers are dissatisfied with their jobs, especially their compensation.⁸⁵ On average midwives earn between USD 75 (Ush 150,000) and USD 125 (Ush 250,000) per month. Salaries have increased little despite increasing costs of living. A registered nurse is paid about USD 200 (Ush 400,000), which is far below what they are paid in other countries. An enrolled nurse earns USD 135 (Ush 270,000) and lower cadres about USD 115 (Ush 230,000). Health workers in government facilities earn less than those working with projects. This draws health workers away from government facilities that are already understaffed.⁸⁶ Health workers also often have poor living conditions with inadequate housing and lack of social amenities, particularly in rural areas.¹⁸ Non-material incentives are also often lacking.

Implementation strategies

Adequate payment

Health workers can be paid in any of the following ways or combinations of these: salary (a lump sum for a set number of working hours or sessions per week), capitation (a payment per patient), fee-for-service (payment for each item of service or unit of care).

Payment in kind (material incentives) includes, for example, housing, transport, childcare facilities, free food and employee support.

Evidence

Adequate payment is essential to motivate health professionals and may be necessary for lay health workers if they are expected to use a substantial amount of time.

There is some evidence that primary care physicians in high-income countries provide a greater quantity of primary care services under fee for service payment compared with capitation and salary, although long-term effects are unclear. There is no evidence, however, concerning other important outcomes or comparing the relative impact of salary versus capitation payment.⁸⁷

There is low quality evidence that financial incentives may increase retention of CHWs, but can cause problems if the money is not be enough, is not be paid regularly, or stops altogether. Monetary incentives may also cause problems among health workers who are paid and not paid. Payment in kind (material incentives) may also increase retention with fewer problems.⁸⁸

Although non-financial material incentive schemes are widely used, the design, implementation and evaluation of these schemes has not been systematically documented.⁸⁹

Pay for performance

Pay-for-performance refers to the transfer of money or material goods conditional on taking a measurable action or achieving a predetermined performance target.

There is limited evidence of the effectiveness of pay for performance and almost no evidence of the cost-effectiveness of pay for performance. Based on the available evidence and likely mechanisms through which financial incentives work, they are more likely to influence discrete individual behaviours in the short run and less likely to create sustained changes. If not carefully designed, pay for performance can have undesirable effects, including motivating unintended behaviours, distortions (ignoring important tasks that are not rewarded with incentives), gaming (improving or cheating on reporting rather than improving performance), and dependency on financial incentives.⁹⁰

Non-material incentives

Non-material incentives include, for example, community recognition, peers support, and acquisition of valuable skills (and the prospect of future employment).

There is low quality evidence that non-material factors may help to motivate CHWs.⁸⁸ Health professionals can also be motivated by non-material incentives.⁹⁰

Financial incentives, career development and management issues are core factors for motivating and retaining health workers. However, financial incentives alone are not enough to motivate health workers. Recognition is highly influential in health worker motivation and adequate resources and appropriate infrastructure can improve morale significantly.⁹¹

Referral processes and transportation

Because resources are limited, only more accessible health facilities tend to receive supervision visits, and only a few times per year. Furthermore, a top-down, control-oriented approach mostly focuses on collecting data without addressing local staff's performance needs.⁹² In addition, many health workers fear supervision, mainly due to perceived or real misuse of authority by supervisors. In Uganda, one out of four interviewed health workers reported physical, verbal or emotional abuse from their supervisors.⁹³ Local leaders are responsible for supervising and monitoring the activities of civil servants. However, these accountability mechanisms have been found to be lacking.⁹⁴

Barrier

Reporting of health information data in Uganda is done through district health offices that collect and summarise data from sub-districts and over 2,000 health facilities; including government and private not-for profit units. Reporting from private practitioners has been very difficult as there has been no sustainable motivation for them to report and therefore information on the patients they administer is in most cases not included in the health management information system. Computerisation of the HMIS in Uganda has been a slow process due to financial and technical limitations.⁹⁵

Health workers in private practice have disincentives for referring, leading to under-referral and late referrals. TBAs also often fail to refer or refer late. On the other hand, health workers in public units have incentives to over-refer. Patients often do not complete referrals due to lack of money, transportation problems, and responsibilities at home.^{59,96} Ambulance service is limited, misused and unfairly distributed.

Implementation strategies

Evidence

Strategies to implement referral guidelines

Strategies to implement referral guidelines include passive dissemination, educational activities, structured referral sheets and the use of financial incentives.

Low to moderate quality evidence suggests that passive dissemination of referral guidelines alone is unlikely to lead to improvements in referral practice. Guidelines for appropriate referral are more likely to be effective if local consultants (more specialised health workers to which patients are referred) are involved in educational activities and structured referral sheets are used. Financial interventions can change referral rates but their effect on the appropriateness of referral is uncertain.⁹⁷

Educational meetings, outreach visits, audit and feedback

Educational meetings, educational outreach and audit and feedback (as described above) can be used alone or in combination with each other and other interventions to improve referrals.

See evidence above.

Pay for performance

Pay-for-performance (as described above) can be used to motivate appropriate referrals.

See evidence above.

Reduction or elimination of out-of-pocket costs

User fees may be reduced or removed completely for some or all women and children and for some or all types of referrals. Other ways of reducing or eliminating out of pocket costs for referrals include voucher schemes, community health insurance schemes, community loans for emergency transport and care, and conditional cash transfers (e.g. for delivery at a facility with skilled birth attendance).

The elimination of user fees and other financial schemes to remove financial barriers may increase completion of referrals (see above).⁶⁷

Community referral and transport schemes

Schemes that are used vary widely and may include paying for travel costs, establishing a transportation plan, and providing various means of transportation, including canoes, loan of a truck, and ambulance transport using bicycles, motorcycles or 4-wheel drive vehicles. Establishing effective communication between primary and referral level facilities is a key component of transport systems.

Community referral and transport schemes may increase rates of facility delivery, reduce referral time, and improve access to emergency obstetric care for women with obstetric complications. Challenges include the high cost of vehicles and maintenance, establishing effective communication systems in remote settings, maintaining driver coverage, and sustainability within a resource-constrained health system.⁶⁷

A clear policy is needed to ensure optimal use of health workers. This should be based on which cadres can deliver cost-effective MCH interventions efficiently and equitably. Costing studies are needed to inform the policy and decisions about how to implement it.

Expanding the roles of less specialised health workers (task shifting) is unlikely to successfully address the health workforce shortage, inequitable distribution of health workers, poor performance or inefficient use of health workers in the absence of a comprehensive policy, including appropriate governance and financial arrangements to support task shifting, and effective implementation strategies.

Monitoring and rigorous evaluation of the impacts of task shifting policies are warranted in light of important uncertainties regarding all of the policy options and implementation strategies discussed in this policy brief.

Appendices

Appendix 1. How this policy brief was prepared

The methods used to prepare this policy brief are described in detail elsewhere.^{98,99,100}

The problem that the policy brief addresses was clarified iteratively through discussion among the authors, review of relevant documents and research, discussion with the REACH, Uganda Task Shifting Working Group and external review of a preliminary description of the problem. Research describing the size and causes of the problem was identified by reviewing government documents, routinely collected data, searching PubMed and Google Scholar, through contact with key informants, and by reviewing the reference lists of relevant documents that were retrieved.

Strategies used to identify potential options to address the problem included considering interventions described in systematic reviews and other relevant documents, considering ways in which other jurisdictions have addressed the problem, consulting key informants and brainstorming.

We searched electronic databases of systematic reviews, including: the Program in Policy Decision-Making / Canadian Cochrane Network and Centre (PPD/CCNC) database of systematic reviews of the effects of delivery, financial and governance arrangements (<http://www.researchtopolicy.ca/search/reviews.aspx>) and the Canadian Agency for drugs and Technologies in Health (CADTH) Rx for Change database (<http://www.cadth.ca/index.php/en/compus/optimal-ther-resources/interventions>). These databases include records of policy-relevant systematic reviews that were identified through electronic searches of MEDLINE, the Cochrane Database of Systematic Reviews (CDSR), the Database of Abstracts of Reviews of Effectiveness (DARE) and EMBASE.

We supplemented these searches by checking the reference lists of relevant policy documents and with focused searches using PubMed, The Cochrane Library, Google Scholar, ISI Web of Science, and personal contacts to identify systematic reviews for specific topics. The final selection of reviews for inclusion was based on a consensus of the authors.

One of the authors summarised each included review using an approach developed by the Supporting the Use of Research Evidence (SURE) in African Health Systems project (www.evipnet.org/sure).⁹⁹ We extracted the key findings of each review, assessed the quality of the evidence, and summarised important information regarding the interventions, participants, settings and outcomes; and considerations of applicability, equity, economic consequences, and the need for monitoring and evaluation. The quality of the evidence was assessed based on the GRADE approach and the key findings were expressed consistently so as to reflect the quality of evidence, using the approach developed for Cochrane plain language summaries.⁹⁹

Potential barriers to implementing the policy options were identified by brainstorming using a detailed checklist of potential barriers to implementing health policies.¹⁰⁰ We searched for evidence of potential barriers that were identified using PubMed, Google Scholar, key

informants and reviewing the reference lists of relevant documents that were retrieved. Implementation strategies that address identified barriers were identified by brainstorming and reviewing relevant documents. Systematic reviews of relevant implementation strategies were identified using the databases listed above for finding reviews of the policy options. This evidence was summarised using the same approach as described above, but without undertaking detailed assessments of the quality of the evidence or data extraction.

Drafts of each section of the report were discussed with the REACH, Uganda Task Shifting Working Group. External review of a draft version was managed by the authors. Comments provided by the external reviewers and the authors' responses are available from the authors. A list of the people who provided comments or contributed to this policy brief in other ways is provided in the acknowledgements.

Appendix 2. Potential for different cadre of primary care health workers to deliver cost-effective maternal and child health services

(Adapted from Bhutta 2008)¹³

	Reasons for inclusion			Potential for delivery by					
	Effectiveness (Strength of evidence)	Cost-effectiveness (International US\$ per DALY averted)	Strength of evidence of benefit in primary care	LHWs with limited training [†]	Trained LHWs [†]	Midwives [†]	Nurses or clinical officers [†]	Drug dispensers [†]	
Promotional interventions									
Promotion of reproductive health and family planning	Strong	48–1000	Strong	+	++	++	++		
Promotion of appropriate care seeking and antenatal care during pregnancy	Moderate	15–47	Strong	++	++	++	++	+	
Promotion of skilled care for childbirth	Strong	48–1000	Strong	++	++	++	++	+	
Exclusive breastfeeding advice and support	Strong	15–47	Strong	++	++	++	++	+	
Preventive interventions									
Provision/availability of contraceptives for birth spacing and safe sex	Strong	15–47	Strong	+	++	+	++	..	
Cord care and clean delivery kits	Strong	15–47	Strong	++	++	++	++	+	
Iron folate supplementation during pregnancy	Moderate	15–47	Plausible*	+	+	+	++	+	
Balanced protein-energy supplements during pregnancy in food-insecure populations	Strong	>1000	Plausible*	+	+	..	+	..	
Calcium supplementation for PIH	Moderate	15–47	Plausible*	+	++	++	++	..	
Low-dose aspirin in pregnancy for at-risk women	Strong	15–47	Plausible*	+	++	++	++	..	
Antiretrovirals in HIV-infected individuals and PMTCT	Strong	48–1000	Strong	..	+	+	++	+	
Antibiotics for preterm rupture of membranes	Strong	>1000	Plausible*	..	++	++	++	..	
Antenatal steroids in preterm labour	Strong	>1000	Plausible*	..	+	++	++	..	
EPI (including additional new vaccines Hib, pneumococcal and rotavirus vaccines)	Strong	48–1000	Strong	++	++	
Vitamin A supplementation in children	Strong	15–47	Strong	+	++	+	++	+	

	Reasons for inclusion				Potential for delivery by					
	Effectiveness (Strength of evidence)	Cost-effectiveness (International US\$ per DALY averted)	Strength of evidence of benefit in primary care	LHWs with limited training†	Trained LHWs†	Midwives†	Nurses or clinical officers†	Drug dispensers†		
Preventive zinc supplementation/fortification for children	Strong	48–1000	Strong	+	++	+	++	+		
Insecticide-treated bednets for the family	Strong	15–47	Strong	+	++	+	+	+		
IPT for prevention of malaria in pregnancy and children with IPT	Strong	15–47	Strong	+	++	++	++	+		
Treatment interventions										
Promotion and use of skilled birth attendants in first-level and second-level facilities	Moderate	15–47	Plausible*	+	++	++	++	+		
Interventions for prevention of post-partum haemorrhage and use of oxytocic agents	Strong	48–1000	Plausible*	+	+	++	++	..		
Basic newborn resuscitation with self-inflatable bag and mask	Moderate	15–47	Plausible*	..	+	++	++	..		
Improved diarrhoea management (zinc and ORT etc)	Strong	48–1000	Strong	++	++	+	++	++		
Community detection and management of pneumonia with short course amoxicillin	Strong	48–1000	Strong	..	+	+	++	++		
Improved case management of malaria including ACTs	Strong	48–1000	Strong	+	++	+	++	++		
Recognition, triage and treatment of severe acute malnutrition in affected children in community settings	Strong	>1000	Strong	+	+	+	++	++		

* Promising evidence of benefit in primary care; further evaluation needed

† ++=principal responsibility for the intervention; +=additional task (opportunity)

PIH=pregnancy-induced hypertension. PMTCT=prevention of mother to child transmission. EPI=expanded programme for immunisation. IPT=intermittent preventive treatment for malaria. ORT=oral rehydration therapy. ACT=artemesin combination therapy

Glossary, acronyms and abbreviations

ACTs - artemisinin-based combination therapies

ADDO - Accredited Drug Dispensing Outlet

AIDS – acquired immunodeficiency syndrome

ART - antiretroviral therapy

CHW - community health workers

EVIPNet - Evidence-Informed Policy Network (www.evipnet.org)

GRADE (Grading of Recommendations Assessment, Development and Evaluation) – a system for rating the quality of evidence and the strength of recommendations (www.gradeworkinggroup.org).

HIV – human immunodeficiency virus

LHW – lay health worker

MCH - maternal and child health

MDGs - Millennium Development Goals

Task shifting - a process of delegation whereby tasks are moved, where appropriate, to less specialized health workers

REACH - Regional East African Community Health (REACH) Policy Initiative (www.eac.int/health)

SURE – Supporting the Use of Research Evidence (SURE) in African Health Systems (www.evipnet.org/sure)

TBA – traditional birth attendant

UK – United Kingdom

UNICEF – United Nations Children’s Fund

USA – United States of America

USD – United States dollars

Ush – Uganda shillings

VHT - village health team

WHO - World Health Organization

References

- ¹ Mulrow 1994. Mulrow CD. Rationale for systematic reviews. *BMJ* 1994; 309:597-9.
- ² Bero 1997. Bero LA, Jadad AR. How consumers and policymakers can use systematic reviews for decision making. *Ann Intern Med* 1997; 127:37-42.
- ³ Lavis JN, Posada FB, Haines A, Osei E: Use of research to inform public policymaking. *Lancet* 2004; 364:1615-21.
- ⁴ Oxman AD, Bjørndal A, Becerra-Posada F, Gibson M, Gonzalez Block MA, Haines A, et al. A framework for mandatory impact evaluation to ensure well informed public policy decisions. *Lancet*. 2010; 375:427–31.
- ⁵ Moynihan R, Oxman AD, Lavis JN, Paulsen E. Evidence-Informed Health Policy: Using Research to Make Health Systems Healthier. Rapport Nr 1-2008. Oslo: Nasjonalt kunnskapssenter for helsetjenesten, 2008.
- ⁶ World Health Organization (WHO). First Global Conference on Task Shifting. Geneva: WHO, 2008. Retrieved December 10, 2009 from http://www.who.int/healthsystems/task_shifting/en/.
- ⁷ World Health Organization (WHO). Taking stock: Task shifting to tackle health worker shortages. Geneva: WHO, 2008. Retrieved December 10, 2009 from http://www.who.int/healthsystems/task_shifting/en/
- ⁸ World Health Organization (WHO). Task Shifting: Global Recommendations and Guidelines. Geneva: WHO, 2008. Retrieved December 10, 2009 from http://www.who.int/healthsystems/task_shifting/en/
- ⁹ Lutwama JJ, Mubiru C. Priority Health Policy and System Challenges (2008-2010). Uganda National Health Research Organisation, Entebbe, Uganda, 2008.
- ¹⁰ Ministry of Health. Health Sector Strategic Plan II 2005/6 – 2009/10. Kampala: Ministry of Health, 2005.
- ¹¹ UN Millenium Project Website. Retrieved December 3, 2009 from <http://www.unmillenniumproject.org/goals/gti.htm#goal4>
- ¹² UNICEF Website. Retrieved November 12, 2009 from http://www.unicef.org/infobycountry/uganda_statistics.html
- ¹³ Bhutta ZA, Ali S, Cousens S, Ali TM, et al. Interventions to address maternal, newborn, and child survival: What difference can integrated primary health care strategies make? *The Lancet* 2008; 372:972-89.
- ¹⁴ Uganda Demographic and Health Survey (2006). Kampala: Uganda Bureau of Statistics, 2006.
- ¹⁵ Uganda Bureau of Statistics. Uganda Population and Housing Census. Main Report. Kampala: Uganda Bureau of Statistics, 2002.
- ¹⁶ Ministry of Health. Uganda Human Resources for Health Policy. Kampala: Ministry of Health, 2006.

-
- ¹⁷ World Health Organization (WHO). The World Health Report: Working together for health. Geneva: WHO, 2006. <http://www.who.int/whr/2006/en>
- ¹⁸ Ministry of Health. Report: Uganda Health Workforce: Satisfaction and Intent to Stay among Current Health Workers. Kampala: Ministry of Health, 2009.
- ¹⁹ Huicho L, Scherpbier RW, Nkowane MA, et al., (2008). How much does quality of child care vary between health workers with differing durations of training? An observational multicountry study. *The Lancet* 2008; 372:910-6.
- ²⁰ Pariyo GW, Gouws E, Bryce J, Burnham G, et al. Improving facility-based care for sick children in Uganda: training is not enough. *Health Policy and Planning* 2005; 20:Suppl 1:158-68.
- ²¹ Ndyomugenyi R, Neema S, Magnussen P. The use of formal and informal services for antenatal care and malaria treatment in rural Uganda. *Health Policy and Planning* 1998; 13:94-102.
- ²² Ministry of Health. National Health Policy. Kampala: Ministry of Health, 1999.
- ²³ Ministry of Health, Health Sector Strategic Plan II, 2005/06 – 2009/2010 Volume I, Kampala: Ministry of Health, 2005.
- ²⁴ Ministry of Health. Uganda Human Resources for Health Strategic Plan, 2005 – 2020. Kampala: Ministry of Health, June 2007.
- ²⁵ Kintu P, Nanyunja M, Nzabanita A, Magoola R. Development of HMIS in poor countries: Uganda as a case study. *Health Policy and Development Journal* 2005; 3:46-53.
- ²⁶ Hagopian A, Zuyderduin A, Kyobutungi N, Yumkella F. Job satisfaction and morale in the Ugandan health workforce. *Health Affairs* 2009; 28:w863-75.
- ²⁷ Mugisha JF. Unrest over health sector remuneration: What is the problem? *Health Policy and Development*. 2003; 1:1-20.
- ²⁸ Benavides BM. Supporting Health worker performance with effective supervision. CapacityProject knowledge sharing legacy series 2009; (9). http://www.capacityproject.org/images/stories/files/legacyseries_9.pdf
- ²⁹ McQuide P, Kiwanuka-Mukiibi P, Zuyerdun A, Isabiryie C. Uganda health workforce study: satisfaction and intent to stay among health workers in public and PFP facilities. Presented at First Global Forum on Human Resources for Health; 2-7 Mar 2008; Kampala, Uganda. Available at: http://www.who.int/workforcealliance/forum/presentations/Pamela_Mc_QuideA.pdf
- ³⁰ Golooba-Mutebi F. When popular participation won't improve service provision: primary health care in Uganda. *Development Policy Review* 2005; 23: 165-82.
- ³¹ Dambisya YM. Task Shifting in Uganda: Case Study. Washington, DC: Futures Group, Health Policy Initiative, Task Order 1, 2010.
- ³² Hongoro C, McPake B. How to bridge the gap in human resources for health. *Lancet* 2004; 364:1451-6.
- ³³ World Health Organization (WHO). Task Shifting to Tackle Human Resource Shortages. Geneva: WHO, 2007. Available at http://www.who.int/healthsystems/task_shifting_booklet.pdf

-
- ³⁴ World Health Organization (WHO). Task shifting: rational redistribution of tasks among health workforce teams. Global recommendations and guidelines. Geneva: WHO, 2007. Available at http://www.who.int/healthsystems/task_shifting/en/
- ³⁵ World Health Organization (WHO). Traditional birth attendants: another disappointment. In: WHO. The World health report 2005. Make every mother and child count. Geneva: WHO, 2005.
- ³⁶ Lewin S, Munabi-Babigumira S, Glenton C, Daniels K, Bosch-Capblanch X, van Wyk BE, Odgaard-Jensen J, Johansen M, Aja GN, Zwarenstein M, Scheel IB. Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases. *Cochrane Database of Systematic Reviews* 2010, Issue 3. Art. No.: CD004015. DOI: 10.1002/14651858.CD004015.pub3.
- ³⁷ Källander K, Tomson G, Nsabagasani X, Sabiiti JN, Pariyo G, Peterson S. Can community health workers and caretakers recognise pneumonia in children? Experiences from western Uganda. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 2006; 100:956-63.
- ³⁸ Stanback J, Mbonye AK, Bekiita M. Contraceptive injections by community health workers in Uganda: a nonrandomized community trial. *Bulletin of the World Health Organization* 2007; 85:768-73.
- ³⁹ Balaba D, Judi A, King R, Kyeyune P, Kasolo S; International Conference on AIDS (15th: 2004: Bangkok, Thailand). *Int Conf AIDS*. 2004 Jul 11-16; 15: abstract no. E12118.
- ⁴⁰ Chalo R, Salihu H, Nabukera S, Zirabamuzaale C. Referral of high-risk pregnant mothers by trained traditional birth attendants in Buikwe County, Mukono District, Uganda. *Journal of Obstetrics and Gynaecology* 2005; 25:554-7.
- ⁴¹ Deutsche Presse Agentur (July 2, 2008) Interviews with Hon. Emmanuel Otaala, Minister of State for Health, Uganda; Hyun Chulho, UNICEF Spokesperson in Kampala and; Musanje Kyabaggu, Secretary General, National Traditional Healers and Herbalist Association (Uganda). Retrieved March 5, 2010 from http://www.monstersandcritics.com/news/health/features/article_1414461.php/Ugandan_women_shunning_hospitals_to_give_birth_traditionally#ixzz0hIR469vQ
- ⁴² World Health Organization (WHO). Traditional birth attendants: A joint WHO/UNICEF/UNFPA statement. Geneva: WHO, 1992.
- ⁴³ Sibley L, Sipe TA, Koblinsky M. Does TBA training increase use of professional antenatal care services: a review of the evidence. *Journal of Midwifery and Women's Health* 2004; 49:298-305.
- ⁴⁴ Darmstadt GL, Lee ACC, Cousens S, Sibley L, et al. 60 million non-facility births: Who can deliver in community settings to reduce intrapartum-related deaths? *International Journal of Gynecology and Obstetrics* 2009; 107:S89-112.
- ⁴⁵ Corluka A, Walker DG, Lewin S, Glenton C, et al. Are vaccination programmes delivered by lay health workers cost-effective? A systematic review. *Human Resources for Health* 2009; 7:81 doi:10.1186/1478-4491-7-81.

-
- ⁴⁶ Roberts E. Nursing in Uganda: My Summer of Unexpected Discoveries. *Inquiry Journal*, Spring 2008; 4. Retrieved March 8, 2010 from <http://www.unh.edu/inquiryjournal/o8/articles/roberts.html>
- ⁴⁷ Buchan J, Dal Puz MR. Skill mix in the health care workforce: reviewing the evidence. *Bulletin of the World Health Organization* 2002; 80:575-80.
- ⁴⁸ Crossan F, Ferguson D. Exploring nursing skill mix: a review. *Journal of Nursing Management* 2005; 13:356-62.
- ⁴⁹ Hofmeyr GJ, Haws RA, Bergström S, Lee ACC, et al. Obstetric care in low-resource settings: What, who, and how to overcome challenges to scale up? *International Journal of Gynecology and Obstetrics* 2009; 107:S21-45.
- ⁵⁰ Banerjee S, Faiz O, Rennie JA, Balyejjusa J, Walsh . Bridging the health gap in Uganda: the surgical role of the clinical officer. *African Health Science* 2005; 5:86-89.
- ⁵¹ Pebody R. Clinical officers and nurses make similar decisions to physicians on starting antiretroviral therapy in rural Uganda. *IAS News*. September 3, 2009. <http://www.aidsmap.com/en/news/378D202E-DB36-48E2-BC62-9238C8E97C82.asp>
- ⁵² Laurant M, Reeves D, Hermens R, Braspenning J, Grol R, Sibbald B. Substitution of doctors by nurses in primary care. *Cochrane Database of Systematic Reviews*, Issue 4. Art.No. CD001271.
- ⁵³ Hatem M, Sandall J, Devane D, Soltani H, Gates S. Midwife-led versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews*, Issue 4. Art. No.: CD004667.
- ⁵⁴ Horrocks S, Anderson E, Salisbury C. Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *BMJ*; 324:819-23.
- ⁵⁵ Dovlo D. Using mid-level cadres as substitutes for internationally mobile health professionals in Africa. A desk review. *Human Resources for Health* 2004, 2:7 doi:10.1186/1478-4491-2-7
- ⁵⁶ Rutta E, Johnson K, Embrey M. Using accreditation and regulation to improve dispensing and use of medicines in retail drug shops. Center for Pharmaceutical Management, Management Sciences for Health. Retrieved March 9, 2010 from <http://www.cgdev.org/content/general/detail/1422619/re>
- ⁵⁷ Smith F. The quality of private pharmacy services in low and middle-income countries: a systematic review. *Pharm World Sci* 31:351-361. DOI 10.1007/s11096-009-9294-z
- ⁵⁸ Beney J, Bero LA, Bond C. Expanding the roles of outpatient pharmacists: effects on health services utilisation, costs, and patient outcomes. *Cochrane Database of Systematic Reviews* 2000, Issue 2.
- ⁵⁹ Kiwanukaa SN, Ekirapaa EK, Peterson S, Okuia O, Rahmanc MH, Petersc D, Pariyo GW. Access to and utilisation of health services for the poor in Uganda: a systematic review of available evidence. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 2008; 102:1067-74.
- ⁶⁰ Okong P, Byamugisha J, Mirembe F, Byaruhanga R, Bergstrom S. *Acta Obstetrica et Gynecologica Scandinavica* 2006; 85:797-804.

-
- ⁶¹ Waiswa P, Kemigisa M, Kiguli J, Naikoba S, Pariyo GW, Peterson S. Acceptability of evidence-based neonatal care practices in rural Uganda – implications for programming. *BMC Pregnancy and Childbirth* 2008; 8:21.
- ⁶² Hildenwall H, Tomson G, Kaija J, Pariyo G, Peterson S. "I never had the money for blood testing" – Caretakers' experiences of care-seeking for fatal childhood fevers in rural Uganda – a mixed methods study. *BMC International Health and Human Rights* 2008, 8:12.
- ⁶³ Nabukera SK, Witte K, Muchunguzi C, Bajunirwe F, Batwala VK, Mulogo EM, et al. Use of postpartum health services in rural Uganda: knowledge, attitudes, and barriers. *Journal of Community Health*. 2006 April 2006;31(2):84-93.
- ⁶⁴ Uganda National Health Users/Consumers' Organization. UNHCO Baseline Survey on Patients' Rights. Kampala: UNHCO, August 2002.
- ⁶⁵ Kiguli J, Ekirapa-Kiracho E, Okui O, Mutebi A, MacGregor H, Pariyo GW. Increasing access to quality health care for the poor: Community perceptions on quality care in Uganda. *Patient Preference and Adherence*. 2009; 3:77-85.
- ⁶⁶ Bakeera SK, Wamala SP, Galea S, State A, Peterson S, Pariyo GW. Community perceptions and factors influencing utilization of health services in Uganda. *International Journal for Equity in Health*. 2009;8(25).
- ⁶⁷ Lee ACC, Lawn JE, Cousens S, Kumar V, Osrin D, Bhutta ZA, et al. Darmstadt Intrapartum-related deaths: evidence for action 4: Linking families and facilities for care at birth: What works to avert intrapartum-related deaths? *International Journal of Gynecology and Obstetrics* 2009; 107:S65–S88.
- ⁶⁸ Grilli R, Ramsay C, Minozzi S. Mass media interventions: effects on health services utilisation. *Cochrane Database of Systematic Reviews* 2002, Issue 1. Art. No.: CD000389. DOI: 10.1002/14651858.CD000389.
- ⁶⁹ Canadian Agency for Drugs and Technologies in Health (CADTH). Consumer intervention: Providing information or education. CADTH Rx for Change, 2010. (based on an overview of systematic reviews) <http://www.cadth.ca/index.php/en/compus/optimal-ther-resources/interventions/intervention?id=35>
- ⁷⁰ Lagarde M, Palmer N. The impact of user fees on health service utilization in low- and middle-income countries: how strong is the evidence? *Bull World Health Organ* 2008; 86(11) doi: 10.1590/S0042-96862008001100013. http://www.scielosp.org/scielo.php?pid=S0042-96862008001100013&script=sci_arttext&tlng=en
- ⁷¹ Xu K, Evans DB, Kadama P, Nabyonga J, Ogwang Ogwal P, Nabukhonzo P, et al. Understanding the impact of eliminating user fees: Utilization and catastrophic health expenditures in Uganda. *Social Science & Medicine* 2006; 62:866-76.
- ⁷² Lagarde M, Haines A, Palmer N. Conditional cash transfers for improving uptake of health interventions in low and middle-income countries: a systematic review. *JAMA* 2007; 298:1900-10.

-
- ⁷³ Lagaarde M, Palmer N. Evidence from systematic reviews to inform decision making regarding financing mechanisms that improve access to health services for poor people. A policy brief prepared for the International Dialogue on Evidence-Informed Action to Achieve Health Goals in Developing Countries (IDEAHealth). Geneva: Alliance for Health Policy and Systems Research, 2006. <http://www.who.int/rpc/meetings/HealthFinancingBrief.pdf>
- ⁷⁴ Kaye D. Quality of midwifery care in Soroti district, Uganda, *East African Medical Journal* 2000; 77:558–61.
- ⁷⁵ Källander K, Nsungwa-Sabiiti J, Balyeku A, Pariyo G, Tomson G, Peterson S. Home and community management of acute respiratory infections in children in eight Ugandan districts. *Annals of Tropical Paediatrics: International Child Health* 2005; 25:283-91.
- ⁷⁶ Källander K, Tomson G, Nsungwa-Sabiiti J, Senyonjo Y, Pariyo G, Peterson S. Community referral in home management of malaria in western Uganda: A case series study. *BMC International Health and Human Rights* 2006; 6(2).
- ⁷⁷ Nankabirwa J , Zurovac D, Njogu JN , Rwakimari JB, Counihan H, Snow RW, Tibenderana JK. Malaria misdiagnosis in Uganda - implications for policy change. *Malaria Journal* 2009; 8(66).
- ⁷⁸ Ministry of Health. Tracking Human Resource and Wage Bill Management in the Health Sector. Kampala: Ministry of Health, February 2005.
- ⁷⁹ Forsetlund L, Bjørndal A, Rashidian A, Jamtvedt G, O'Brien MA, Wolf F, Davis D, Odgaard-Jensen J, Oxman AD. Continuing education meetings and workshops: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2009, Issue 2. Art. No.: CD003030. DOI: 10.1002/14651858.CD003030.pub2.
- ⁸⁰ O'Brien MA, Rogers S, Jamtvedt G, Oxman AD, Odgaard-Jensen J, Kristoffersen DT, Forsetlund L, Bainbridge D, Freemantle N, Davis DA, Haynes RB, Harvey EL. Educational outreach visits: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2007, Issue 4. Art. No.: CD000409. DOI: 10.1002/14651858.CD000409.pub2.
- ⁸¹ Jamtvedt G, Young JM, Kristoffersen DT, O'Brien MA, Oxman AD. Audit and feedback: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2006, Issue 2. Art. No.: CD000259. DOI: 10.1002/14651858.CD000259.pub2.
- ⁸² Rowe AK, de Savigny D, Lanata CF, Victora CG. How can we achieve and maintain high-quality performance of health workers in low-resource settings? *Lancet* 2005; 366:1026-35.
- ⁸³ Siddiqi K, Newell J, Robinson M. Getting evidence into practice: what works in developing countries? *International Journal for Quality in Health Care* 2005; 17:447–53.
- ⁸⁴ Smith F. Private local pharmacies in low- and middle-income countries: a review of interventions to enhance their role in public health. *Tropical Medicine and International Health* 2009; 14:362–72.
- ⁸⁵ Hagopian A, Zuyderduin A, Kyobutungi N, Yumkella F. Job satisfaction and morale in the Ugandan health workforce. *Health Affairs* 2009; 28:w863–75.
- ⁸⁶ Mugisha JF. Unrest over health sector remuneration: What is the problem? *Health Policy and Development*. 2003; 1:1-20.

-
- ⁸⁷ Gosden T, Forland F, Kristiansen I, Sutton M, Leese B, Giuffrida A, Sergison M, Pedersen L. Capitation, salary, fee-for-service and mixed systems of payment: effects on the behaviour of primary care physicians. *Cochrane Database of Systematic Reviews* 2000, Issue 3. Art. No.: CD002215. DOI: 10.1002/14651858.CD002215.
- ⁸⁸ Bhattacharyya K, Winch P, LeBan K, Tien M. *Community Health Worker Incentives and Disincentives: How They Affect Motivation, Retention, and Sustainability. Basic Support for Institutionalizing Child Survival Project (BASICS II)*. Arlington, Virginia: United States Agency for International Development, 2001.
- ⁸⁹ Dambisya YM. A review of non-financial incentives for health worker retention in east and southern Africa. *EQUINET Discussion paper 44*, 2007.
<http://www.equinet africa.org/bibl/docs/DIS44HRdambisya.pdf>
- ⁹⁰ Oxman AD, Fretheim A. Can paying for results help to achieve the Millennium Development Goals? Overview of the effectiveness of results-based financing. *Journal of Evidence-Based Medicine* 2009; 2:70-83.
- ⁹¹ Willis-Shattuck M, Bidwell P, Thomas S, Wyness L, Blaauw D, Ditlopo P. Motivation and retention of health workers in developing countries: a systematic review. *BMC Health Services Research* 2008, 8:247.
- ⁹² Benavides BM. Supporting Health worker performance with effective supervision. *CapacityProject knowledge sharing legacy series* 2009; (9).
http://www.capacityproject.org/images/stories/files/legacyseries_9.pdf
- ⁹³ McQuide P, Kiwanuka-Mukiibi P, Zuyerdun A, Isabiryie C. Uganda health workforce study: satisfaction and intent to stay among health workers in public and PFP facilities. Presented at First Global Forum on Human Resources for Health; 2-7 Mar 2008; Kampala, Uganda. Available at: http://www.who.int/workforcealliance/forum/presentations/Pamela_Mc_QuideA.pdf
- ⁹⁴ Golooba-Mutebi F. When popular participation won't improve service provision: primary health care in Uganda. *Development Policy Review* 2005; 23: 165-82.
- ⁹⁵ Kintu P, Nanyunja M, Nzabanita A, Magoola R. Development of HMIS in poor countries: Uganda as a case study. *Health Policy and Development Journal* 2005; 3:46-53.
- ⁹⁶ Peterson S, Nsungwa-Sabiiti J, Were W, Nsabagasani X, Magumba G, Namboozee J, Mukasa G. Coping with paediatric referral - Ugandan parents' experience. *Lancet* 2004; 363: 1955-6.
- ⁹⁷ Akbari A, Mayhew A, Al-Alawi MA, Grimshaw J, Winkens R, Glidewell E, Pritchard C, Thomas R, Fraser C. Interventions to improve outpatient referrals from primary care to secondary care. *Cochrane Database of Systematic Reviews* 2008, Issue 4. Art. No.: CD005471.
- ⁹⁸ Supporting the Use of Research Evidence (SURE) in African Health Systems. SURE guides for preparing and using policy briefs: 4. Clarifying the problem. www.evipnet.org/sure
- ⁹⁹ Supporting the Use of Research Evidence (SURE) in African Health Systems. SURE guides for preparing and using policy briefs: 5. Deciding on and describing options to address the problem. www.evipnet.org/sure

¹⁰⁰ Supporting the Use of Research Evidence (SURE) in African Health Systems. SURE guides for preparing and using policy briefs: 6. Identifying and addressing barriers to implementing the options. www.evipnet.org/sure

Contributions of authors

All of the authors contributed to drafting and revising the policy brief.

Competing interests

None known.

Acknowledgements

This policy brief was prepared with support from the “Supporting the use of research evidence (SURE) for policy in African health systems project. SURE is funded by the European Commission’s Seventh Framework Programme (Grant agreement number 222881). The funder did not have a role in drafting, revising or approving the content of the policy brief. Andy Oxman, principal investigator of the SURE project, guided the preparation of the policy brief.

We would like to thank the following people for providing us with input and feedback: Nelson Sewankambo, J.C. Lule, Charles Karamagi, Miriam Sentongo, Charles Isabirye, Claire Glenton, and Sarah Rosenbaum.

The following people provided helpful comments on an earlier version of the policy brief: Delanyo Yao Tsidi Dovo, Metin Gulmezoglu, John Lavis, and Kaelan Moat.

Suggested citation

Nabudere H, Asimwe D, Mijumbi R. Task shifting to optimise health workers’ roles to improve the delivery of maternal and child healthcare (SURE policy brief). Kampala, Uganda: College of Health Sciences, Makerere University, 2010. www.evipnet.org/sure



SURE – Supporting the Use of Research Evidence (SURE) for Policy in African Health Systems – is a collaborative project that builds on and supports the Evidence-Informed Policy Network (**EVIPNet**) in Africa and the Regional East African Community Health (**REACH**) Policy Initiative. SURE is funded by the European Commission’s 7th Framework Programme. www.evipnet.org/sure



The **Regional East African Community Health (REACH) Policy Initiative** links health researchers with policymakers and other vital research users. It supports, stimulates and harmonizes evidence-informed policymaking processes in East Africa. There are designated Country Nodes within each of the five EAC Partner States. The REACH Country Node in Uganda is hosted by the Uganda National Health Research Organisation (UNHRO). www.eac.int/health



The **Evidence-Informed Policy Network (EVIPNet)** promotes the use of health research in policymaking. Focusing on low and middle-income countries, EVIPNet promotes partnerships at the country level between policymakers, researchers and civil society in order to facilitate policy development and implementation through the use of the best scientific evidence available. www.evipnet.org

