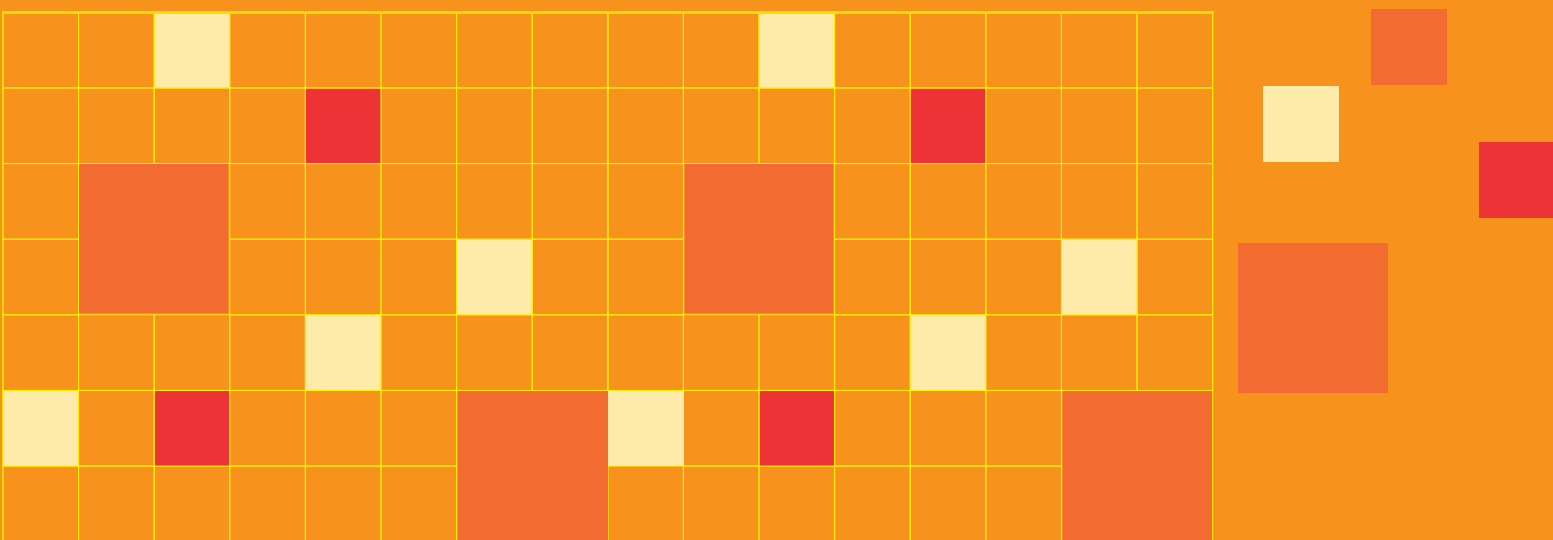


WHO recommendations

Optimizing health worker roles to improve access to key maternal and newborn health interventions through task shifting



OPTIMIZE MNH



World Health
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The following annexes are included as part of this guidance and presented in separate documents:

- » [Annex 1](#): Cadre definitions used in the project
- » [Annex 2](#): List of participants in the scoping and two final panel meetings
- » [Annex 3](#): The scoping questions
- » [Annex 4](#): The criteria used in moving from evidence to recommendations (the DECIDE framework)
- » [Annex 5](#): Frameworks related to lay health workers
- » [Annex 6](#): Frameworks related to the other cadres (auxiliary nurses, auxiliary nurse midwives, midwives, nurses, associate clinicians, advanced level associate clinicians, non-specialist doctors)
- » [Annex 7](#): Evidence base (GRADE evidence profile, summaries of findings for reviews of qualitative evidence, and citations for included reviews)
- » [Annex 8](#): Contextualizing the guidelines – workbook

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Abbreviations

AGREE	Appraisal of Guidelines Research and Evaluation Instrument (further information can be found at www.agreetrust.org)
AN	Auxiliary nurses
ANW	Auxiliary nurse midwives
ART	Antiretroviral treatment
BEMOC	Basic emergency obstetric care
CEMOC	Comprehensive emergency obstetric care
CI	Confidence interval
CPAD	Compact, prefilled auto-disable device
DECIDE	Developing and Evaluating Communication Strategies to Support Informed Decisions and Practice Based on Evidence (Framework)
ECV	External cephalic version
EPOC	Cochrane Effective Practice and Organization of Care (Review group)
GDG	Guidance Development Group (Authors of this report)
GRADE	Grading of Recommendations Assessment, Development and Evaluation (Approach to assessing certainty of evidence, more information can be found at www.gradeworkinggroup.org)
GRC	WHO Guidelines Review Committee (Committee responsible for ensuring the quality of WHO guidelines)
GREAT	Guideline development, Research priorities, Evidence synthesis, Applicability of evidence, Transfer of knowledge (WHO project)
HELLP	Haemolysis, elevated liver enzymes, low platelet count
HIFA	Health Information For All (Organization)
HIV	Human Immunodeficiency Virus
IUD	Intrauterine device
LBW	Low birth weight
LHW	Lay health worker
LMICs	Low- and middle-income countries
MCA	WHO Department of Maternal, Newborn, Child and Adolescent Health
MDG	Millennium Development Goals
ME	Monitoring and evaluation
MLP	Mid-level provider
MMR	Maternal mortality ratio
MNH	Maternal and newborn health
MVA	Manual vacuum aspiration
NOKC	The Norwegian Knowledge Centre for the Health Services
NPC	Non-physician clinician
OptimizeMNH	Optimizing the Delivery of Key Interventions to Improve Maternal and Newborn Health Through Task Shifting
PICO	Population, interventions, comparisons and outcomes
PPH	Postpartum haemorrhage
PROM	Preterm rupture of membranes
RCT	Randomized controlled trial
REVMAN	Review Manager (Software)
RHR	WHO Department of Reproductive Health and Research
RR	Relative risk
SURE	Supporting Use of Research Evidence (EU-funded research collaboration)
TBA	Traditional birth attendant
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development

Definitions of cadres included in the OptimizeMNH guidance

Broad category	Definition ^a	Different names
Advanced level associate clinician^b	A professional clinician with advanced competencies to diagnose and manage the most common medical, maternal, child health and surgical conditions, including obstetric and gynaecological surgery (e.g. caesarian sections). Advanced level associate clinicians are generally trained for 4 to 5 years post-secondary education in established higher education institutions and/or 3 years post initial associate clinician training. The clinicians are registered and their practice is regulated by their national or subnational regulatory authority.	Assistant medical officer, clinical officer (e.g. in Malawi), medical licentiate practitioner, health officer (e.g. Ethiopia), physician assistant, surgical technician, medical technician non-physician clinician
Associate clinician	A professional clinician with basic competencies to diagnose and manage common medical, maternal, child health and surgical conditions. They may also perform minor surgery. The prerequisites and training can be different from country to country. However, associate clinicians are generally trained for 3 to 4 years post-secondary education in established higher education institutions. The clinicians are registered and their practice is regulated by their national or subnational regulatory authority.	Clinical officer (e.g. in Tanzania, Uganda, Kenya, Zambia), medical assistant, health officer, clinical associate, non-physician clinician
Auxiliary nurse	Have some training in secondary school. A period of on-the-job training may be included, and sometimes formalised in apprenticeships. An auxiliary nurse has basic nursing skills and no training in nursing decision-making. However, in different countries the level of training may vary between few months to 2-3 years.	Auxiliary nurse, nurse assistant, enrolled nurses ^c
Auxiliary nurse midwife	Have some training in secondary school. A period of on-the-job training may be included, and sometimes formalised in apprenticeships. Like an auxiliary nurse, an auxiliary nurse midwife has basic nursing skills and no training in nursing decision-making. Auxiliary nurse midwives assist in the provision of maternal and newborn health care, particularly during childbirth but also in the prenatal and postpartum periods. They possess some of the competencies in midwifery but are not fully qualified as midwives.	Auxiliary midwife
Lay health worker	Any health worker who performs functions related to health-care delivery; was trained in some way in the context of the intervention; but has received no formal professional or paraprofessional certificate or tertiary education degree. <i>Traditional birth attendant (TBA):</i> A person who assists the mother during childbirth and who initially acquired their skills by delivering babies themselves or through an apprenticeship to other TBAs. Trained traditional birth attendants have received some level of biomedical training in pregnancy and childbirth care ^d . In this guidance, trained TBAs are considered within the category of lay health workers.	Community health worker, village health worker, treatment supporter, promotores etc. Community Based Skilled Birth Attendant (Bangladesh); Dai (Pakistan); Bidan Kampong (Malaysia); Skilled Birth Attendants (Bangladesh); Traditional midwives (Guatemala); Dayas (Egypt)

Broad category	Definition ^a	Different names
Midwife	A person who has been assessed and registered by a state midwifery regulatory authority or similar regulatory authority. They offer care to childbearing women during pregnancy, labour and birth, and during the postpartum period. They also care for the newborn and assist the mother with breastfeeding. Their education lasts three, four or more years in nursing school, and leads to a university or postgraduate university degree, or the equivalent. A registered midwife has the full range of midwifery skills ^e .	Registered midwife, midwife, community midwife
Non-specialist doctor	A legally qualified and licensed practitioner of medicine, concerned with maintaining or restoring human health through the study, diagnosis and treatment of disease and injury, through the science of medicine and the applied practice of that science. A medical doctor requires training in a medical school. Depending on the jurisdiction and the university providing the training, these may be either undergraduate-entry or graduate-entry courses. Gaining a basic medical degree may take from five to nine years, depending on the jurisdiction and the university providing the training.	Family doctor, general practitioners, medical doctor
Nurse	<p>A graduate who has been legally authorised (registered) to practice after examination by a state board of nurse examiners or similar regulatory authority. Education includes three, four or more years in nursing school, and leads to a university or postgraduate university degree or the equivalent. A registered nurse has the full range of nursing skills.</p> <p>Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well, and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles.</p>	Registered nurse, nurse practitioner, clinical nurse specialist, advance practice nurse, practice nurse, licensed nurse, diploma nurse, BS nurse, nurse clinician

^a [Annex 1](#) includes these definitions as well the references used to inform the development of the definitions.

^b Following discussions at the Guidance Panel meeting, it was decided to move away from the term 'Non-physician clinician' and to rather use the term 'Associate clinician'. It was also noted that associate clinicians may have more or less advanced training, and thus different skills and scopes of practice. Two categories of associate clinicians therefore needed to be considered for the purposes of the guidance. These categories have been called 'Advanced level associate clinician' and 'Associate clinician'.

^c *Enrolled nurses*: also called nurse technicians or associate nurses. Education includes three to four years of training and leads to an award not equivalent to a university undergraduate degree (postsecondary school). An enrolled nurse has common nursing skills. Within a traditional service delivery model, they can perform simple as well as complex medical procedures and traditionally operate under the supervision of registered nurses or physicians. For the purposes of this guidance, enrolled nurses were considered part of the category 'auxiliary nurses'. However, the training and scope of practice of enrolled nurses may differ across settings.

^d Note that only trained traditional birth attendants were considered in the context of this guidance.

^e The publication *State of Midwifery* and the website of the International Confederation of Midwives (www.internationalmidwives.org) have definitions that are slightly different but, for the purpose of the guidance, the WHO definition outlined above was used.

1. Executive summary

Human resource shortages in the health services are widely acknowledged as a threat to the attainment of the health-related Millennium Development Goals (MDGs). Attempts to optimize the potential of the existing health workforce are therefore crucial. A more rational distribution of tasks and responsibilities among cadres of health workers is seen as a promising strategy for improving access and cost-effectiveness within health systems. For example, access to care may be improved by training and enabling ‘mid-level’ and ‘lay’ health workers to perform specific interventions that might otherwise be provided only by cadres with longer (and sometimes more specialized) training. Such task shifting strategies might be particularly attractive to countries that lack the means to improve access to care within short periods of time.

Strategies to optimize tasks and roles for the implementation of effective interventions have achieved variable success. This is partly because the effects of these strategies are dependent on varying local health contexts and are shaped by a range of often very different social, political and cultural systems. However, the question of which health-care providers can deliver effective interventions is also linked to wider global discussions about *whether* health workers with lower levels of training can *safely* deliver key interventions. Within the arena of maternal and newborn health, for example, the implementation of contraceptive programmes and specific maternal health interventions (such as the use of uterotonics) is linked to wider debates about how task and role optimization can be achieved through task shifting. Consensus has emerged that there is a need to define which key interventions can safely and effectively be delivered by different cadres.

Objectives

These recommendations have been developed as part of the World Health Organization’s mandate to provide normative guidance to its member states. The objective of this guidance is to issue evidence-based recommendations to facilitate universal access to key, effective maternal and newborn interventions through the optimization of health worker roles. These recommendations are intended for health policy-makers, managers and other stakeholders at a regional, national and international level. By providing this broad guidance internationally, the World Health Organization (WHO) assumes that countries will adapt and implement these

recommendations while also considering the political system and health systems context in which they operate.

Guidance development methods

The procedures used in the development of this guidance are outlined in the *WHO handbook for guideline development* (1). These are: (i) the identification of questions related to practice and health policy for which answers are needed; (ii) the retrieval of up-to-date research-based evidence; (iii) the assessment and synthesis of evidence; (iv) the formulation of recommendations with inputs from a wide range of stakeholders; and (v) the formulation of plans for the dissemination, implementation, impact evaluation and updating of the guidance.

The scientific evidence for these recommendations was synthesized using the *Grading of Recommendations Assessment, Development and Evaluation* (GRADE) methodology. Evidence profiles based on systematic reviews were prepared for each question and complemented by syntheses of qualitative and programme implementation evidence. The DECIDE framework (*Developing and Evaluating Communication Strategies to Support Informed Decisions and Practice Based on Evidence*) was used to summarize and present the evidence to the Guidance Panel. When grading the recommendations, the Guidance Panel selected one of the following rating categories defined below:

1. ‘Recommend’

This category indicates that the intervention should be considered for implementation.

2. ‘Recommend with targeted monitoring and evaluation’

This rating indicates uncertainty about the effectiveness or acceptability of an intervention, especially with regard to particular contexts or conditions. Interventions classified as such can be considered for implementation (including at scale), provided they are accompanied by targeted monitoring and evaluation. Particular attention must be given to specific issues about which there are concerns (such as risks or harms) and for which little or no relevant information is available. Information about monitoring and evaluation may be obtained from a range of sources, including routine data and survey data (2). The Guidance Panel attempted to specify which aspects of the interventions required monitoring and specified the relevant indicators.

3. 'Recommend only in the context of rigorous research'

This rating category indicates that there are important uncertainties about an intervention. In such instances, the implementation can still be undertaken at a large scale, provided that it takes the form of research which is able to address unanswered questions and uncertainties related both to the effectiveness of an intervention and its acceptability and feasibility. To assess the effectiveness of an intervention the research should – at least – compare people who are exposed to one option with people who are not, and include a baseline assessment. These comparison groups should be as similar as possible to ensure that the effect of an intervention is assessed rather than the effect of other factors. Randomized trials are the most effective way to do this, but if these are not possible then interrupted time series analyses or controlled before-and-after studies should be considered. Programmes evaluated without a comparison group or baseline assessment are at high risk of bias and may not measure the true effect of an intervention.

Where unanswered questions or uncertainties are linked to the acceptability or feasibility of the intervention, related research should include well-conducted qualitative studies, as well as quantitative designs, such as surveys, to explore these issues.

4. 'Recommend against the practice'

This category indicates that the intervention should not be implemented.

All the final recommendations in this report were formulated and approved by an international group of experts (the Guidance Panel) who participated in the *WHO Technical Consultation on Optimizing the Delivery of Key Interventions to Attain MDGs 4 and 5 (OptimizeMNH)* meeting held in Geneva, Switzerland from 16–19 April 2012 and on 26 June 2012. The experts also identified important knowledge gaps that need to be addressed through further primary research.

Recommendations

The Guidance Panel made 119 recommendations: 36 for lay health workers (LHWs), 23 for auxiliary nurses (ANs), 17 for auxiliary nurse midwives (ANMs), 13 for nurses, 13 for midwives, 8 for associate clinicians, 8 for advanced level associate clinicians, and 1 for non-specialist doctors. The Guidance Panel excluded one priority question related to the distribution of misoprostol by any cadre to women during pregnancy for self-administration after childbirth. According to the Guidance Panel, underlying clinical questions

about the efficacy and safety of self-administration have not yet been answered. In addition, the Guidance Panel did not make a recommendation about the use of compact, prefilled auto-disable devices (CPADs) for the delivery of injectable contraceptives within the community because this product is not currently available commercially. The Guidance panel considered and made recommendations related to the initiation and maintenance of antiretrovirals for preventing mother to child transmission of HIV by different cadres. However, since then the WHO HIV/AIDS Department has completed a larger more comprehensive set of recommendations that include a more recent body of evidence. In order to ensure conformity between the two WHO guidelines, the antiretroviral recommendations in this document have been removed. The recommendations are summarized in Chapter 4 ('Evidence and recommendations') and the full GRADE evidence profiles and the summaries of findings are included in [Annex 5](#) and [Annex 6](#) (They are also available on the WHO web site at www.who.int/reproductivehealth/publications/maternal_perinatal_health/978924504843).

Dissemination, adaptation and implementation of the recommendations

The Guidance Panel acknowledged that health system arrangements and specific sociocultural and political factors will shape the implementation of the recommendations in specific contexts. National dialogue is therefore needed, including discussions regarding whether the (non)availability of skilled health workers is a significant contributor to the accessibility and utilization of key interventions; whether there is a willingness to consider 'task shifting' as a way to address existing problems; which of the health workers referred to in this guidance might be potential candidates for task shifting and suitable for enhancing access to – and the utilization of – the interventions mentioned; and which packages of interventions these candidates might be able to take responsibility for. It is important to keep in mind that a key motivation for task shifting is to reduce inequities in access to care while maintaining safety. A workbook is presented as part of this WHO document ([Annex 8](#)). Its purpose is to facilitate and support policy-makers at national and subnational levels who are responsible for evaluating, adapting, and adopting these recommendations.

Each recommendation in this document is formulated for a specific health worker category and intervention. In policy and practice, the individual recommendations should be considered as 'packages', both in terms of the topic or health

condition being addressed (such as postpartum haemorrhage or newborn sepsis) and the health worker category (such as auxiliary nurse-midwives or midwives).

Overview of judgements

The practices recommended by the Guidance Panel are listed below. The full list (which includes practices recommended only in the context of rigorous research as well as practices not recommended by the Guidance Panel) is presented in Chapter 4 ('Evidence and recommendations').

We recommend the use of LAY HEALTH WORKERS to deliver the following interventions:

- *The following promotional interventions for maternal and newborn health:*
 - » *Promotion of appropriate care-seeking behaviour and antenatal care during pregnancy*
 - » *Promotion of companionship during labour*
 - » *Promotion of sleeping under insecticide-treated nets during pregnancy*
 - » *Promotion of birth preparedness*
 - » *Promotion of skilled care for childbirth*
 - » *Promotion of adequate nutrition and iron and folate supplements during pregnancy*
 - » *Promotion of reproductive health and family planning*
 - » *Promotion of HIV testing during pregnancy*
 - » *Promotion of exclusive breastfeeding*
 - » *Promotion of postpartum care*
 - » *Promotion of immunization according to national guidelines*
 - » *Promotion of kangaroo mother care for low birth weight infants*
 - » *Promotion of basic newborn care and care of low birth weight infants*
- *Administration of misoprostol to prevent postpartum haemorrhage*
- *Provision of continuous support for the woman during labour in the presence of a skilled birth attendant*

We recommend the use of LAY HEALTH WORKERS to deliver the following interventions, with targeted monitoring and evaluation:

- *Distribution of the following oral supplement type interventions to pregnant women:*
 - » *Calcium supplementation for women living in areas with known low levels of calcium intake*

- » *Routine iron and folate supplementation for pregnant women*
- » *Intermittent presumptive therapy for malaria for pregnant women living in endemic areas*
- » *Vitamin A supplementation for pregnant women living in areas where severe vitamin A deficiency is a serious public health problem*
- *Initiation and maintenance of injectable contraceptives using a standard syringe*

We recommend the use of AUXILIARY NURSES to deliver the following interventions:

- *Administration of oxytocin to prevent postpartum haemorrhage using a standard syringe*
- *Administration of oxytocin to prevent postpartum haemorrhage using a compact, prefilled auto-disable device (CPAD)*
- *Administration of misoprostol to prevent postpartum haemorrhage*
- *Administration of misoprostol to treat postpartum haemorrhage before referral*
- *Administration of intravenous fluid for resuscitation for postpartum haemorrhage*
- *Suturing of minor perineal/genital lacerations*
- *Initiation and maintenance of injectable contraceptives using a standard syringe*

We recommend the use of AUXILIARY NURSES to deliver the following interventions, with targeted monitoring and evaluation:

- *Administration of oxytocin to treat postpartum haemorrhage using a standard syringe*
- *Administration of oxytocin to treat postpartum haemorrhage using a compact, prefilled auto-disable device (CPAD)*
- *Initiation of kangaroo mother care for low birth weight infants*
- *Maintenance of kangaroo mother care for low birth weight infants*
- *Internal bimanual uterine compression for postpartum haemorrhage*
- *Insertion and removal of contraceptive implants*

We recommend the use of AUXILIARY NURSE MIDWIVES to deliver the following interventions:

- *Neonatal resuscitation*
- *Administration of intravenous fluid for resuscitation for postpartum haemorrhage*

- *Internal bimanual uterine compression for postpartum haemorrhage*
- *Suturing of minor perineal/genital lacerations*
- *Initiation and maintenance of injectable contraceptives using a standard syringe*
- *Insertion and removal of intrauterine devices*

We recommend the use of AUXILIARY NURSE MIDWIVES to deliver the following interventions, with targeted monitoring and evaluation:

- *Initiation of kangaroo mother care for low birth weight infants*
- *Maintenance of kangaroo mother care for low birth weight infants*
- *Administration of antihypertensives for severe high blood pressure in pregnancy*
- *Insertion and removal of contraceptive implants*

We recommend the use of NURSES to deliver the following interventions:

- *Insertion and removal of intrauterine devices*
- *Insertion and removal of contraceptive implants*

We recommend the use of NURSES to deliver the following interventions, with targeted monitoring and evaluation:

- *Diagnosis of preterm pre-labour rupture of membranes (pPROM) and delivery of initial treatment of injectable antibiotics, using a standard syringe, before referral*
- *Delivery of a loading dose of magnesium sulphate to prevent eclampsia and referral*
- *Delivery of a loading dose of magnesium sulphate to treat eclampsia and referral*

We recommend the use of MIDWIVES to deliver the following interventions:

- *Insertion and removal of intrauterine devices*
- *Insertion and removal of contraceptive implants*

We recommend the use of MIDWIVES to deliver the following interventions, with targeted monitoring and evaluation:

- *Diagnosis of preterm pre-labour rupture of membranes (pPROM) and delivery of initial treatment of injectable antibiotics, using a standard syringe, before referral*
- *Vacuum extraction during childbirth*

- *Delivery of a loading dose of magnesium sulphate to prevent eclampsia and referral*
- *Delivery of a maintenance dose of magnesium sulphate to prevent eclampsia and referral*
- *Delivery of a loading dose of magnesium sulphate to treat eclampsia and referral*
- *Delivery of a maintenance dose of magnesium sulphate to treat eclampsia and referral*

We recommend the use of ASSOCIATE CLINICIANS to deliver the following interventions, with targeted monitoring and evaluation:

- *Delivery of a loading dose of magnesium sulphate to prevent eclampsia and referral*
- *Delivery of a loading dose of magnesium sulphate to treat eclampsia and referral*
- *Manual removal of the placenta*

We recommend the use of ADVANCED LEVEL ASSOCIATE CLINICIANS to deliver the following interventions:

- *Vacuum extraction during childbirth*
- *Manual removal of the placenta*

We recommend the use of ADVANCED LEVEL ASSOCIATE CLINICIANS to deliver the following interventions, with targeted monitoring and evaluation:

- *Delivery of a loading dose of magnesium sulphate to prevent eclampsia and referral*
- *Delivery of a maintenance dose of magnesium sulphate to prevent eclampsia and referral*
- *Delivery of a loading dose of magnesium sulphate to treat eclampsia and referral*
- *Delivery of a maintenance dose of magnesium sulphate to treat eclampsia and referral*
- *Perform caesarean sections*

We recommend the use of NON-SPECIALIST DOCTORS to deliver the following intervention, with targeted monitoring and evaluation:

- *External cephalic version (ECV) for breech presentation at term*

2. Introduction

Many WHO Member States have attempted to increase access to effective interventions. One way of facilitating improvement is to give available cadres short periods of additional training and then to allow them to take on particular activities they have not undertaken before. This process is known as ‘task shifting’ or ‘task sharing’ and is one of several strategies that can potentially improve the utilization of health system resources. Ultimately, task shifting can also improve health system performance and outcomes. The terms that are used to describe these change processes often lack precise definitions and tend to be used interchangeably, but they reflect the same general intention: to train cadres who do not normally have competencies for specific tasks to deliver them and thereby increase levels of health care access. In this document, we use the term ‘optimizing the delivery of key, effective interventions’ to reflect a focus on increasing access to interventions that have been shown in clinical studies to be effective in improving health outcomes.

Many low- and middle-income countries (LMICs) are seeking to optimize the delivery of key effective maternal and newborn interventions in order to improve maternal and newborn health. The WHO supports the efforts of its Member States to increase skilled birth attendance and thereby improve intrapartum care. Task shifting strategies can play an important complementary role in achieving these objectives and in accelerating improvements in maternal and newborn outcomes through increases in access to specific interventions.

This project forms part of a comprehensive Knowledge-to-Action framework implemented by the WHO Department of Reproductive Health and Research in 2009. This approach, known as the GREAT project (*Guideline-driven, Research priorities, Evidence synthesis, Applicability of evidence, Transfer of knowledge*) (www.who.int/reproductivehealth/topics/best_practices/en/index.html), includes the development of evidence-based guidelines that are in accordance with the standards set by the WHO’s Guidelines Review Committee (GRC). In addition, the project aims to actively develop adaptation strategies and facilitate the implementation of this guidance.

The global health workforce crisis

Widespread crises in the health workforce are impacting on the realization of the health-related MDGs. According to

a 2006 World Health Report, 57 countries face chronic human resource shortages in the health sector. Typically, such countries are LMICs and are nations with the highest burden of health problems such as HIV/AIDS and maternal and newborn mortality (3).

Such problems are compounded by global and national imbalances in the distribution of the health workforce. Notably, 36 of the 57 countries currently facing health-related human resource crises are in sub-Saharan Africa. This region contains 11% of the world’s population but bears 24% of the global disease burden. It also has only 3% of the global health workforce and accounts for just 1% of global health expenditure. In contrast, the Americas region (predominantly the United States of America and Canada) is home to 14% of the world’s population but bears only 10% of the world’s burden of disease, contains 37% of the global health workforce and accounts for approximately 50% of the world’s health expenditure (4).

Within-country inequalities in health workforce distribution are also common, especially in low-income countries. Estimates indicate that 24% of physicians and 38% of nurses work in rural areas even though these regions contain half of the world’s population (3). Imbalances exist not only in the number and geographical distribution of available health workers, but also in the range of health worker skills. Most countries still have too few specialist doctors (such as surgeons, obstetricians and anaesthetists) relative to the health needs of their population.

Human resource gaps in maternal and newborn health

The low proportion of women assisted by skilled birth attendants is an important indicator of the global personnel shortage in the health sector. Approximately 60 million births each year occur in settings other than health facilities and 52 million of these births take place without the support of a skilled birth attendant (5). While skilled birth attendance is provided at almost all births in most industrialized countries, fewer than 50% of births in the majority of countries in South Asia and sub-Saharan Africa receive such support (6). In 2008, the WHO estimated that the average proportion of births attended by a skilled health worker was 33.7% in East Africa and 46.9% in South Central Asia (WHO Fact Sheet, www.who.int/reproductivehealth/publications/maternal_perinatal_health/2008_skilled_attendant.pdf). Given that

coverage in developing nations is improving at a rate of less than 0.5% per year, even by 2015 fewer than 50% of all births will have the support of a skilled birth attendant (7).

There is often an inverse association between neonatal mortality and the availability of skilled birth attendants: countries with very high neonatal and maternal mortality rates typically have very low numbers of births supported by skilled birth attendants, very few caesarean deliveries, and low levels of physician density. In contrast, nations with the lowest neonatal mortality rates and maternal mortality rates typically have the highest level of skilled birth attendance, a higher number of caesarean deliveries, and higher levels of physician density (7;8). Closing existing gaps in health coverage and improving maternal and newborn health outcomes will therefore require active human resource policy interventions by those countries affected.

Optimizing the roles of health workers through task shifting: Overarching principles

National health strategies help to facilitate both improved levels of access and good quality care. Following the global endorsement of the MDGs, further efforts have been made in low- and middle-income countries to improve maternal and newborn health by improving levels of skilled birth attendance and institutional birth coverage. Attempts have also been made to establish universal access to sexual and reproductive health and rights.

The recommendation that skilled birth attendants should support all births has been universally acknowledged and endorsed and, overall, progress is being made in raising national rates of coverage. Many countries have also developed innovative strategies to enhance access to other key interventions to further improve maternal and newborn health, especially in remote areas. Some countries, for example, have trained lay health workers (LHWs) to administer specific interventions, utilizing them either alone or as part of teams within communities and health care facilities. LHWs are defined as those who perform functions related to health care delivery, have been trained in some way in the context of the intervention, but who have received no formal professional or paraprofessional certificate or tertiary education degree (9). The term 'lay health worker' is necessarily a broad one and includes (amongst others) cadres community health workers, village health workers and treatment supporters.

LHW programmes are often created to provide health promotion and counselling services and the inclusion of

LHWs in the delivery of maternal and newborn health interventions should therefore be considered within the wider set of roles for which they are trained. In some settings, for example, traditional birth attendants (TBAs) have been recruited and trained to deliver individual interventions, including the promotion of basic newborn care, as part of wider programmes to improve access to care. Professional cadres have also been offered additional training to deliver interventions that were not necessarily within the competencies that formed part of their initial training: in some settings, auxiliary nurses, auxiliary nurse midwives, nurses and midwives have even been taught how to perform minor surgical procedures. To reflect the changes that task shifting can entail, new cadres (such as 'non-physician clinicians' or 'NPCs') have been created in certain instances to offer formal recognition to those who have gained advanced surgical competencies¹.

The purpose of this WHO guidance is to offer recommendations for *optimizing the delivery of key interventions*. An initial list of effective maternal and newborn clinical interventions was based on existing clinical guidance and evidence from systematic reviews. The recommendations for each intervention have been evaluated in terms of whether the intervention could be delivered safely and effectively by the relevant health provider category (either by LHWs or professional health worker cadres). It has been assumed that training more health cadres to deliver certain interventions will lead to an increase in intervention access and utilization. Further methodological detail can be found in Chapter 3.

The interventions detailed in this document can be implemented successfully only if health care workers are supported by other interrelated health systems components (Figure 1). These elements are presented and evaluated in Chapter 5 ('Implementing task shifting programmes') and Chapter 6 ('Contextualizing guidance') which discuss the dissemination and implementation of the interventions. Chapter 4 ('Evidence and recommendations') presents wider implementation considerations for each of the recommendations.

The basic emergency obstetric care (BEMOC) and comprehensive emergency obstetric care (CEMOC) signal functions are indicators of a full package of emergency obstetric care and specifically relate to capacity *at a facility level* (www.who.int/reproductivehealth/publications/monitoring/9789241547734/en/index.html). However, the

¹ Note: The cadre name 'non-physician clinician' is not always used consistently. In this document, we have used the terms 'associate clinician' and 'advanced level associate clinician' when referring to this cadre. A complete list of the cadre categories used in this guidance document can be found in [Annex 1](#).

recommendations made in this document regarding which health workers are suitable for the safe and effective delivery of a range of maternal and newborn health interventions do *not* imply a preference for particular care settings or types of facilities. In most cases, it has been assumed that health workers are undertaking their job alone within a community or in primary care, rather than in teams which include several cadres and professional health workers.

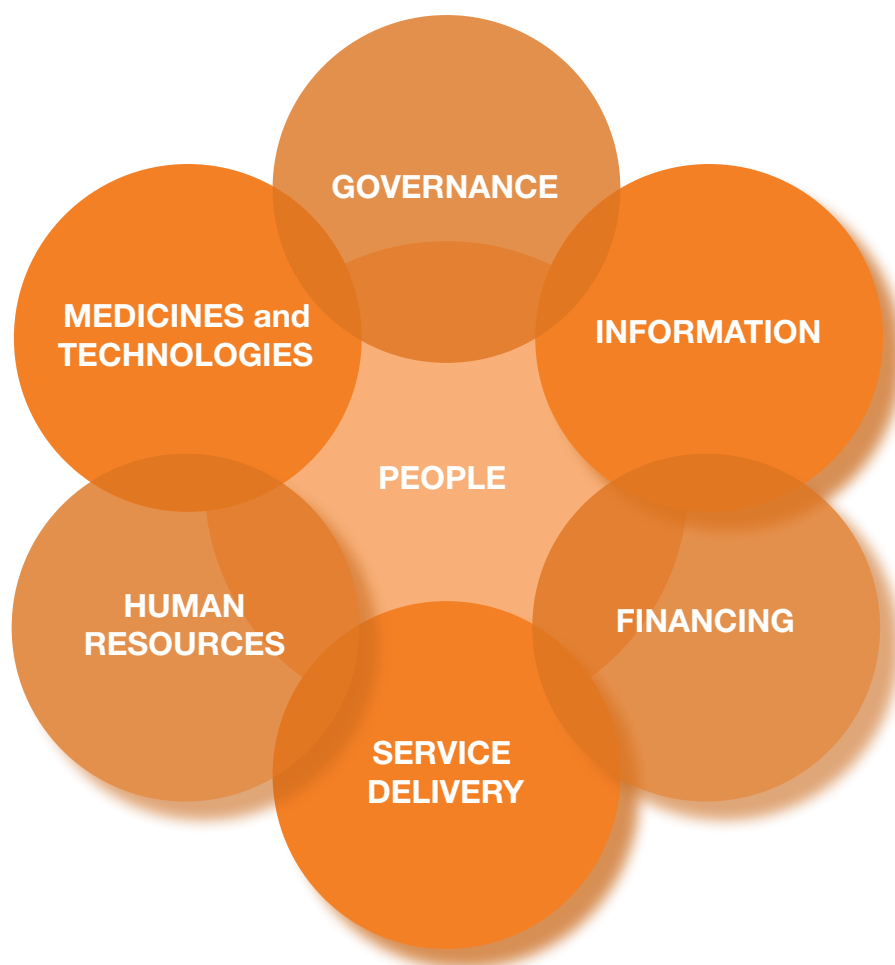
It is acknowledged that the implementation of these recommendations will depend on many political, financial and health system factors. For example, the existence of a cadre which is able to take on one or more new tasks, compared to the decision to initiate a programme to create a new cadre, present two very different scenarios both for health systems and for policy-makers. These political, financial and health system factors are further examined in Chapter 6

(‘Contextualizing guidance’). The recommendations made in this document are compatible with other WHO GRC-approved guidelines which are referred to in Chapter 4 (‘Evidence and recommendations’) where relevant.

Objectives

The objective of this guidance is to provide evidence-based recommendations to facilitate universal access to key, effective maternal and newborn interventions through the optimization of health worker roles. This guidance is intended for use by health policy-makers, managers and other stakeholders at a regional, national and international level. By providing this broad guidance internationally, the WHO assumes that countries will adapt and implement these recommendations while taking into account the context of the political and health systems in which they operate.

Figure 1: The WHO health systems building blocks



3. Methods

This guidance represents the WHO's efforts to support the use of evidence-informed policies and practices in all countries. The guidance forms part of the WHO's Knowledge-to-Action GREAT project (10).

This guidance was developed using standardized operating procedures in accordance with the processes described in the *WHO handbook for guideline development* (1) and draws on the methods described in the *Handbook for developing health systems guidance* (11). In summary, the process included:

- (i) Identifying critical questions and critical outcomes
- (ii) Retrieving evidence
- (iii) Assessing, synthesizing and grading evidence
- (iv) Presenting the evidence using a structured health systems framework
- (v) Formulating the recommendations, and
- (vi) Planning the dissemination, implementation, impact evaluation, and updating of the guidance

Identification of critical questions and critical outcomes

The following steps were performed in order to identify critical questions and outcomes for the guidance:

Assessment of the need for guidance

The need for guidance was assessed in two ways:

- a) *A WHO guidance prioritization survey:* An online survey was conducted to identify WHO guidance priorities for maternal and perinatal health. A survey was sent to WHO regional and country offices as well as to all national Ministries of Health. In addition, the survey was disseminated through other relevant networks and electronic forums. 393 responses were received, including 56 from Ministries of Health and 54 from WHO/UN country offices. 75% of the responses were submitted by LMICs and 25% by high-income countries. The survey suggested that improvement of 'quality of care' to reduce all-cause maternal/perinatal mortality was the most important domain to target through guidance. The survey also focused on guidance to improve access to care as well as guidance on issues related to the

dissemination and implementation of effective practices and on health professional education (12).

- b) *Requests from Member States:* The WHO's Departments of Reproductive Health and Research (RHR) and Maternal, Newborn, Child and Adolescent Health (MCA) are frequently consulted by WHO country and regional offices, as well as by Ministries of Health. Clear guidance on key interventions is often sought, and enquiries about the potential delivery by LHWs of misoprostol for postpartum haemorrhage prevention, and the delivery by LHWs of misoprostol for self-administration by women after birth for postpartum haemorrhage prevention, have been common.

The WHO Guidance Development Group

The WHO Guidance Development Group (GDG) established for the purpose of this project included WHO staff from the Departments of Reproductive Health and Research (RHR); Maternal, Newborn, Child and Adolescent Health (MCA); HIV/AIDS; Nutrition; and Human Resources for Health. The group reviewed stakeholder consultation material, provided advice and guidance on key questions and outcomes, and participated in the guidance scoping meeting (further information about this meeting is provided below). The GDG provided input throughout the guidance development process.

A WHO Technical Secretariat was also established. One of the three members was a Lead Technical Officer from the WHO; the other two members were researchers from The Norwegian Knowledge Centre for the Health Services, an academic institution in Norway. Members of the WHO Technical Secretariat supported the development of the guidance, coordinated the research syntheses and other materials needed, and led the development of the guidance document.

Stakeholder consultation to identify critical questions and outcomes

The process of stakeholder consultation was undertaken in two stages: firstly, through an online discussion and, secondly, as part of the guidance scoping meeting. The online discussion was conducted via the WHO Knowledge Gateway from November 8–16, 2010. Contributions were received from a wide range of policy-makers, programme managers, researchers and health-care providers, and 33 countries were represented. The discussion focused on three key themes:

(i) Optimizing health worker roles at the primary care level;
 (ii) Optimizing health worker roles at the community level; and
 (iii) Optimizing the roles of trained traditional birth attendants.
 Questions and issues raised by the 187 participants were summarized and then further evaluated during the guidance scoping meeting. Figure 2 outlines some of the opinions raised during the online discussion with stakeholders.

Guidance scoping meeting

The WHO established a guidance scoping panel of international stakeholders which considered, reviewed and prioritized questions for this guidance. The Guidance Panel included midwives, obstetricians, an associate clinician (non-physician clinician), neonatologists, researchers, experts in research synthesis, and experts in health-care programmes. A full list of participants is provided in [Annex 2](#).

Together, the GDG and the Technical Secretariat made a number of a priori decisions to facilitate the discussion at the scoping panel meeting and to ensure that the guidance questions could feasibly be addressed within the limits of the available time and resources:

- Health worker cadres: a list of appropriate cadres was proposed for consideration in the guidance and a definition of each was made available to the participants ([Annex 1](#)). The list included those cadres most widely available in LMIC settings.
- Recipients of care: any relevant recipients would be considered. These varied by intervention.
- Interventions or practices considered for optimization:
 - » The guidance considered only those clinical interventions which had been verified, through research, as being effective in improving maternal and newborn health outcomes when delivered at health-care facilities or by more highly trained cadres of health workers ([Annex 3](#)).
- Interventions or practices not considered for optimization:
 - » Interventions were excluded if there was consensus within the Guidance Panel that these could be delivered by a cadre with a lower level of training and if there were few safety issues. These interventions were noted during the discussion but not examined further. (Examples include the promotion of companionship during labour by auxiliary nurse midwives, and the delivery of neonatal resuscitation by non-specialist doctors.)
 - » Interventions were excluded if there was consensus within the Guidance Panel that these could only be delivered safely by specialists with the requisite levels of training and skills. These interventions were not seen as part of the typical scopes of practice of the cadres considered in this guidance, and were therefore not included in the questions considered at the scoping meeting.

Figure 2: Selected opinions from stakeholders in the online discussion

- Lay health workers (LHWs): most contributors agreed that lay health workers could safely deliver promotional/behavioural interventions to promote health care seeking behaviours, healthy lifestyles, nutritional supplements, and counselling for various issues such as HIV and contraception. However, there was less agreement amongst the contributors as to whether LHWs could safely deliver some forms of therapeutic interventions, such as those requiring injections.
- Trained Traditional Birth Attendants (tTBAs): most contributors agreed that in settings where serious service gaps exist, appropriately trained and supervised tTBAs can play an important role in improving maternal and newborn health.
- Contributors highlighted the importance of good planning and established linkages between communities and facilities to help lay health workers facilitate the timely and efficient transfer of women and babies to higher levels of care.

- Comparisons: cadres with lower levels of training were compared to 'usual care'. The category 'usual care' could include delivery of the same intervention *by a cadre with higher levels of training* (e.g. the insertion of IUDs by auxiliary nurses, compared to nurses) or *little or no care* (e.g. the promotion of immunization uptake by lay health workers, compared to no immunization promotion)
- Outcomes: it was decided that three main groups of outcomes would be considered. These were:
 - » Coverage (access): a measurement of the extent to which delivery by a particular cadre improved the coverage of – or access to – an intervention.
 - » Adverse events (safety): a measurement of the extent to which an intervention was delivered safely by a particular cadre, e.g. complication or failure rates for specific procedures or interventions delivered by a particular cadre.
 - » Other health outcomes: measurements of the impacts on health behaviours (such as adherence to treatment or care plans, and immunization uptake) or health outcomes (such as blood pressure or mortality). These outcomes reflect the effects of an intervention when delivered by one cadre compared either to another cadre or to 'usual care'. The outcomes indicate whether – independent of safety – interventions could be delivered more effectively by one cadre than by another.
- Settings: community and primary health care settings in LMICs with poor access to health professionals would be the focus of the discussion.

For each intervention and cadre combination (e.g. the delivery of external cephalic version by midwives or the delivery of the same intervention by associate clinicians), one of the following evaluations was selected at the meeting:

- *The cadre can safely and effectively deliver the intervention:* these questions were not considered further in the guidance development process.
- *It is uncertain whether the cadre can safely and effectively deliver the intervention:* these questions were addressed, and evidence to address these questions was evaluated as part of the guidance development process
- *The cadre should not deliver the intervention:* this evaluation indicated that the cadre was highly unlikely to be able to deliver the intervention safely and effectively. Further, even if a particular cadre could, with appropriate

training, deliver the intervention, such training would effectively result in a shift of cadre type. Changes of this kind were therefore not regarded as task shifting or as the expansion of the capacity of an existing cadre role.

Retrieval of the evidence

Three main types of evidence were considered:

- Evidence on the effectiveness of the delivery of interventions by specific cadres based on randomized controlled trials (RCTs), non-randomized controlled trials (n-RCTs), controlled before-and-after studies (CBAs), interrupted time series studies (ITS), and cohort studies.
- Evidence based on qualitative studies of factors affecting the implementation of programmes to optimize the tasks and roles of cadres.
- Evidence based on country case studies of factors affecting the implementation of large-scale programmes for scaling up human resources.

A cross-cutting analysis was also undertaken of factors affecting the implementation of programmes to optimize health worker tasks and roles, based on the reviews of qualitative studies and of country case studies.

The following evidence was retrieved:

Evidence on the effectiveness of the delivery of interventions by specific cadres

Cochrane systematic reviews were used as the primary source of evidence on the effectiveness of intervention delivery by specific cadres². Using the questions from the guidance scoping meeting, the GDG identified the relevant Cochrane reviews and, in instances where the reviews were found to be out-of-date, authors were invited to update them. The search strategies employed to identify the relevant trials and other types of studies, and the specific criteria for study inclusion and exclusion, are described within the individual systematic reviews. Most of the included reviews were based on the methods recommended by the Cochrane Effective Practice and Organisation of Care (EPOC) Group.

² As part of the Cochrane prepublication editorial process, reviews are commented on by three peers (an editor and two referees external to the editorial team), by the Group's Statistical Adviser, and by the Trial Search Coordinator (www.cochrane.org/cochrane-reviews). The *Cochrane Handbook for Systematic Reviews of Interventions* describes in detail the process of preparing and maintaining Cochrane systematic reviews on the effects of health-care interventions.

Those reviews that were updated or had only been completed recently have not yet been published but their search strategies are available on request. The results of the reviews can be found in [Annex 7](#).

It was not possible to conduct new Cochrane reviews of the effectiveness of interventions within the time frame of this project. If no Cochrane reviews were found for specific guidance questions, the evidence search was extended to include relevant non-Cochrane reviews. Only one non-Cochrane review of effectiveness was included in this guidance (13).

Evidence on factors affecting the implementation of programmes to optimize the tasks and roles of cadres

Systematic reviews of qualitative studies were the primary source of evidence on factors affecting the implementation of programmes to optimize the tasks and roles of health workers. Using the list of questions identified at the guidance scoping meeting, the Guidance Technical Working Group identified four areas in which reviews of qualitative evidence would be needed:

- Factors affecting task shifting in midwifery programmes
- Factors affecting task shifting in lay health worker programmes
- Factors affecting the implementation of nurse-doctor substitution programmes
- The acceptability of compact, prefilled auto-disable devices (CPADs)

The reviews of qualitative evidence were intended to complement the key reviews of effectiveness undertaken during the development of this guidance. Broadly speaking, the reviews included studies that had used qualitative methods for data collection and for data analysis; that had been conducted in a community or primary health care setting; and that had focused on the experiences and attitudes of key programme stakeholders, including health-care providers, programme recipients, programme managers and policy-makers. For each review, a set of search strategies was developed. Where possible, these drew on the strategies used in the relevant Cochrane reviews of effectiveness. Descriptions of the search strategies employed to identify the qualitative studies, the specific criteria for inclusion and exclusion of qualitative studies, and the databases searched were included in each of the individual systematic reviews. The reviews followed the methods recommended by the

Cochrane Qualitative Research Methods Group³ as far as possible. The SURE checklist for identifying factors affecting the implementation of a policy option was used to guide the analysis of the first three reviews listed above and to organize the emerging findings (<http://global.evipnet.org/SURE-Guides>).

A qualitative analysis was also undertaken of the views and experiences of those contributing to the 'Health Information For All By 2015' (HIFA2015) electronic discussion list (see www.hifa2015.org). The analysis evaluated opinions about how the roles of health-care providers could be optimized to improve maternal and newborn health in LMICs and the implications of such role optimizations. Text coded as relevant to task shifting was extracted from the HIFA2015 Knowledge Base (an archive of the list discussions) and analysed using qualitative thematic analysis to identify key views and experiences. The SURE checklist referred to above was also used in this analysis (<http://global.evipnet.org/SURE-Guides>).

Evidence on factors affecting the implementation of large-scale programmes for scaling up human resources, based on country case studies

Large-scale programmes to address deficits in human resources for health have been implemented by many LMICs and include initiatives focusing on the optimization of the roles and tasks of a range of health-care providers. The intention of these efforts has been to make the most of opportunities to deliver interventions through the existing health workforce. Two reviews were undertaken to identify the factors, policies and contexts affecting the implementation of large-scale programmes for scaling up human resources for health in LMICs. One review focused on the scaling up of maternal and newborn health (MNH) programmes in general, while the second focused on scaling up programmes to deliver contraceptives in LMICs. Large-scale programmes were defined as those that were national or at least state-wide in very populous countries, either public sector-funded or publicly funded, and which had been implemented for approximately five years or more. Potentially eligible programmes were identified through consultation with experts and via Google searches. For the general review we purposively selected programmes that: (a) included a focus on maternal and child health and primary health care, (b) provided geographic coverage, including Africa, Asia and South America and rural and urban settings, (c) covered the relevant categories of health workers (lay health workers, nurses and midwives, other mid-level providers, and (d) had

³ This guidance is available at <http://cqrmg.cochrane.org/supplemental-handbook-guidance>.

sufficient documentation in English. These same criteria were used for the contraceptives review, but programmes including different types of contraception were also purposively selected. The review methods, data and summaries can be found in [Annex 7](#).

For each of the selected programmes, evaluation reports and other studies were gathered via key informants, as well as via electronic databases and web site searches. Relevant reports were analysed and specific attention given to factors affecting the implementation of the programmes; a checklist for identifying factors affecting the implementation of policy options was also used (<http://global.evipnet.org/SURE-Guides>). The draft findings for each programme were reviewed and revised based on the feedback of at least one informant familiar with each programme.

‘Cross-cutting’ factors affecting the implementation of programmes to optimize tasks and roles, based on reviews of qualitative studies and of country case studies

To deepen our understanding of the factors affecting the implementation of programmes to optimize tasks and roles, a ‘cross-cutting’ analysis of findings was undertaken using the following sources of data: (a) the systematic review of the barriers and facilitators to implementing task shifting in midwifery programmes (14), (b) the systematic review of the barriers and facilitators to implementing lay health worker programmes for maternal and child health (15), (c) the systematic review of the effects, safety, and acceptability of compact, prefilled auto-disable devices (CPADs) when used by lay health workers (16), (d) the analysis of large-scale programmes for scaling up human resources for health in LMICs (17), (e) the systematic review of the barriers and facilitators to the effectiveness and implementation of doctor-nurse substitution programmes (18), (f) the study of stakeholder views on optimizing the roles of health-care providers for maternal and newborn health in LMICs, the analysis of the HIFA2015 e-mail archive (19).

The review and study authors met in a series of face-to-face and online discussions in which they identified the implementation factors *common* to task shifting programmes as well as those factors that were *specific* to particular programme types. This analysis was informed by the SURE checklist for the identification of factors affecting the implementation of policy options (<http://global.evipnet.org/SURE-Guides>). Several iterations of the analysis were developed based on feedback, comments and discussions. The final report was structured according to the WHO’s health systems ‘building blocks’ (20).

Assessment, synthesis and grading of the evidence

Evidence on the effectiveness of the delivery of interventions by specific health workers

Relevant information and data were extracted in a consistent manner from each of the systematic reviews of effectiveness by applying the following procedures: firstly, the up-to-date review documents and/or data were obtained from the review authors or the Cochrane Library. Secondly, analyses relevant to the critical comparisons and outcomes in this guidance were identified and selected, while those not relevant to the guidance were excluded. For each outcome, GRADE assessment criteria were then applied to evaluate the certainty of the evidence (also known as the ‘quality of evidence’) (21) for the effect estimate. This was done in order to evaluate whether the evidence could be used to support particular recommendations. Although the certainty of evidence is a continuum, for practical purposes the specific GRADE categories of ‘high’, ‘moderate’, ‘low’, or ‘very low’ were applied.

Importantly, assessments of the certainty of evidence using the GRADE system are based on prespecified criteria. In certain instances, for example, rankings can be lowered if there is a serious risk of bias, if the findings are inconsistent across the studies contributing to the outcome data, or if there is publication bias. Ratings for the certainty of evidence can also be lowered if there are serious or very serious concerns regarding the directness of the evidence, i.e. when there are important differences between the research reported and the context for which the recommendations are being prepared. Such differences may relate, for instance, to populations, interventions, comparisons or outcomes. For this guidance, we did not lower the certainty of evidence for indirectness. This was because each evidence profile was used for a number of questions in the guidance document. The indirectness of the evidence for each guidance question was therefore assessed by the Guidance Panel based on the data presented in each evidence profile.

Conversely, the assessment of the certainty of evidence may be raised if an effect size is very large or if a dose-response relationship is found.

GRADE profiler software was applied to quantitative meta-analyses⁴ in the review. When only narrative summaries were presented, the grading of the certainty of evidence was

⁴ The GRADE profiler (GRADEpro) software can be downloaded at www.gradeworkinggroup.org/toolbox/index.htm.

undertaken using a GRADE Summary of Findings template in Word.

In the final step of the assessment process, GRADE evidence profiles (or summary of findings tables) were prepared for each comparison. The standardized GRADE criteria which were used to grade the evidence and the full GRADE evidence profiles are provided in [Annex 7](#): each comparison is presented in its own table.

The full reviews on which the GRADE evidence profiles are based are not included in this document but are available on request.

Evidence on factors affecting the implementation of programmes to optimize the tasks and roles of cadres

Systematic reviews of qualitative studies exploring the implementation of programmes to optimize the tasks and roles of health workers, and relevant information and data were extracted about the factors impacting upon these programmes were identified. In addition to the reviews undertaken specifically for this guidance, additional reviews and multicountry studies of the acceptability and feasibility of associate clinician programmes were also incorporated. These reviews and studies are presented in [Annex 7](#).

The following consistent procedures were applied:

Firstly, the authors of reviews undertaken specifically for this guidance⁵ were asked to identify the key findings relevant to the scope of the guidance. A method similar to the GRADE approach was applied in order to assess how certain the evidence was for each key finding. Assessments were based on two factors:

- The extent to which a finding was consistent across multiple and diverse settings and – in instances where there was no consistency – the extent to which the review authors were able to identify a convincing explanation for the variation.
- The quality of the individual qualitative studies which contributed evidence to the finding. In the reviews, the quality of included qualitative studies was appraised using an adaptation of the Critical Appraisal Skills Programme (CASP) quality-assessment tool for qualitative studies

⁵ As noted earlier, reviews of qualitative evidence were conducted in four areas: the implementation of task shifting in midwifery programmes, the implementation of lay health worker programmes, the implementation of nurse-doctor substitution programmes, and the acceptability of CPAD devices.

(further details about this tool can be found at www.casp-uk.net).

Findings drawn from high-quality studies – and seen consistently across a range of settings – were deemed to be of ‘high’ certainty. Similarly, if the findings were not seen consistently but there was a convincing explanation as to why such variation had occurred, the quality of the evidence was also rated as ‘high’. Findings based on studies of poorer quality, and findings not seen consistently across different studies and settings (and for which a convincing explanation could not be identified), were assessed as being of ‘moderate’ certainty. If the findings were based on low-quality studies and were not seen consistently across studies and settings (and a convincing explanation could not be identified), then they were rated as being of ‘low’ certainty.

As a final step, summary tables were prepared for each of the reviews of qualitative evidence. These tables summarize the key findings, the certainty of evidence for each finding, and also provide an explanation of the assessment of the certainty of the evidence.

Evidence based on country case studies of factors affecting the implementation of large-scale programmes for scaling up human resources

Summary tables were prepared for each of these reviews in a format similar to the summary tables that were prepared for the reviews of qualitative evidence. However, assessing the certainty of the evidence for each key finding of the large-scale programmes was not feasible given that these findings were based on a very wide range of evidence types. These included peer reviewed qualitative and quantitative studies, programme reports, information from web sites, and information from personal communication with individuals familiar with the programmes.

Presentation of the evidence in a structured health systems framework

In this guidance, evidence for each question is presented using the ‘Developing and Evaluating Communication Strategies to Support Informed Decisions and Practice Based on Evidence’ framework (also known as the DECIDE evidence-to-recommendations framework). This framework was developed as part of the DECIDE⁶ project in association

⁶ Further information about the DECIDE project can be found at www.decide-collaboration.eu/welcome.

with the GRADE Working Group, and is designed to help those involved in utilizing evidence to form health system recommendations. The framework is based on a review of relevant literature (including the GRADE approach to transitioning between the identification of evidence and the creation of clinical recommendations), brainstorming, feedback from stakeholders, and the application of the framework to examples.

The framework was used by the Guidance Panel during the development of the recommendations to inform judgements about the pros and cons of complex options and to provide a structured format for the following content:

- Key factors (criteria) underlying judgments about whether a health system intervention should be recommended
- Judgements about each criterion
- The research evidence informing each judgement
- The comments (including non-research evidence or logical arguments) informing each judgement

The following content was also included for each guidance question in accordance with the framework structure:

- A judgement regarding the balance of desirable and undesirable consequences
- A recommendation
- A justification for the recommendation
- Implementation considerations
- Relevant monitoring and evaluation/research priorities

Further information about the framework criteria can be found in [Annex 4](#).

Finally, the Guidance Panel selected one of the following four framework recommendation choices: to recommend an option, to recommend against an option, to recommend an option in the context of targeted monitoring and evaluation, or to advise considering an option only in the context of rigorous research.

In addition to the evidence collated in the DECIDE frameworks, full evidence profiles were also made available to the Guidance Panel ([Annex 7](#)). These included evidence profiles for the reviews of the effectiveness of interventions, as well as summaries of findings for the reviews of qualitative evidence regarding the acceptability, feasibility and implementation of these interventions.

Formulation of recommendations

The option recommendations were finalized during two separate technical consultations. At the first consultation (16–19 April 2012), all recommendations except those relating to contraceptives were completed, while the second consultation (26 June 2012) focused only on recommendations related to contraceptives. The Guidance panel considered and made recommendations related to the initiation and maintenance of antiretrovirals for preventing mother to child transmission of HIV by different cadres. However, since then the WHO HIV/AIDS Department has completed a larger more comprehensive set of recommendations that include a more recent body of evidence. In order to ensure conformity between the two WHO guidelines, the antiretroviral recommendations in this document have been removed. The completed evidence-to-recommendation frameworks for each guidance question (including the draft recommendations), the GRADE evidence profiles and summaries of the qualitative evidence informing the recommendations, and other relevant documents were provided to the Guidance Panel before each technical consultation ([Annex 5](#), [Annex 6](#), and [Annex 7](#)).

Participants at the technical consultations used the information presented in the structured frameworks, firstly to assess the balance of desirable and undesirable consequences and, secondly, to make a recommendation for each of the guidance questions and to draft a justification. As far as possible, the Guidance Panel and the Technical Secretariat tried to ensure that the recommendations made were consistent with the clinical recommendations made in other WHO guidelines (22;23).

Declaration of interest by participants in the WHO technical consultation

The WHO requires all experts participating in WHO meetings to declare any competing interests relevant to the meeting and to do so prior to attendance. All members of the Guidance Panel and all participants therefore completed a Declaration of Interest Form and these were reviewed by the WHO Secretariat before the group composition could be finalized and invitations issued. In addition, the external advisers were asked to verbally declare potential conflicts of interest at the beginning of the meeting. Procedures for the management of conflicts of interests were followed, based on the WHO Guidelines for declaration of interests (these forms are available on request from the Secretariat). Apart from the interests outlined below, none of the participants at any of the three meetings was currently in receipt of financial

support from a commercial entity or had been so in the past. Some participants (Rebecca Bailey, Leo Bryant, Andrew Guise and Salim Sohani) had received financial support from their respective organizations to allow them to participate.

Jamiyah Hassan declared that she had received honoraria from pharmaceutical companies in the past, ranging between US\$ 150–300 for lectures on women's health and contraception. Some participants were involved in task-shifting activities as part of their professional employment in their organizations.

The full participation of all Guidance Panel members was deemed appropriate by the WHO.

Decision-making during the technical consultation

Participants in the technical consultations discussed the evidence summarized in the evidence-to-recommendation framework for each guidance question and then considered the relevant draft recommendation. After discussing each guidance question, the recommendation and justification were revised as needed. In some instances, where interventions had been packaged together, the Guidance Panel asked that these be considered separately. The Guidance Panel also requested that some health worker categories be split further into more specific types. The category of 'Associate clinicians' was therefore divided into 'Advanced level associate clinicians' and 'Associate clinicians', the latter having lower levels of training. The category 'Auxiliary nurses' was also divided further into 'Auxiliary nurses' and 'Auxiliary nurse midwives'. Owing to these changes, the Guidance Panel's judgements in the initial scoping meeting (as reflected in the scoping matrix shown in [Annex 3](#)), and their judgements in the later technical consultations (as reflected in the final tables included in the Executive Summary and the results in Chapter 4 ('Evidence and recommendations')) do not match exactly.

When formulating the final recommendations, the Guidance Panel considered the evidence presented within the frameworks noted above. This included:

- The benefits and harms of the option/intervention (effects)
- Resource use in relation to the option/intervention
- Acceptability considerations: the likelihood that the delivery of the option/intervention would be accepted by relevant stakeholders

- Feasibility considerations such as: how feasible would it be to implement the option/intervention? What conditions would need to be in place? Which skills would be needed by the different types of health workers?

The final adoption of each recommendation was made by consensus and defined as an agreement by a *large* majority (i.e. three-quarters) of the participants, provided that those who disagreed did not feel strongly about their position. Strong disagreements were recorded as such in the guidance. If the participants were unable to reach a consensus, the disputed recommendation or any other decision was put to a vote. A recommendation or decision would stand if a *simple* majority (i.e. more than half) of the participants voted for it. If the disagreement related to a safety concern, the WHO Secretariat could choose not to issue a recommendation at all.

WHO staff attending the meeting, external technical experts involved in the collection and grading of the evidence, and observers, were not allowed to vote. If the issue to be voted upon involved primary research or systematic reviews conducted by any of the participants who had declared an academic conflict of interest, the participants in question were allowed to participate in the discussion but not to partake in related voting.

The strength of each recommendation was determined during the technical consultation and was based on the four recommendation choices noted above, namely:

- Recommend the option
- Recommend against the option
- Recommend the option in the context of targeted monitoring and evaluation
- Consider the option only in the context of rigorous research.

The selection of a recommendation category was based both on the assessment of the range of evidence outlined in each framework and the judgement of the Guidance Panel participants. The first two categories ('Recommend the option' and 'Recommend against the option') correspond broadly with the GRADE category of 'Strong recommendation'. The last two categories ('Recommend the option in the context of targeted monitoring and evaluation' and 'Suggest considering the option only in the context of rigorous research') correspond broadly with the GRADE category of 'Conditional recommendation'.

The Guidance Panel's selection of the recommendation category '*Consider the option only in the context of rigorous research*' indicated the following:

- Such interventions should only be implemented in the context of rigorous research. Implementation may still be large-scale, providing it takes the form of research which is able to address unanswered questions.
- Unanswered questions may relate both to the effectiveness of an intervention and its acceptability and feasibility. To assess an intervention's *effectiveness*, research should at least compare what happens to people who are exposed to one option with those who are not and should include a baseline assessment. These groups should be as similar to one another as possible in order to ensure that the effect of the intervention is assessed rather than the effect of other factors. Randomized trials are the most effective way to do this but if these are not possible, the use of interrupted time series analyses or controlled before-and-after studies should be considered. Programmes evaluated without a comparison group or baseline assessment are at a high risk of bias and may not measure the true effect of an intervention.
- Where the unanswered question or uncertainty is linked to the *acceptability* or *feasibility* of the intervention, research should include well-conducted studies using qualitative methods for data collection and for data analysis (as well as quantitative designs such as surveys) to explore these issues. These methods are likely to lead to valuable information regarding the perceptions of those who were interviewed or surveyed, but policy-makers should be aware that such studies are unable to generate the kind of data that can be used to estimate the *effectiveness* of an option.

The category '*Consider the option only in the context of rigorous research*' was chosen by the Guidance Panel whenever there were important uncertainties about an intervention related, for example, to concerns about effectiveness, safety or acceptability.

The Guidance Panel's selection of the category '*Recommend the option in the context of targeted monitoring and evaluation*' indicated the following:

- Such interventions can be considered for implementation, including at scale, but should be accompanied by targeted monitoring and evaluation. Such monitoring and evaluation should focus on specific issues where

there are concerns and when little or no information is available, for example, about specific risks or harms.

- Information about monitoring and evaluation may be obtained from a range of sources including routine data (e.g. on the prevalence of diseases, health care utilization, or service costs) and survey data (e.g. on household conditions, health and demographics) (2).
- The Guidance Panel attempted to specify particular monitoring requirements. These included, for example, monitoring for high-risk groups (such as very low birth weight babies) and in instances of harm (such as inappropriate referral or failure to refer). Where possible, the relevant indicators were also specified.

The Guidance Panel chose the category '*Recommend the option in the context of targeted monitoring and evaluation*' when there were uncertainties about the intervention, such as its effectiveness or acceptability in certain conditions or contexts.

The justification for each recommendation was recorded in the relevant evidence-to-recommendation framework. For some questions, similar justifications were given for both a recommendation to '*Consider the option in the context of rigorous research*' **and** a recommendation to '*Consider the option in the context of targeted monitoring and evaluation*'. This was a consequence of specific judgements made by the Guidance Panel and the need to ensure consistency of recommendations within cadre categories and across intervention categories. Where the technical consultation recommended an option in the context of targeted monitoring and evaluation or rigorous research, further detail was included about which key issues needed to be examined.

The Guidance Panel chose not to make a recommendation in two specific instances. The first of these was Question 2.7 ('Community distribution of misoprostol by various health worker categories to women during pregnancy for self-administration after childbirth'). This was because the members felt that the question of clinical effectiveness had not yet been adequately resolved. The second instance was Question 12.1 ('The initiation and maintenance of injectable contraceptives using a compact, prefilled auto-disable device (CPAD) such as Uniject™'). The Guidance Panel was informed of research nearing completion that could provide evidence to inform the relevant recommendation. A decision was therefore taken not to issue a recommendation yet.

Document preparation and peer review

A template for guideline reporting developed for the WHO's GREAT project series of guidelines was used during the preparation of this document. The draft guidance was modified during the technical consultation meetings and informed by participant deliberations as well as input received during the scoping and other consultations. After the meetings, members of the Guidance Technical Working Group ensured that the revised version of the document accurately reflected the deliberations and decisions of the participants. The draft recommendations were sent to a small number of peer reviewers to obtain feedback. This input was evaluated by the Guidance Technical Working Group and revisions made accordingly. The revised recommendations and overarching statements were sent to those who had participated in the technical consultation for their comments and approval.

Planning for dissemination, implementation, impact evaluation and updating

During the technical consultations, participants discussed how the guidance might be implemented (Chapter 6) and disseminated (Chapter 8), and how the impacts of the guidance might be evaluated (Chapter 9). The implementation was discussed in the context of an approach developed specifically for health systems guidance (24).

The recommendations will be updated by 2018 unless significant new evidence emerges which necessitates earlier revision.

4. Evidence and recommendations

In the following sections, the recommendations and the justification and conditions regarding each question are presented according to each health worker category. The implementation considerations for each cadre are presented after each recommendation while the implementation considerations for all cadres in general are presented at the end of this chapter in Box 1.

Interventions considered for lay health workers

- PROMOTIONAL INTERVENTIONS FOR MATERNAL AND NEWBORN HEALTH
- PREVENTION AND TREATMENT OF POSTPARTUM HAEMORRHAGE
- DISTRIBUTION OF ORAL SUPPLEMENTS TO PREGNANT WOMEN
- CONTINUOUS SUPPORT DURING LABOUR
- MANAGEMENT OF PUERPERAL SEPSIS USING PARENTERAL ANTIBIOTICS BEFORE REFERRAL
- INITIATION AND MAINTENANCE OF KANGAROO MOTHER CARE
- DELIVERY OF ANTIBIOTICS FOR NEONATAL SEPSIS
- DELIVERY OF NEONATAL RESUSCITATION
- CONTRACEPTIVE DELIVERY

Promotional interventions for maternal and newborn health

#	Guidance question	Recommendation	Justification and conditions
1.1–1.13	<p>Should LAY HEALTH WORKERS (LHWs) promote the uptake of health-related behaviours and health care services for maternal, HIV, family planning and neonatal health?</p> <p>This guidance question includes the following behaviours and services:</p> <ul style="list-style-type: none"> • Promotion of appropriate care-seeking behaviour and antenatal care during pregnancy • Promotion of companionship during labour • Promotion of sleeping under insecticide-treated nets during pregnancy • Promotion of birth preparedness • Promotion of skilled care for childbirth • Promotion of adequate nutrition and iron and folate supplements during pregnancy • Promotion of reproductive health and family planning • Promotion of HIV testing during pregnancy • Promotion of exclusive breastfeeding • Promotion of postpartum care • Promotion of immunization according to national guidelines • Promotion of kangaroo mother care for low birth weight infants • Promotion of basic newborn care and care of low birth weight infants 	We recommend this option.	The use of LHWs to promote behaviours and services for maternal and child health is probably effective (evidence of moderate certainty), acceptable and feasible, and may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.

General implementation considerations:

Planners need to consider a number of issues related to task sharing and the expansion of LHW responsibilities. These include the distribution of roles among cadres, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Promotional activities, like other services, need to be perceived by both LHWs and recipients as relevant and meaningful. LHWs may be more motivated if they are able to perform curative tasks in addition to promotional ones. Promotional services should be designed so that they are not perceived as offensive by recipients.

- LHWs, trainers and supervisors need initial and ongoing training, not only in terms of information content but also in terms of counselling and communication skills. Tools and techniques that may be helpful when communicating with community members might include the use of visual tools, the use of a variety of venues and opportunities to deliver promotional information, and mass media campaigns in which the promotional messages of LHWs can be repeated. Promotional programmes should also consider whether and how to involve husbands/partners and other family members in the activities.
- Recipients may find LHWs from their own community particularly acceptable. Certain topics such as sexual and reproductive health, however, may be culturally sensitive. If providers do come from the same local communities as recipients, particular concerns related to confidentiality may be raised. This issue therefore needs to be emphasized and addressed during health worker selection and training.

Prevention and treatment of postpartum haemorrhage

#	Guidance question	Recommendation	Justification and conditions
2.1	Should LAY HEALTH WORKERS administer oxytocin to <u>prevent</u> postpartum haemorrhage, using a standard syringe?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness and acceptability of using LHWs to administer oxytocin to prevent postpartum haemorrhage. Possible undesirable effects include use that is not timely for the prevention of haemorrhage; failure to diagnose a second fetus prior to administration; and inappropriate use for other purposes. However, this intervention may be feasible under certain conditions and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated in settings in which a well-functioning LHW programme already exists and where LHWs are already familiar with injection techniques and materials.</p>
2.2	Should LAY HEALTH WORKERS administer oxytocin to <u>treat</u> postpartum haemorrhage, using a standard syringe?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness and acceptability of using LHWs to administer oxytocin to treat postpartum haemorrhage. However, this intervention may be feasible under certain conditions and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We also suggest that this intervention be evaluated in settings in which a well-functioning LHW programme already exists and where LHWs are already familiar with injection techniques and materials, and where referral to more specialized care already exists or can be established.</p>
2.3	Should LAY HEALTH WORKERS administer oxytocin to <u>prevent</u> postpartum haemorrhage, using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of using LHWs to administer oxytocin to prevent postpartum haemorrhage. However, this intervention may be acceptable and may be feasible under certain conditions, and may reduce inequalities by extending care to underserved populations. We suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated in settings in which a well-functioning LHW programme already exists.</p>

#	Guidance question	Recommendation	Justification and conditions
2.4	Should LAY HEALTH WORKERS administer oxytocin to <u>treat</u> postpartum haemorrhage, using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of using LHWs to administer oxytocin to treat postpartum haemorrhage. However, this intervention may be acceptable, may be feasible under certain conditions, and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated in settings where a well-functioning LHW programme already exists and where a well-functioning referral system is in place, or can be put in place.</p>
2.5	Should LAY HEALTH WORKERS administer misoprostol to <u>prevent</u> postpartum haemorrhage?	We recommend this option.	<p>There is insufficient evidence on the effectiveness or acceptability of using LHWs to administer misoprostol to prevent postpartum haemorrhage. However, this intervention may be feasible under certain conditions and may reduce inequalities by extending care to underserved populations. In settings where skilled birth attendants are not present and oxytocin is not available, a WHO guideline recommends the administration of misoprostol (600 mcg PO) by community health care workers and LHWs for the prevention of PPH. (Strong recommendation, moderate quality evidence). We therefore recommend this option.</p> <p>We suggest that this intervention be implemented where a well-functioning LHW programme already exists.</p>
2.6	Should LAY HEALTH WORKERS administer misoprostol to <u>treat</u> postpartum haemorrhage before referral?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness and acceptability of using LHWs to administer misoprostol to treat postpartum haemorrhage. However, this intervention may be feasible under certain conditions and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where a well-functioning LHW programme already exists, where a well-functioning referral system is in place or can be put in place, and where the use of misoprostol can be monitored with appropriate indicators.</p>

#	Guidance question	Recommendation	Justification and conditions
2.7	Should LAY HEALTH WORKERS distribute misoprostol to women during pregnancy for self-administration after childbirth?	No recommendation has been made for this option.	Further research is needed on the effectiveness of misoprostol distribution to women during pregnancy for self-administration after childbirth. This should be undertaken before attention is given to which cadres could undertake such distribution. The Guidance Panel therefore did not make a recommendation. However, the Panel noted that this intervention may improve access to misoprostol in some settings.

General implementation considerations:

Planners need to consider a number of issues related to task sharing and the expansion of LHW responsibilities. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Recipients may find LHWs from their own community particularly acceptable. However, LHWs may also be especially vulnerable to blame in instances of incidental death, disease, or other problems during treatment. Systems therefore need to be established to provide help to such health workers. Visible support from the health system, regular supervision, and birth-preparedness counselling are examples of possible support strategies.
- This intervention implies irregular working hours and the incentives offered to LHWs may therefore need to be adjusted to reflect the changes made to working conditions.
- Systems need to be established to support LHWs who may need to travel at night to assist women during labour and delivery.

Distribution of oral supplements to pregnant women

#	Guidance question	Recommendation	Justification and conditions
3.1, 3.3, 3.4 and 3.5	<p>Should LAY HEALTH WORKERS distribute the following oral supplement type interventions to pregnant women:</p> <ul style="list-style-type: none"> • Calcium supplementation for women living in areas with known low levels of calcium intake • Routine iron and folate supplementation for pregnant women • Intermittent presumptive therapy for malaria for pregnant women living in endemic areas • Vitamin A supplementation for pregnant women living in areas where severe vitamin A deficiency is a serious public health problem 	<p>We suggest considering this option with targeted monitoring and evaluation.</p>	<p>The effects of using LHWs to distribute oral supplements to pregnant women may be mixed (low to moderate certainty evidence). However, this intervention is probably acceptable and feasible, may have few undesirable effects, and may reduce inequalities by extending care to underserved populations. We therefore suggest that this intervention be considered in the context of targeted monitoring and evaluation.</p>
3.2	<p>Should LAY HEALTH WORKERS distribute low dose aspirin to pregnant women at high risk of developing pre-eclampsia/eclampsia?</p>	<p>We suggest considering this option only in the context of rigorous research.</p>	<p>There is insufficient evidence on the effectiveness of using LHWs to distribute low dose aspirin. In addition, the intervention requires the identification of pregnant women at high risk. However, it is probably an acceptable intervention and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>Such research should focus on the role of LHWs in supporting patients to take the maintenance dose of aspirin after the treatment has been initiated by a health worker. The competency of LHWs to assess the risk status of women should also be researched.</p>

General implementation considerations:

Planners need to consider a number of issues related to task sharing and the expansion of LHW responsibilities. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Continuous support during labour

#	Guidance question	Recommendation	Justification and conditions
5.1	Should LAY HEALTH WORKERS provide continuous support for the woman during labour, in the presence of a skilled birth attendant?	We recommend this option.	<p>The provision of continuous support by LHWs is probably effective (low to moderate certainty evidence).</p> <p>It is also probably feasible and may have few undesirable effects. It may reduce inequalities by extending care to underserved populations, although acceptability issues may be encountered. The LHW role in this context is to provide social support in the form of comfort and reassurance. It is <i>not</i> to provide medical care. We therefore recommend this option. However, appropriate attention must be paid to the acceptability of this intervention to other health-care providers.</p>

General implementation considerations:

Planners need to consider a number of issues related to task sharing and the expansion of LHW responsibilities. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- The distribution of roles and responsibilities between midwives and LHWs needs to be clearly defined via job descriptions, regulations and other necessary means.
- This intervention implies irregular working hours and the incentives offered to LHWs may therefore need to be adjusted to reflect the changes made to working conditions.
- Systems need to be established to support LHWs who may need to travel at night to assist women during labour and delivery.

Management of puerperal sepsis using antibiotics before referral

#	Guidance question	Recommendation	Justification and conditions
6.1	Should LAY HEALTH WORKERS manage puerperal sepsis, using intramuscular antibiotics, delivered by a standard syringe, before referral?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness, acceptability and feasibility of using LHWs to manage puerperal sepsis using antibiotics. However, it may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where a well-functioning LHW programme already exists, where LHWs are already familiar with injection techniques and materials, and where referral to more specialized care is available or can be put in place.</p>
6.2	Should LAY HEALTH WORKERS manage puerperal sepsis, using oral antibiotics, before referral?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness and acceptability of using LHWs to manage puerperal sepsis with oral antibiotics. However, it is probably feasible and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where a well-functioning LHW programme already exists and where referral to more specialized care is available or can be put in place.</p>
6.3	Should LAY HEALTH WORKERS manage puerperal sepsis, using intramuscular antibiotics delivered through a compact, prefilled auto-disable device (CPAD) such as Uniject™, before referral?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of using LHWs to manage puerperal sepsis using antibiotics, although the use of CPAD devices by LHWs is probably acceptable. In addition, the intervention may be feasible and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where a well-functioning LHW programme already exists and where referral to more specialized care is available or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues related to task sharing and the expansion of LHW responsibilities. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Recipients may find LHWs from their own community particularly acceptable. However, LHWs may also be particularly vulnerable to blame in instances of incidental death, disease, or other problems during treatment. Systems therefore need to be established to provide help to such health workers. Visible support from the health system, regular supervision, and birth-preparedness counselling are examples of possible support strategies.
- This intervention implies irregular working hours and the incentives offered to LHWs may therefore need to be adjusted to reflect the changes made to working conditions.
- Systems need to be established to support LHWs who may need to travel at night to assist women during labour and delivery.
- Clinical treatment algorithms must be developed for LHWs managing puerperal sepsis.

Initiation and maintenance of kangaroo mother care

#	Guidance question	Recommendation	Justification and conditions
7.1	Should LAY HEALTH WORKERS <u>initiate</u> kangaroo mother care for low birth weight infants?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of using LHWs to initiate kangaroo care. However, the intervention is probably acceptable and feasible, and may reduce inequalities by extending care to underserved populations. We therefore suggest considering this option in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where a well-functioning LHW programme already exists and where referral to more specialized care is available or can be put in place.</p>
7.2	Should LAY HEALTH WORKERS <u>maintain</u> kangaroo mother care for low birth weight infants?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of using LHWs to maintain kangaroo care. However, the intervention is probably acceptable and feasible, and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest this intervention be evaluated where a well-functioning LHW programme already exists and where referral to more specialized care is available or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues related to task sharing and the expansion of LHW responsibilities. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

LHWs, trainers and supervisors require initial and ongoing training in information content *and* communication skills. Programmes should also consider whether and how to involve husbands/partners and other family members in this intervention.

Delivery of antibiotics for neonatal sepsis

#	Guidance question	Recommendation	Justification and conditions
8.1	Should LAY HEALTH WORKERS deliver injectable antibiotics for neonatal sepsis using a standard syringe?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of using LHWs to deliver injectable antibiotics for neonatal sepsis. However, it is probably acceptable, may be feasible, and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where a well-functioning LHW programme already exists and where referral to more specialized care is available or can be put in place.</p>
8.2	Should LAY HEALTH WORKERS deliver antibiotics for neonatal sepsis, using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of using LHWs to deliver injectable antibiotics for neonatal sepsis using a CPAD. However, it is probably acceptable, may be feasible, and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where a well-functioning LHW programme already exists and where referral to more specialized care is available or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues related to task sharing and the expansion of LHW responsibilities. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Recipients may find LHWs from their own community particularly acceptable. However, LHWs may also be more vulnerable to blame in instances of incidental death, disease, or other problems during treatment. Systems therefore need to be established to provide help to such health workers. Visible support from the health system, regular supervision, and birth-preparedness counselling are examples of possible support strategies.
- This intervention implies irregular working hours and the incentives offered to LHWs may therefore need to be adjusted to reflect the changes made to working conditions.
- Systems need to be established to support LHWs who may need to travel at night to assist women during labour and delivery.
- Clinical treatment algorithms need to be validated for LHWs managing neonatal sepsis.

Delivery of neonatal resuscitation

#	Guidance question	Recommendation	Justification and conditions
9.1	Should LAY HEALTH WORKERS deliver neonatal resuscitation?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of using LHWs to deliver neonatal resuscitation and its acceptability is uncertain. However, it may be feasible and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where a well-functioning LHW programme already exists and where referral to more specialized care is available or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues related to task sharing and the expansion of LHW responsibilities. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Recipients may find LHWs from their own community particularly acceptable. However, LHWs may also be more vulnerable to blame in instances of incidental death, disease, or other problems during treatment. Systems therefore need to be established to provide help to such health workers. Visible support from the health system, regular supervision, and birth-preparedness counselling are examples of possible support strategies.
- This intervention implies irregular working hours and the incentives offered to LHWs may therefore need to be adjusted to reflect the changes made to working conditions.
- Systems need to be established to support LHWs who may need to travel at night to assist women during labour and delivery.
- Clinical treatment algorithms need to be available for LHWs managing neonatal resuscitation.

Contraceptive delivery

#	Guidance question	Recommendation	Justification and conditions
12.1	Should LAY HEALTH WORKERS initiate and maintain injectable contraceptives using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	No recommendation has been made for this option.	We concluded that research is needed on the effectiveness of delivering injectable contraceptives using a CPAD such as Uniject™ before a recommendation can be made about which health workers can undertake delivery. The Guidance Panel therefore decided not to make a recommendation. It was also noted that studies on the effectiveness of delivering injectable contraceptives using a CPAD are currently being conducted.
12.2	Should LAY HEALTH WORKERS initiate and maintain injectable contraceptives using a standard syringe?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness of this intervention. However, based on programme experience, we concluded that the intervention has the potential to improve equity by increasing access to family planning, and does not appear to have associated safety issues. In many settings, LHWs already deliver some form of contraceptive counselling and use injections for other conditions. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest that this intervention be implemented where a well-functioning LHW programme already exists.</p>
12.3	Should LAY HEALTH WORKERS insert and remove intrauterine devices (IUDs)?	We recommend against this option.	There is insufficient evidence on the effectiveness of this intervention. In addition, it is uncertain whether the intervention is feasible or acceptable. The intervention may be beyond the typical skills of this cadre and there is potential for harm. We therefore recommend against this option.
12.4	Should LAY HEALTH WORKERS insert and remove contraceptive implants?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of this intervention which could be considered a minor surgical procedure. In addition, it is uncertain whether the intervention is feasible or acceptable. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest evaluating the intervention only with LHWs who: (a) have appropriate levels of training and (b) deliver care within a facility or other setting with sterile conditions.</p> <p>Note: Seven members of the Guidance Panel dissented and indicated that they would prefer to recommend <i>against</i> this option. They noted that the cadre of 'LHWs', as defined in this guidance, includes people with a wide range of skills and training and that it is not clear that those with lower levels of training have the necessary skills to deliver this intervention. The risk associated with delivering the intervention may therefore be higher.</p>

General implementation considerations:

Planners need to consider a number of issues related to task sharing and the expansion of LHW responsibilities. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Recipients may find LHWs from their own community particularly acceptable. However, LHWs may also be more vulnerable to blame in instances of incidental death, disease, or other problems during treatment. Systems therefore need to be established to provide help to such health workers. Visible support from the health system, regular supervision, and birth preparedness counselling are examples of possible support strategies.
- Issues related to sexual and reproductive health can be sensitive. Confidentiality may be a concern, especially if providers come from the same local communities as recipients. LHW selection needs to be informed by this concern. In addition to training LHWs in confidentiality-related issues and concerns, recipients need to be made aware that their interactions with health workers regarding contraception are confidential.
- Because of the sensitivity of sexual and contraceptive issues, planners may need to consider whether the health workers who promote or deliver reproductive health services to women should also be women. Due to confidentiality issues and cultural sensitivities, it may also be an advantage to ensure that the relevant training of female health workers is conducted by women.
- LHWs and their supervisors need to receive appropriate initial and ongoing training. Topics should include communicating with recipients and the side-effects of different contraceptive methods. Such training needs to reinforce the fact that LHWs should *not* introduce their own criteria when determining who should receive contraception.

Interventions considered for auxiliary nurses

- PREVENTION AND TREATMENT OF POSTPARTUM HAEMORRHAGE
- DELIVERY OF INJECTABLE ANTIBIOTICS FOR PRETERM PRE-LABOUR RUPTURE OF MEMBRANES (pPROM)
- INITIATION AND MAINTENANCE OF KANGAROO MOTHER CARE
- DELIVERY OF ANTIBIOTICS FOR NEONATAL SEPSIS
- DELIVERY OF NEONATAL RESUSCITATION
- DELIVERY OF SPECIFIC PREGNANCY AND CHILDBIRTH INTERVENTIONS
- CONTRACEPTIVE DELIVERY

Prevention and treatment of postpartum haemorrhage

#	Guidance question	Recommendation	Justification and conditions
2.1	Should AUXILIARY NURSES administer oxytocin to <u>prevent</u> postpartum haemorrhage using a standard syringe?	We recommend this option.	<p>There is insufficient evidence on the effectiveness and acceptability of auxiliary nurses administering oxytocin to <u>prevent</u> postpartum haemorrhage using a standard syringe. Possible undesirable effects include use that is not timely for the prevention of haemorrhage, failure to diagnose a second fetus prior to administration, and inappropriate use for other purposes. However, the Guidance Panel was of the view that the benefits probably outweigh the harms, that minimal clinical decision-making is required, and that the intervention is probably acceptable and feasible. This intervention may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be used where auxiliary nurses are already an established cadre.</p>
2.2	Should AUXILIARY NURSES administer oxytocin to <u>treat</u> postpartum haemorrhage using a standard syringe?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and acceptability of auxiliary nurses administering oxytocin to <u>treat</u> postpartum haemorrhage using a standard syringe. Possible undesirable effects include inappropriate use for other purposes. However, the Guidance Panel was of the view that the benefits outweigh the harms, that minimal clinical decision-making is required, and that the intervention is probably acceptable and is probably feasible. This intervention may also reduce inequalities by extending care to underserved populations.</p> <p>The Guidance Panel considers the assessment and diagnosis of postpartum haemorrhage to require a certain level of experience and judgement. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest that this intervention be used <u>only</u> where auxiliary nurses are already an established cadre <u>and</u> where a well-functioning referral system is in place or can be put in place.</p>
2.3	Should AUXILIARY NURSES administer oxytocin to <u>prevent</u> postpartum haemorrhage, using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	We recommend this option.	<p>There is insufficient evidence on the effectiveness and acceptability of auxiliary nurses administering oxytocin to <u>prevent</u> postpartum haemorrhage using a CPAD. However, the Guidance Panel was of the view that the benefits outweigh the harms, that minimal clinical decision-making is required, and that the intervention is probably acceptable and is probably feasible. This intervention may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be used where auxiliary nurses are already an established cadre.</p>

#	Guidance question	Recommendation	Justification and conditions
2.4	Should AUXILIARY NURSES administer oxytocin to <u>treat</u> postpartum haemorrhage, using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and acceptability of auxiliary nurses administering oxytocin to <u>treat</u> postpartum haemorrhage using a CPAD. However, the Guidance Panel was of the view that the benefits outweigh the harms, that minimal clinical decision-making is required, and that the intervention is probably acceptable and is probably feasible. This intervention may also reduce inequalities by extending care to underserved populations.</p> <p>The Guidance Panel considers the assessment and diagnosis of postpartum haemorrhage to require a certain level of experience and judgement and therefore suggests that this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest that this intervention <u>only</u> be used where auxiliary nurses are already an established cadre <u>and</u> where a well-functioning referral system is in place or can be put in place.</p>
2.5	Should AUXILIARY NURSES administer misoprostol to <u>prevent</u> postpartum haemorrhage?	We recommend this option.	<p>There is insufficient evidence on the effectiveness and acceptability of auxiliary nurses administering misoprostol to prevent postpartum haemorrhage. However, the Guidance Panel was of the view that the benefits outweigh the harms, that minimal clinical decision-making is required, and that the intervention is probably acceptable and is probably feasible. This intervention may also reduce inequalities by extending care to underserved populations. In addition, in settings where skilled birth attendants are not present and oxytocin is not available, a WHO guideline (25) recommends the administration of misoprostol (600 mcg PO) by <u>community health care workers and lay health workers</u> for the <u>prevention</u> of PPH. (Strong recommendation, moderate quality evidence.) We therefore recommend this option.</p> <p>We suggest that this intervention be used where auxiliary nurses are already an established cadre.</p>

#	Guidance question	Recommendation	Justification and conditions
2.6	Should AUXILIARY NURSES administer misoprostol to <u>treat</u> postpartum haemorrhage before referral?	We recommend this option.	<p>There is insufficient evidence on the effectiveness and acceptability of auxiliary nurses administering misoprostol to treat postpartum haemorrhage and referring. However, the Guidance Panel was of the view that the benefits outweigh the harms, that minimal clinical decision-making is required, and that the intervention is probably acceptable and is probably feasible. This intervention may also reduce inequalities by extending care to underserved populations. In settings where skilled birth attendants are not present and oxytocin is not available, a WHO guideline recommends the administration of misoprostol (600 mcg PO) by <u>community health care workers and lay health workers</u> for the <u>prevention</u> of PPH. (Strong recommendation, moderate quality evidence.) We therefore recommend this option.</p> <p>We suggest that this intervention be used for the treatment of postpartum haemorrhage where auxiliary nurses are already an established cadre <u>and</u> where a well-functioning referral system is in place or can be put in place.</p>
2.7	Should AUXILIARY NURSES distribute misoprostol to women during pregnancy for self-administration after childbirth?	No recommendation has been made for this option.	<p>Research is needed on the effectiveness of misoprostol distribution to women during pregnancy for self-administration after childbirth <i>before</i> consideration can be given to which cadres can undertake this distribution. The Guidance Panel therefore did not make a recommendation. However, it was also noted that this distribution may improve access to misoprostol in some settings.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Delivery of injectable antibiotics for preterm pre-labour rupture of membranes (pPROM)

#	Guidance question	Recommendation	Justification and conditions
4.1	Should AUXILIARY NURSES diagnose preterm pre-labour rupture of membranes (pPROM) and deliver initial treatment of injectable antibiotics using a standard syringe, before referral?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurses diagnosing preterm pre-labour rupture of membranes (pPROM) and delivering initial treatment of injectable antibiotics using a standard syringe, before referral. Possible harms include the overuse of antibiotics and misdiagnosis. Possible benefits include earlier access to treatment for pPROM, but it is unclear whether slightly earlier treatment, prior to referral, would have benefits. This intervention may be acceptable and feasible, and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest evaluating this intervention where auxiliary nurses are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Initiation and maintenance of kangaroo mother care

#	Guidance question	Recommendation	Justification and conditions
7.1	Should AUXILIARY NURSES <u>initiate</u> kangaroo mother care for low birth weight infants?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and feasibility of auxiliary nurses initiating kangaroo mother care for low birth weight infants. However, the intervention may have important benefits and is probably feasible and acceptable. It may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation. The monitoring and evaluation should focus on different weight categories to ensure that babies with a birth weight of less than 1,500 grams are not adversely affected.</p> <p>We suggest that this intervention be used where auxiliary nurses are already an established cadre.</p>
7.2	Should AUXILIARY NURSES <u>maintain</u> kangaroo mother care for low birth weight infants?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and feasibility of auxiliary nurses maintaining kangaroo mother care for low birth weight infants. However, the intervention may have important benefits and is probably feasible and acceptable. It may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest that this intervention be used where auxiliary nurses are already an established cadre.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

Auxiliary nurses, trainers and supervisors need initial and ongoing training in information content *and* communication skills. Programmes should also consider whether and how to involve husbands/partners and other family members in this intervention.

Delivery of antibiotics for neonatal sepsis

#	Guidance question	Recommendation	Justification and conditions
8.1	Should AUXILIARY NURSES deliver injectable antibiotics for neonatal sepsis using a standard syringe?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurses delivering injectable antibiotics for neonatal sepsis using a standard syringe, and the feasibility of doing so is uncertain. However, this intervention may be acceptable and may reduce inequalities by extending care to underserved populations. The standard competencies of auxiliary nurses generally include giving intramuscular and intravenous injections. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where auxiliary nurses are already an established cadre, where clear clinical guidelines are available and where a well-functioning referral system is in place or can be put in place.</p>
8.2	Should AUXILIARY NURSES deliver antibiotics for neonatal sepsis, using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurses delivering antibiotics for neonatal sepsis using a CPAD, and the feasibility of doing so is uncertain. However, this intervention may be acceptable and may reduce inequalities by extending care to underserved populations. The standard competencies of auxiliary nurses generally include giving intramuscular and intravenous injections. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where auxiliary nurses are already an established cadre, where clear clinical protocols are available, and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

Clinical treatment algorithms need to be validated for auxiliary nurses managing neonatal sepsis.

Delivery of neonatal resuscitation

#	Guidance question	Recommendation	Justification and conditions
9.1	Should AUXILIARY NURSES deliver neonatal resuscitation?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurses delivering neonatal resuscitation. However, this intervention is probably acceptable, is probably feasible, and may reduce inequalities by extending care to underserved populations. We therefore suggest this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where auxiliary nurses are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p> <p>The Guidance Panel also noted that neonatal resuscitation should be considered integral to safe delivery. In many settings, auxiliary nurses are not involved routinely in deliveries, but may assist with neonatal resuscitation.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

Clinical treatment algorithms need to be validated for auxiliary nurses delivering neonatal resuscitation.

Delivery of specific pregnancy and childbirth interventions

#	Guidance question	Recommendation	Justification and conditions
11.1	Should AUXILIARY NURSES administer intravenous fluid for resuscitation as part of postpartum haemorrhage treatment?	We recommend this option.	<p>There is insufficient evidence on the effectiveness and acceptability of auxiliary nurses administering intravenous fluid for resuscitation, as part of PPH treatment. However, the Guidance Panel considered this intervention to be part of the core skills of auxiliary nurses. In addition, it is probably feasible and may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that the intervention be implemented where auxiliary nurses are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p> <p>This intervention should be operationalized in the context of the WHO PPH guidelines (25) as these offer a comprehensive approach to the management of PPH.</p>
11.2	Should AUXILIARY NURSES perform internal bimanual uterine compression for postpartum haemorrhage?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and acceptability of auxiliary nurses performing internal bimanual uterine compression for postpartum haemorrhage. However, the risk of significant harms is low, it is probably feasible, and may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest this intervention be implemented where auxiliary nurses are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p> <p>This intervention should be operationalized in the context of the WHO PPH guidelines (25) as these provide a comprehensive approach to the management of PPH.</p>
11.3	Should AUXILIARY NURSES perform suturing for minor perineal/genital lacerations?	We recommend this option.	<p>There is insufficient evidence on the effectiveness and acceptability of auxiliary nurses performing suturing for minor perineal/genital lacerations. However, the Guidance Panel considered suturing to be part of the core skills of auxiliary nurses. In addition, it is probably feasible and may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that the intervention be implemented where auxiliary nurses are already an established cadre.</p> <p>This intervention should be operationalized in the context of the WHO PPH guidelines (25), as these provide a comprehensive approach to the management of PPH.</p>

#	Guidance question	Recommendation	Justification and conditions
11.4	Should AUXILIARY NURSES administer antihypertensives for severe high blood pressure in pregnancy?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurses administering antihypertensives. However, this may be acceptable and feasible, and may reduce inequalities in settings where access to more highly trained providers is limited. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that the intervention be evaluated where auxiliary nurses are already an established cadre, where a well-functioning referral system is in place or can be put in place, and where care is delivered in the context of a standard protocol.</p>
11.5	Should AUXILIARY NURSES administer corticosteroids to pregnant women in the context of preterm labour to improve neonatal outcomes?	We recommend against this option.	There is insufficient evidence on the effectiveness of auxiliary nurses administering corticosteroids and auxiliary nurses do not have the necessary clinical skills for the diagnosis of preterm labour. We therefore recommend against this option.
11.6	Should AUXILIARY NURSES deliver maternal intrapartum care (including labour monitoring, e.g. using a partograph; monitoring fetal heart rate by auscultation; deciding to transfer for poor progress; delivery of the baby)?	We recommend against this option.	There is insufficient evidence on the effectiveness of this intervention. In addition, the delivery of intrapartum interventions requires considerable training and skills which auxiliary nurses do not generally have. Providing this training to this cadre would, in practice, result in a different cadre. We therefore recommend against this option.

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1). This is especially the case for infrequently used emergency interventions such as bimanual compression.

Contraceptive delivery

#	Guidance question	Recommendation	Justification and conditions
12.1	Should AUXILIARY NURSES initiate and maintain injectable contraceptives using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	No recommendation was made for this option.	Research is needed on the effectiveness of delivering injectable contraceptives using a CPAD such as Uniject™ before a recommendation can be made about which cadres can undertake delivery. The Guidance Panel therefore did not make a recommendation. It was also noted that research on the effectiveness of delivering injectable contraceptives using a CPAD is currently being conducted.
12.2	Should AUXILIARY NURSES initiate and maintain injectable contraceptives using a standard syringe?	We recommend this option.	There is insufficient evidence on the effectiveness of this intervention. However, this intervention may be an acceptable and feasible approach to making injectable contraceptives available more widely. In addition, the delivery of injections is part of auxiliary nurse practice in a number of settings. We therefore recommend this option.
12.3	Should AUXILIARY NURSES insert and remove intrauterine device (IUDs)	We suggest considering this option only in the context of rigorous research.	There is insufficient evidence on the effectiveness of this intervention. In addition, pelvic assessment competencies do not fall within the scope of auxiliary nurses and thus further training would be required. However, this intervention may be feasible and acceptable and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research
12.4	Should AUXILIARY NURSES insert and remove contraceptive implants?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness of this intervention. However, this intervention may be feasible and acceptable and may reduce inequalities by extending care to underserved populations. In addition, the intervention would require minimal additional skills. We therefore suggest this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest that the intervention be used where auxiliary nurses are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>
12.5	Should AUXILIARY NURSES perform tubal ligation (postpartum and interval)?	We recommend against this option.	There is insufficient evidence on the effectiveness of this intervention. In addition, this procedure is beyond the skills of most auxiliary nurses and there is therefore uncertainty regarding its feasibility and acceptability. We recommend against this option.

#	Guidance question	Recommendation	Justification and conditions
12.6	Should AUXILIARY NURSES perform vasectomy?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of this intervention. In addition, there is uncertainty regarding its feasibility and acceptability. We therefore suggest that this option only be considered in the context of rigorous research.</p> <p>Implementation in the context of research should be done where auxiliary nurses are already an established cadre, and where a well-functioning referral system is in place or can be put in place.</p> <p>Note: Five members of the Guidance Panel dissented and indicated that they would prefer to recommend against this option as they considered this procedure to be outside the typical scope of practice of auxiliary nurses</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Because of the sensitivity of sexual and contraceptive issues, planners may need to consider whether the health workers promoting or delivering reproductive health services to women should also be women. Due to confidentiality issues and cultural sensitivities, it may also be an advantage to ensure that the relevant training of female health workers is conducted by women.
- Auxiliary nurses and their supervisors need to receive appropriate initial and ongoing training. Topics should include communicating with recipients and the side-effects of different contraceptive methods. Such training needs to reinforce the fact that auxiliary nurses should not introduce their own criteria when determining who should receive contraception.
- Auxiliary nurses need to be trained in confidentiality issues and recipients need to be made aware that their interactions with health workers regarding contraception are confidential.

Interventions considered for auxiliary nurse midwives

- PREVENTION AND TREATMENT OF POSTPARTUM HAEMORRHAGE
- DELIVERY OF INJECTABLE ANTIBIOTICS FOR PRETERM PRE-LABOUR RUPTURE OF MEMBRANES (pPROM)
- INITIATION AND MAINTENANCE OF KANGAROO MOTHER CARE
- DELIVERY OF ANTIBIOTICS FOR NEONATAL SEPSIS
- DELIVERY OF NEONATAL RESUSCITATION
- DELIVERY OF SPECIFIC PREGNANCY AND CHILDBIRTH INTERVENTIONS
- CONTRACEPTIVE DELIVERY

Prevention and treatment of postpartum haemorrhage

#	Guidance question	Recommendation	Justification and conditions
2.7	Should AUXILIARY NURSE MIDWIVES distribute misoprostol to women during pregnancy for self-administration after childbirth?	No recommendation has been made for this option.	Research is needed on the effectiveness of misoprostol distribution to women during pregnancy for self-administration after childbirth <i>before</i> considering which cadres can undertake such distribution. The Guidance Panel therefore did not make a recommendation. However, it was also noted that not issuing a recommendation may result in reduced access to misoprostol in some settings.

Delivery of injectable antibiotics for preterm pre-labour rupture of membranes (pPROM)

#	Guidance question	Recommendation	Justification and conditions
4.1	Should AUXILIARY NURSE MIDWIVES diagnose preterm pre-labour rupture of membranes (pPROM) and deliver initial treatment of injectable antibiotics using a standard syringe, before referral?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives diagnosing preterm pre-labour rupture of membranes (pPROM) and delivering initial treatment of injectable antibiotics using a standard syringe, before referral. Possible harms include the overuse of antibiotics and misdiagnosis. Possible benefits include earlier access to treatment for pPROM, but it is unclear whether slightly earlier treatment, prior to referral, would have benefits. This intervention may be acceptable and feasible, and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest evaluating this intervention where auxiliary nurse midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Initiation and maintenance of kangaroo mother care

#	Guidance question	Recommendation	Justification and conditions
7.1	Should AUXILIARY NURSE MIDWIVES <u>initiate</u> kangaroo mother care for low birth weight infants?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and feasibility of auxiliary nurse midwives initiating kangaroo mother care for low birth weight infants. However, the intervention may have important benefits and is probably feasible and acceptable. It may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation, with particular attention given to different birth weight subgroups.</p> <p>Monitoring and evaluation should focus on different weight categories to ensure that babies with a birth weight of less than 1,500 grams are not adversely affected.</p> <p>We suggest that the intervention be used where auxiliary nurse midwives are already an established cadre.</p>
7.2	Should AUXILIARY NURSE MIDWIVES <u>maintain</u> kangaroo mother care for low birth weight infants?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and feasibility of auxiliary nurse midwives initiating kangaroo mother care for low birth weight infants. However, the intervention may have important benefits and is probably feasible and acceptable. It may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>Monitoring and evaluation should focus on different weight categories to ensure that babies with a birth weight of less than 1,500 grams are not adversely affected.</p> <p>We suggest that the intervention be used where auxiliary nurse midwives are already an established cadre.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

Auxiliary nurse midwives, trainers and supervisors require initial and ongoing training in information content *and* communication skills. Programmes should also consider whether and how to involve husbands/partners and other family members in this intervention.

Delivery of antibiotics for neonatal sepsis

#	Guidance question	Recommendation	Justification and conditions
8.1	Should AUXILIARY NURSE MIDWIVES deliver injectable antibiotics for neonatal sepsis, using a standard syringe?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives delivering injectable antibiotics for neonatal sepsis using a standard syringe, and the feasibility of this option is uncertain. However, this intervention may be acceptable and may reduce inequalities by extending care to underserved populations. The standard competencies of auxiliary nurse midwives generally include giving intramuscular and intravenous injections. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where auxiliary nurse midwives are already an established cadre, where clear clinical protocols are available, and where a well-functioning referral system is in place or can be put in place.</p>
8.2	Should AUXILIARY NURSE MIDWIVES deliver antibiotics for neonatal sepsis, using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives delivering antibiotics for neonatal sepsis using a CPAD and the feasibility of this option is uncertain. However, the intervention may be acceptable and may reduce inequalities by extending care to underserved populations. The standard competencies of auxiliary nurse midwives generally include giving intramuscular and intravenous injections. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where auxiliary nurse midwives are already an established cadre, where clear clinical protocols are available, and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

Clinical treatment algorithms need to be validated for auxiliary nurses who manage neonatal sepsis.

Delivery of neonatal resuscitation

#	Guidance question	Recommendation	Justification and conditions
9.1	Should AUXILIARY NURSE MIDWIVES deliver neonatal resuscitation?	We recommend this option.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives delivering neonatal resuscitation. However, this intervention is part of the core skills of skilled birth attendants, is probably acceptable, is probably feasible, and may reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be implemented where auxiliary nurse midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

Clinical treatment algorithms need to be validated for auxiliary nurses delivering neonatal resuscitation.

Delivery of specific pregnancy and childbirth interventions

#	Guidance question	Recommendation	Justification and conditions
11.1	Should AUXILIARY NURSE MIDWIVES administer intravenous fluid for resuscitation as part of postpartum haemorrhage treatment?	We recommend this option.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives administering intravenous fluid for resuscitation. However, the Guidance Panel considered this intervention to be part of the core skills of auxiliary nurse midwives. In addition, it may be acceptable, is probably feasible, and may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be implemented where auxiliary nurse midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p> <p>This intervention should be operationalized in the context of the WHO's PPH guidelines (25) which provide a comprehensive approach to the management of PPH.</p>
11.2	Should AUXILIARY NURSE MIDWIVES perform internal bimanual uterine compression for postpartum haemorrhage?	We recommend this option.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives performing bimanual uterine compression for postpartum haemorrhage. However, the Guidance Panel considered this intervention to be part of the core skills of auxiliary nurse midwives. In addition, it may be acceptable, is probably feasible, and may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be implemented where auxiliary nurse midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p> <p>This intervention should be operationalized in the context of the WHO's PPH guidelines (25) which provide a comprehensive approach to the management of PPH.</p>

#	Guidance question	Recommendation	Justification and conditions
11.3	Should AUXILIARY NURSE MIDWIVES perform suturing for minor perineal/genital lacerations?	We recommend this option.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives performing suturing for minor perineal and genital lacerations. However, the Guidance Panel considered this intervention to be part of the core skills of auxiliary nurse midwives. In addition, it may be acceptable, is probably feasible, and may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be implemented where auxiliary nurse midwives are already an established cadre.</p> <p>This intervention should be operationalized in the context of the WHO's PPH guidelines (25) which provide a comprehensive approach to the management of PPH.</p>
11.4	Should AUXILIARY NURSE MIDWIVES administer antihypertensives for severe high blood pressure in pregnancy?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives administering antihypertensives. However, this is probably acceptable, and auxiliary nurse midwives have the necessary clinical skills. The intervention may also reduce inequalities in settings where access to more highly trained providers is limited. We suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>Monitoring and evaluation should focus on adherence to clinical protocols and the potential harms of antihypertensives for the mother and baby.</p> <p>We suggest that this intervention be evaluated where auxiliary nurse midwives are already an established cadre, in an acute context prior to referral, and by following a standard protocol.</p>
11.5	Should AUXILIARY NURSE MIDWIVES administer corticosteroids to pregnant women in the context of preterm labour to improve neonatal outcomes?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives administering corticosteroids to pregnant women to improve neonatal outcomes in the context of preterm labour. However, auxiliary nurse midwives have the necessary clinical skills for the diagnosis of preterm labour and for the administration of corticosteroids, and the intervention may be acceptable and feasible. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where auxiliary nurse midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

#	Guidance question	Recommendation	Justification and conditions
11.12	Should AUXILIARY NURSE MIDWIVES deliver magnesium sulphate to women in preterm labour as a neuroprotective for the fetus?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of auxiliary nurse midwives delivering magnesium sulphate to women in preterm labour as a neuroprotective for the fetus. However, auxiliary nurse midwives have the necessary clinical skills for the diagnosis of preterm labour and for the administration of magnesium sulphate. The intervention may be acceptable and feasible. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where auxiliary nurse midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Contraceptive delivery

#	Guidance question	Recommendation	Justification and conditions
12.1	Should AUXILIARY NURSE MIDWIVES initiate and maintain injectable contraceptives using a compact, prefilled auto-disable device (CPAD) such as Uniject™?	No recommendation was made for this option.	Research is needed on the effectiveness of delivering injectable contraceptives using a CPAD such as Uniject™ before a recommendation can be made about which cadres can undertake delivery. The Guidance Panel therefore did not make a recommendation. It was also noted that studies are underway on the effectiveness of delivering injectable contraceptives using a CPAD.
12.2	Should AUXILIARY NURSE MIDWIVES initiate and maintain injectable contraceptives using a standard syringe?	We recommend this option.	There is insufficient evidence on the effectiveness of this intervention. However, this intervention may be an acceptable and feasible approach to making injectable contraceptives available more widely. In addition, the delivery of injections is part of auxiliary nurse midwife practice in a number of settings. We therefore recommend this option.
12.3	Should AUXILIARY NURSE MIDWIVES insert and remove intrauterine device (IUDs).	We recommend this option.	This intervention is probably effective (low to moderate certainty evidence) and may have few undesirable effects. It may also be feasible and acceptable, and may reduce inequalities by extending care to underserved populations. We therefore recommend this option. We suggest that this option be used where auxiliary nurse midwives are already an established cadre.
12.4	Should AUXILIARY NURSE MIDWIVES insert and remove contraceptive implants?	We suggest considering this option with targeted monitoring and evaluation.	There is insufficient evidence on the effectiveness of this intervention. However, this intervention may be feasible and acceptable, and may reduce inequalities by extending care to underserved populations. In addition, this intervention requires relatively few additional skills. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation. We suggest that this intervention be used where auxiliary nurse midwives are already an established cadre and a well-functioning referral system is in place or can be put in place.
12.5	Should AUXILIARY NURSE MIDWIVES perform tubal ligation (postpartum and interval)?	We recommend against this option.	There is insufficient evidence on the effectiveness of this intervention. In addition, this procedure is beyond the skills of most auxiliary nurse midwives, and there is uncertainty regarding its acceptability and feasibility. We therefore recommend against this option.

#	Guidance question	Recommendation	Justification and conditions
12.6	Should AUXILIARY NURSE MIDWIVES perform vasectomy?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of this intervention. In addition, there is uncertainty regarding its acceptability and feasibility. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>Implementation in the context of research should be done where auxiliary nurse midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p> <p>Note: Five members of the Guidance Panel dissented and indicated that they would prefer to recommend against this option as they considered this procedure to be beyond the typical scope and practice of auxiliary nurse midwives.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Because of the sensitivity of sexual and contraceptive issues, planners may need to consider whether the health workers promoting or delivering reproductive health services to women should also be women. It may also be an advantage to ensure that the relevant training of female health workers is conducted by women due to cultural sensitivities.
- Auxiliary nurse midwives and their supervisors need to receive appropriate initial and ongoing training. Topics should include communicating with recipients and the side-effects of different contraceptive methods. Such training needs to reinforce the fact that LHWs should not introduce their own criteria when determining who should receive contraception.
- In addition to training auxiliary nurse midwives in confidentiality-related issues and concerns, recipients also need to be made aware that their interactions with health workers regarding contraception are confidential.

Interventions considered for nurses

- DELIVERY OF INJECTABLE ANTIBIOTICS FOR PRETERM PRE-LABOUR RUPTURE OF MEMBRANES (pPROM)
- UNDERTAKING OF EXTERNAL CEPHALIC VERSION (ECV)
- DELIVERY OF SPECIFIC PREGNANCY AND CHILDBIRTH INTERVENTIONS
- CONTRACEPTIVE DELIVERY

Delivery of injectable antibiotics for preterm pre-labour rupture of membranes (pPROM)

#	Guidance question	Recommendation	Justification and conditions
4.1	Should NURSES diagnose preterm pre-labour rupture of membranes (pPROM) and deliver initial treatment of injectable antibiotics using a standard syringe, before referral?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness of nurses diagnosing preterm pre-labour rupture of membranes (pPROM) and delivering initial treatment of injectable antibiotics using a standard syringe before referral. However, this is probably an acceptable and feasible approach to the management of preterm pPROM. It may also reduce inequalities in settings where access to more highly trained providers is limited. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>As it remains uncertain whether nurses will have the appropriate skills and equipment to make such a diagnosis, the intervention should be implemented where nurses provide care for pregnant women, are trained to give injections, and have regulatory and professional approval for these practices.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Performing external cephalic version (ECV)

#	Guidance question	Recommendation	Justification and conditions
10.1	Should NURSES perform external cephalic version (ECV) for breech presentation at term?	We recommend against this option.	There is insufficient evidence on the effectiveness of nurses performing external cephalic version. The intervention is outside the typical scope of practice of nurses and its acceptability and feasibility are uncertain. We therefore recommend against this option.

Delivery of specific pregnancy and childbirth interventions

#	Guidance question	Recommendation	Justification and conditions
11.5	Should NURSES administer corticosteroids to pregnant women in the context of preterm labour to improve neonatal outcomes?	We recommend against this option.	There is insufficient evidence on the effectiveness of nurses administering corticosteroids. Nurses do not have the necessary clinical skills for the diagnosis of preterm labour. We therefore recommend against this option.
11.7	Should NURSES perform vacuum extraction during childbirth?	We recommend against this option.	There is insufficient evidence on the effectiveness of nurses performing vacuum extraction during childbirth. The intervention is outside their typical scope of practice and the acceptability and feasibility of this intervention are uncertain. We therefore recommend against this option.
11.8	Should NURSES deliver a <u>loading dose</u> of magnesium sulphate to <u>prevent</u> eclampsia and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	There is insufficient evidence on the effectiveness of nurses delivering a loading dose of magnesium sulphate to prevent eclampsia and referring to a higher facility. However, in settings where it is not possible to administer the full magnesium sulphate regimen, a WHO guideline recommends the use of a magnesium sulphate loading dose followed by immediate transfer to a higher-level health facility, for women with severe pre-eclampsia and eclampsia (very low quality evidence, weak recommendation) (23). We therefore recommend this option be considered in the context of targeted monitoring and evaluation.
11.9	Should NURSES deliver a <u>maintenance dose</u> of magnesium sulphate to <u>prevent</u> eclampsia and refer to a higher facility?	We recommend against this option.	There is insufficient evidence on the effectiveness of nurses delivering a maintenance dose of magnesium sulphate to prevent eclampsia and referring to a higher facility. The intervention is outside their typical scope of practice and its acceptability is uncertain. We therefore recommend against this option.

#	Guidance question	Recommendation	Justification and conditions
11.10	Should NURSES deliver a loading dose of magnesium sulphate to treat eclampsia and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	There is insufficient evidence on the effectiveness of nurses delivering a loading dose of magnesium sulphate to treat eclampsia and referring to a higher facility. However, in settings where it is not possible to administer the full magnesium sulphate regimen, a guideline issued by the WHO recommends the use of a magnesium sulphate loading dose followed by immediate transfer to a higher-level health facility, for women with severe pre-eclampsia and eclampsia (very low quality evidence, weak recommendation) (23). We therefore recommend this option be considered in the context of targeted monitoring and evaluation.
11.11	Should NURSES deliver a maintenance dose of magnesium sulphate to treat eclampsia and refer to a higher facility?	We recommend against this option.	There is insufficient evidence on the effectiveness of nurses delivering a maintenance dose of magnesium sulphate to treat eclampsia and referring to a higher facility. The intervention is outside their typical scope of practice and its acceptability is uncertain. We therefore recommend against this option.
11.12	Should NURSES deliver magnesium sulphate to women in preterm labour as a neuroprotective for the fetus?	We recommend against this option.	While the intervention may be acceptable and feasible, there is insufficient evidence on the effectiveness of nurses delivering magnesium sulphate to women in preterm labour as a neuroprotective for the fetus. This intervention is outside their typical scope of practice. We therefore recommend against this option.

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Contraceptive delivery

#	Guidance question	Recommendation	Justification and conditions
12.3	Should NURSES insert and remove intrauterine devices (IUDs)	We recommend this option.	While the acceptability of this intervention may vary, it may be effective (very low to moderate certainty evidence), may be a feasible approach to contraception, and may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.
12.4	Should NURSES insert and remove contraceptive implants?	We recommend this option.	There is insufficient evidence on the effectiveness of this intervention, and acceptability may vary. However, there is evidence to suggest that nurses can effectively deliver other similar interventions. In addition, this intervention may be a feasible approach to the delivery of contraception and may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.
12.5	Should NURSES perform tubal ligation (postpartum and interval)?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of this intervention. However, this intervention may be an acceptable and feasible approach to contraception and may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>This intervention should be evaluated where a well-functioning referral system is in place or can be put in place. The Guidance Panel acknowledges that different methods of tubal ligation may need to be considered in evaluations of nurses performing tubal ligation.</p>
12.6	Should NURSES perform vasectomy?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of this intervention. However, this intervention may be an acceptable and feasible approach to contraception and may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>This intervention should be evaluated where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Because of the sensitivity of sexual and contraceptive issues, planners may need to consider whether the health workers promoting or delivering reproductive health services to women should also be women. It may also be an advantage to ensure that the relevant training of female health workers is conducted by women due to confidentiality issues and cultural sensitivities.

- Nurses and their supervisors need to receive appropriate initial and ongoing training. Topics should include communicating with recipients and the side-effects of different contraceptive methods. Such training needs to reinforce the fact that nurses should not introduce their own criteria when determining who should receive contraception.
- In addition to training nurses in confidentiality-related issues and concerns, recipients also need to be made aware that their interactions with health workers regarding contraception are confidential.

Interventions considered for midwives

- DELIVERY OF INJECTABLE ANTIBIOTICS FOR PRETERM PRE-LABOUR RUPTURE OF MEMBRANES (pPROM)
- UNDERTAKING OF EXTERNAL CEPHALIC VERSION (ECV)
- DELIVERY OF SPECIFIC PREGNANCY AND CHILDBIRTH INTERVENTIONS
- CONTRACEPTIVE DELIVERY

Delivery of injectable antibiotics for preterm pre-labour rupture of membranes (pPROM)

#	Guidance question	Recommendation	Justification and conditions
4.1	Should MIDWIVES diagnose preterm pre-labour rupture of membranes (pPROM) and deliver initial treatment of injectable antibiotics using a standard syringe, before referral?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and feasibility of midwives diagnosing preterm pre-labour rupture of membranes (pPROM) and delivering initial treatment of injectable antibiotics using a standard syringe before referral. However, this intervention may be acceptable and feasible and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest that the intervention be used where midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

Programmes need to ensure that this task promotes continuity of care and that all midwives are 'upskilled' to deliver this task to all potential recipients.

Performing external cephalic version (ECV)

#	Guidance question	Recommendation	Justification and conditions
10.1	Should MIDWIVES perform external cephalic version (ECV) for breech presentation at term?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of midwives performing external cephalic version and this intervention has the potential to cause harm. However, this intervention is probably acceptable, is probably feasible, and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest this intervention be evaluated where midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

Programmes need to ensure that this task promotes continuity of care and that all midwives are 'upskilled' to deliver this task to all potential recipients.

Delivery of specific pregnancy and childbirth interventions

#	Guidance question	Recommendation	Justification and conditions
11.5	Should MIDWIVES administer corticosteroids to pregnant women in the context of preterm labour to improve neonatal outcomes?	We suggest considering this option only in the context of rigorous research.	There is insufficient evidence on the effectiveness of midwives administering corticosteroids to pregnant women for the fetus in the context of preterm labour. This intervention is probably feasible but its acceptability is uncertain. It may reduce inequalities by extending care to underserved populations. We therefore suggest considering this option in the context of rigorous research.
11.7	Should MIDWIVES perform vacuum extraction during childbirth?	We suggest considering this option with targeted monitoring and evaluation.	There is insufficient evidence on the effectiveness of midwives performing vacuum extraction during childbirth and the acceptability of this intervention is uncertain. However, it is probably feasible and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation of failure rates, complications, and process measures such as the frequency of use. We suggest that this intervention be used where midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.
11.8	Should MIDWIVES deliver a <u>loading dose</u> of magnesium sulphate to <u>prevent eclampsia</u> and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	There is insufficient evidence on the effectiveness of midwives delivering a loading dose of magnesium sulphate to prevent eclampsia and referring to a higher facility. However, in settings where it is not possible to administer the full magnesium sulphate regimen, a guideline issued by the WHO recommends the use of a magnesium sulphate loading dose, followed by immediate transfer to a higher-level health facility, for women with severe pre-eclampsia and eclampsia (very low quality evidence, weak recommendation) (23). We therefore recommend this option be considered in the context of targeted monitoring and evaluation.

#	Guidance question	Recommendation	Justification and conditions
11.9	Should MIDWIVES deliver a <u>maintenance dose</u> of magnesium sulphate to <u>prevent</u> eclampsia and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness of midwives delivering a maintenance dose of magnesium sulphate to prevent eclampsia and referring to a higher facility. However, this intervention may be feasible and may be acceptable under certain conditions. The intervention may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest that the intervention be used in settings where midwives are working alone in primary care and it is not routinely possible to access cadres with higher levels of training. Since appropriate care of a woman with pre-eclampsia and eclampsia requires a team effort, referral to higher care should be sought.</p>
11.10	Should MIDWIVES deliver a <u>loading dose</u> of magnesium sulphate to <u>treat</u> eclampsia and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness of midwives delivering a loading dose of magnesium sulphate to treat eclampsia and referring to a higher facility. However, in settings where it is not possible to administer the full magnesium sulphate regimen, a guideline issued by the WHO recommends the use of a magnesium sulphate loading dose followed by immediate transfer to a higher-level health facility for women with severe pre-eclampsia and eclampsia (very low quality evidence, weak recommendation) (23). We therefore recommend this option be considered in the context of targeted monitoring and evaluation.</p>
11.11	Should MIDWIVES deliver a <u>maintenance dose</u> of magnesium sulphate to <u>treat</u> eclampsia and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness of midwives delivering a maintenance dose of magnesium sulphate to treat eclampsia and referral to a higher facility. However, this intervention may be feasible and may be acceptable under certain conditions. The intervention may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest that this intervention be used in settings where midwives are working alone in primary care and it is not routinely possible to access cadres with higher levels of training.</p>

#	Guidance question	Recommendation	Justification and conditions
11.12	Should MIDWIVES deliver magnesium sulphate to women in preterm labour as a neuroprotective for the fetus?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of midwives delivering magnesium sulphate to women in preterm labour as a neuroprotective for the fetus. However, midwives have the necessary clinical skills for the diagnosis of preterm labour and for the administration of magnesium sulphate and the intervention may be acceptable and feasible. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>We suggest that this intervention be evaluated where midwives are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

Programmes need to ensure that this task promotes continuity of care and that all midwives are ‘upskilled’ to deliver this task to all potential recipients.

Contraceptive delivery

#	Guidance question	Recommendation	Justification and conditions
12.3	Should MIDWIVES insert and remove intrauterine devices (IUDs)?	We recommend this option.	<p>There is insufficient evidence on the effectiveness of this intervention and acceptability may vary. However, there is evidence to suggest that auxiliary nurse midwives and nurses can effectively insert and remove IUDs. In addition, this intervention is probably feasible and may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be implemented where a well-functioning midwifery programme already exists.</p>
12.4	Should MIDWIVES insert and remove contraceptive implants?	We recommend this option.	<p>There is insufficient evidence on the effectiveness of this intervention and its acceptability is uncertain. This intervention would require minimal additional skills and is probably a feasible approach to the delivery of contraception. It may also reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be implemented where a well-functioning midwifery programme already exists.</p>
12.5	Should MIDWIVES perform tubal ligation (postpartum and interval)?	We suggest considering this option only in the context of rigorous research.	<p>This intervention may be effective (low to moderate certainty evidence) and may reduce inequalities by extending care to underserved populations. There is some uncertainty as to whether the intervention is an acceptable and feasible approach. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>The intervention should be evaluated where a well-functioning midwifery programme already exists and where a well-functioning referral system is in place or can be put in place. The Guidance Panel acknowledges that different methods of tubal ligation may need to be considered in evaluations of midwives performing tubal ligation.</p>
12.6	Should MIDWIVES perform vasectomy?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of this intervention. However, this intervention may be an acceptable and feasible approach to contraception and may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of rigorous research.</p> <p>Implementation in the context of research should be done where a well-functioning midwifery programme already exists and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Additional implementation considerations for this intervention:

- Programmes need to ensure that this task promotes continuity of care and that all midwives are 'upskilled' to deliver this task to all potential recipients.
- Midwives and their supervisors need to receive appropriate initial and ongoing training. Topics should include communicating with recipients and the side-effects of different contraceptive methods. Such training needs to reinforce the fact that midwives should not introduce their own criteria when determining who should receive contraception.
- In addition to training midwives in confidentiality-related issues and concerns, recipients also need to be made aware that their interactions with health workers regarding contraception are confidential.

Interventions considered for associate clinicians (non-physician clinicians)

- UNDERTAKING OF EXTERNAL CEPHALIC VERSION (ECV)
- DELIVERY OF SPECIFIC PREGNANCY AND CHILDBIRTH INTERVENTIONS
- CONTRACEPTIVES

Performing external cephalic version (ECV)

#	Guidance question	Recommendation	Justification and conditions
10.1	Should ASSOCIATE CLINICIANS perform external cephalic version (ECV) for breech presentation at term?	We recommend against this option.	There is insufficient evidence on the effectiveness of associate clinicians performing external cephalic version. The intervention is outside their typical scope of practice and its acceptability and feasibility are uncertain. We therefore recommend against this option.

Delivery of specific pregnancy and childbirth interventions

#	Guidance question	Recommendation	Justification and conditions
11.7	Should ASSOCIATE CLINICIANS perform vacuum extraction during childbirth?	We recommend against this option.	There is insufficient evidence on the effectiveness of associate clinicians performing vacuum extraction during childbirth. The intervention is outside their typical scope of practice, and its acceptability and feasibility are uncertain. We therefore recommend against this option.
11.8	Should ASSOCIATE CLINICIANS deliver a loading dose of magnesium sulphate to prevent eclampsia and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	There is insufficient evidence on the effectiveness of associate clinicians delivering a loading dose of magnesium sulphate to prevent eclampsia and referring to a higher facility. However, in settings where it is not possible to administer the full magnesium sulphate regimen, a guideline issued by the WHO recommends the use of a magnesium sulphate loading dose followed by immediate transfer to a higher-level health facility, for women with severe pre-eclampsia and eclampsia (very low quality evidence, weak recommendation) (23). We therefore recommend that this option be considered in the context of targeted monitoring and evaluation.
11.9	Should ASSOCIATE CLINICIANS deliver a maintenance dose of magnesium sulphate to prevent eclampsia and refer to a higher facility?	We recommend against this option.	There is insufficient evidence on the effectiveness of associate clinicians delivering a maintenance dose of magnesium sulphate to prevent eclampsia and referring to a higher facility. The intervention is outside their typical scope of practice, and its acceptability is uncertain. We therefore recommend against this option.
11.10	Should ASSOCIATE CLINICIANS deliver a loading dose of magnesium sulphate to treat eclampsia and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	There is insufficient evidence on the effectiveness of associate clinicians delivering a loading dose of magnesium sulphate to treat eclampsia and referring to a higher facility. However, in settings where it is not possible to administer the full magnesium sulphate regimen, a guideline issued by the WHO recommends the use of a magnesium sulphate loading dose followed by immediate transfer to a higher-level health facility, for women with severe pre-eclampsia and eclampsia (very low quality evidence, weak recommendation) (23). We therefore recommend this option be considered in the context of targeted monitoring and evaluation.

#	Guidance question	Recommendation	Justification and conditions
11.11	Should ASSOCIATE CLINICIANS deliver a <u>maintenance dose</u> of magnesium sulphate to <u>treat eclampsia</u> and refer to a higher facility?	We recommend against this option.	There is insufficient evidence on the effectiveness of associate clinicians delivering a maintenance dose of magnesium sulphate to treat eclampsia and referring to a higher facility. The intervention is outside their typical scope of practice, and its acceptability is uncertain. We therefore recommend against this option.
11.13	Should ASSOCIATE CLINICIANS perform caesarean sections?	We recommend against this option.	There is insufficient evidence on the effectiveness of associate clinicians performing caesarean sections. We are also uncertain about the feasibility of this intervention in many settings as associate clinicians do not generally have surgical skills. We therefore recommend against this option.
11.14	Should ASSOCIATE CLINICIANS perform manual removal of the placenta?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and acceptability of associate clinicians performing manual removal of the placenta. We are also uncertain about the feasibility of this intervention in many settings as associate clinicians do not generally have surgical and manual obstetric skills. However, this intervention has the potential to reduce inequalities by extending vital health care to underserved populations. We therefore suggest considering this option with targeted monitoring and evaluation.</p> <p>We suggest using this intervention where associate clinicians are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Interventions considered for advanced level associate clinicians (non-physician clinicians)

- UNDERTAKING OF EXTERNAL CEPHALIC VERSION (ECV)
- DELIVERY OF SPECIFIC PREGNANCY AND CHILDBIRTH INTERVENTIONS

Performing external cephalic version (ECV)

#	Guidance question	Recommendation	Justification and conditions
10.1	Should ADVANCED LEVEL ASSOCIATE CLINICIANS perform external cephalic version (ECV) for breech presentation at term?	We suggest considering this option only in the context of rigorous research.	<p>There is insufficient evidence on the effectiveness of advanced level associate clinicians performing external cephalic version (ECV). It may be feasible and may reduce inequalities by extending care to underserved populations, but acceptability may vary. We therefore suggest considering this option in the context of rigorous research in a hospital setting.</p> <p>We suggest using this intervention where advanced level associate clinicians are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Delivery of therapeutic interventions in pregnancy and childbirth

#	Guidance question	Recommendation	Justification and conditions
11.7	Should ADVANCED LEVEL ASSOCIATE CLINICIANS perform vacuum extraction during childbirth?	We recommend this option.	<p>There is insufficient evidence on the effectiveness of advanced level associate clinicians performing vacuum extraction during childbirth, and the acceptability of this intervention is uncertain. However, advanced level associate clinicians are likely to have the necessary obstetric skills. The intervention is probably feasible and may reduce inequalities by extending care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be implemented where advanced level associate clinicians with obstetric skills are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>
11.8	Should ADVANCED LEVEL ASSOCIATE CLINICIANS deliver a <u>loading dose</u> of magnesium sulphate to <u>prevent eclampsia</u> and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness of advanced level associate clinicians delivering a loading dose of magnesium sulphate to prevent eclampsia and referring to a higher facility. However, in settings where it is not possible to administer the full magnesium sulphate regimen, a guideline issued by the WHO recommends the use of a magnesium sulphate loading dose, followed by immediate transfer to a higher-level health facility, for women with severe pre-eclampsia and eclampsia (very low quality evidence, weak recommendation) (23). We therefore recommend this option be considered in the context of targeted monitoring and evaluation.</p>
11.9	Should ADVANCED LEVEL ASSOCIATE CLINICIANS deliver a <u>maintenance dose</u> of magnesium sulphate to <u>prevent eclampsia</u> and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	<p>There is insufficient evidence on the effectiveness and acceptability of advanced level associate clinicians delivering a maintenance dose of magnesium sulphate to prevent eclampsia and referring to a higher facility. However, this intervention is probably feasible and may also reduce inequalities by extending care to underserved populations.</p> <p>We therefore suggest this option be considered in the context of targeted monitoring and evaluation.</p> <p>We suggest that this intervention be used in settings where advanced level associate clinicians are working alone in primary care and it is not routinely possible to access cadres with higher levels of training.</p>

#	Guidance question	Recommendation	Justification and conditions
11.10	Should ADVANCED LEVEL ASSOCIATE CLINICIANS deliver a loading dose of magnesium sulphate to treat eclampsia and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	There is insufficient evidence on the effectiveness of advanced level associate clinicians delivering a loading dose of magnesium sulphate to treat eclampsia and referring to a higher facility. However, in settings where it is not possible to administer the full magnesium sulphate regimen, a guideline issued by the WHO recommends the use of a magnesium sulphate loading dose followed by immediate transfer to a higher-level health facility, for women with severe pre-eclampsia and eclampsia (very low quality evidence, weak recommendation) (23). We therefore recommend this option in the context of targeted monitoring and evaluation.
11.11	Should ADVANCED LEVEL ASSOCIATE CLINICIANS deliver a maintenance dose of magnesium sulphate to treat eclampsia and refer to a higher facility?	We suggest considering this option with targeted monitoring and evaluation.	There is insufficient evidence on the effectiveness and acceptability of advanced level associate clinicians delivering a maintenance dose of magnesium sulphate to treat eclampsia and referring to a higher facility. However, this intervention may be feasible and may also reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation. We suggest that this intervention be used in settings where advanced level associate clinicians are working alone in primary care and it is not routinely possible to access cadres with higher levels of training.
11.13	Should ADVANCED LEVEL ASSOCIATE CLINICIANS perform caesarean sections?	We suggest considering this option with targeted monitoring and evaluation.	The available evidence of effectiveness of advanced level associate clinicians performing caesarean section is of very low certainty. We are also uncertain about the feasibility of this intervention in many settings. However, the intervention may reduce inequalities by extending care to underserved populations. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation. We suggest that this intervention be used in settings where advanced level associate clinicians are working as the only cadre with surgical skills and it is not routinely possible to access cadres with higher levels of training.

#	Guidance question	Recommendation	Justification and conditions
11.14	Should ADVANCED LEVEL ASSOCIATE CLINICIANS perform manual removal of the placenta?	We recommend this option.	<p>There is insufficient evidence on the effectiveness and acceptability of advanced level associate clinicians performing manual removal of the placenta. However, advanced level associate clinicians are likely to have the necessary obstetric skills. This intervention may be feasible and may have the potential to reduce inequalities by extending vital health care to underserved populations. We therefore recommend this option.</p> <p>We suggest that this intervention be used where advanced level associate clinicians with obstetric skills are already an established cadre and where a well-functioning referral system is in place or can be put in place.</p>

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Interventions considered for non-specialist doctors

- UNDERTAKING OF EXTERNAL CEPHALIC VERSION (ECV)

Performing cephalic version (ECV)

#	Guidance question	Recommendation	Justification and conditions
10.1	Should NON-SPECIALIST DOCTORS perform external cephalic version (ECV) for breech presentation at term?	We suggest considering this option with targeted monitoring and evaluation.	The available evidence suggests that the use of non-specialist doctors to perform ECV has important benefits (low to moderate certainty evidence), and is likely to be acceptable and feasible. We therefore suggest that this option be considered in the context of targeted monitoring and evaluation.

General implementation considerations:

Planners need to consider a number of issues when shifting tasks from one health worker cadre to another. These include the distribution of roles among cadres, regulatory issues, stakeholder involvement, training and supervision, systems for referral, supply chains, and possible changes to payments or other incentives (see Box 1).

Box 1: General implementation considerations for all cadres

Role distribution

- Clear scopes of practice are needed for health-care providers and these should be provided at all levels of the health system. The distribution of roles and responsibilities between those implementing the intervention and other health workers needs to be made clear via, for example, regulations and job descriptions

Regulatory issues

- Changes in regulations may be necessary to support changes in the scopes of practice of health workers

Stakeholder involvement

- Health worker representatives and relevant professional bodies should be involved in the planning and implementation of the intervention to ensure acceptability among affected health workers
- Recipients of the intervention should also be involved in planning and implementation
- Local views and beliefs as well as local conditions related to the health issues in question should be addressed within the programme design

Training and supervision

- Health workers and their supervisors need to receive appropriate initial and ongoing training in relation to the intervention/s
- Responsibility for supervision needs to be clear and supervision needs to be regular and supportive

Systems for referral

- Where necessary, referral systems should function well, i.e. financial, logistical and relational barriers need to be addressed. Local health systems in particular need to be strengthened to improve the quality of care at the first referral facility

Supplies

- Supplies of drugs and other commodities need to be secured

Incentives

- Task shifting needs to be undertaken in the context of a comprehensive remuneration scheme in which salaries and incentives reflect any changes to the scope of practice. Providing incentives for certain tasks and not others may negatively affect the work undertaken

5. Implementing task shifting programmes: a summary of key cross-cutting factors based on reviews of qualitative studies and country case studies

The findings summarized in this chapter are based on an analysis of five reviews exploring the factors affecting the implementation of task shifting initiatives (14-18) and on a study of stakeholder views on optimizing the roles of health-care providers (19)⁷.

Governance and leadership

Societal beliefs and values may influence decisions to implement health programmes and the acceptance of such programmes locally. Similarly, political ideology may influence the way in which responsibility for health is divided across governmental tiers and the willingness of local governing parties to implement programmes with particular equity objectives.

Local municipalities in Brazil, for example, have the authority to decide whether to implement a task shifting initiative known as the 'Family Health Program' and to determine the scale at which the programme should be implemented. Such autonomy appears to have led to more local ownership of the implementation process and to have improved programme management. In contrast, the rollout of the ASHA (Accredited Social Health Activist) lay health worker programme in India has been hampered by a lack of clarity related both to the roles of national and local government and the disbursement of project funds.

Management of programmes: Understaffing and a lack of skills at a district management level may hamper the implementation of task shifting programmes. In some settings, managers may also lack the authority to make administrative decisions and may encounter problems with the disbursement and management of funds at a local level. However, programme implementation may be facilitated if local programme managers are able to adapt national policies to their specific settings and if programmes are supported by clear planning and communication from central health governance structures.

⁷ Chapter 3 describes the methods used for this analysis. The full findings of this analysis of cross-cutting factors affecting the implementation of task shifting programmes are available in [Annex 7](#).

Community involvement: Community involvement in programme implementation may be hampered if there are delays in establishing community management structures, if health workers are unaware of existing structures, or if existing structures function poorly. In some settings, communities may regard local management structures as an extension of the public service and may therefore assume that these structures are accountable to the state rather than to the communities themselves.

Financing

The disbursement and management of funds:

The challenges identified included a lack of clarity regarding the roles and financial responsibilities and authority of national and sub-national structures and a lack of knowledge and appropriate financial management guidelines at the local service level.

Payment methods: The choice of payment method can affect provider motivation. It can also influence relationships among health-care providers and between health-care providers and recipients. In settings where physician revenue is partly based on fee-for-service payments, for example, task shifting might be perceived by physicians as a potential threat to their income.

Access to commodities

Drug and supply shortages may negatively impact programme implementation and task shifting. Inadequate transport infrastructure may also affect the ability of health providers to reach clients, the ability of district officers to provide supervision to health providers, and the referral of patients to health facilities.

Service delivery

The impact of task shifting on the roles and identities of health-care providers: Task shifting may result in changes to the meaning of particular provider roles within a broader organizational context, to working relationships, and to relations between different components of a health system.

The shifting of more technological tasks to midwives, for instance, may disrupt the relationships between midwives and patients as well as the provision of continuous care – elements which are central to most notions of what midwifery is. However, the shifting of tasks to lay health workers may increase their status within communities or in health care teams.

The views and experiences of providers to whom the tasks have been shifted: Provider views of task shifting may depend on the extent to which they are consulted, the nature of the tasks being shifted, and the values and meanings attached to these tasks. Studies have reported instances in which task shifting has led to role ambiguity and unclear boundaries between health cadres.

Task shifting can lead to increased job satisfaction, for example by empowering providers with lower levels of training to expand their ability to address local health care needs. The new tasks may also provide increased social recognition if they are valued by communities. However, task shifting can also undermine job satisfaction in certain circumstances, such as health workers not being given adequate training and support. This may well lead to them becoming fearful of the new responsibilities they are expected to perform.

While task shifting often impacts on provider workloads, the perception of these changes may be influenced by the *type* of task that is shifted and the *manner* in which task shifting is organized (including the incentives provided). A study noted that lay health workers who had been trained to deliver vaccines believed that the advantages of being able to provide additional important health care interventions outweighed the disadvantages of their increased workload. Familiar work routines may be disrupted by task shifting. Many midwives typically prefer a one-to-one health care relationship with pregnant women, but this kind of relationship may be undermined by the integration of midwives into teams, or the addition of other cadres to provide support during childbirth.

When task shifting is implemented, it is important to specify clearly which provider has ultimate responsibility for the care given and where task accountability lies. Such details are often not specified within formal regulations or during the course of day-to-day practice and this may undermine provider confidence. Support systems also need to be established when cadres with lower levels of training are tasked with delivering treatments perceived to be potentially harmful by recipients. Visible support from the health system should be provided as well as reasonable insurance cover for malpractice.

Incentives that are both intrinsically and extrinsically motivating may be important, including public acknowledgement and social recognition, increases in professional status, and non-monetary incentives such as the provision of uniforms. If incentives are absent or discontinued, the sustainability or scale up of task shifting initiatives may be undermined. Similarly, the provision of incentives for certain tasks instead of others may have perverse effects on the work performed.

Views and experiences of providers from whom tasks have been shifted: Cadres with higher levels of training may be more likely to accept task shifting if they perceive that the tasks that will be shifted to other health workers are repetitive, less attractive or less complex. However, higher cadres have expressed concerns related to issues of accountability, medical liability (if difficulties arise), and the ability of cadres with lower levels of training to handle complex cases.

Task shifting may affect interprofessional relationships and forms of collaboration. Multidisciplinary training opportunities may help to promote respect and trust between providers, while formalising systems for interprofessional communication, such as routine meeting times, may improve collaboration and help to resolve conflicts.

Relations between different levels of the health system: Task shifting often involves the reorganization of patient flow processes and can result in an increase in referrals across different levels of health services. Systems therefore need to be put in place to manage and accommodate this change. Referral systems are more likely to function better if there are good relationships between cadres and a clear understanding of the roles of the different providers involved. Conversely, distrust between providers may act as a barrier to timely referral.

Views and experiences of task shifting among recipients of care: In general, recipients appear to have confidence in the competence of less highly trained health-care providers, but in some settings or for certain tasks, recipients may prefer care from cadres with higher levels of training. Recipient satisfaction with task shifting may be influenced by the extent to which the programmes are perceived as addressing their needs, the extent to which recipients are consulted in programme development, and recipients' access to other options.

Shifting tasks to those cadres with less training may help to reduce the distance between recipients and providers of health care in terms of language, social status, gender, and

physical barriers. However, where tasks related to care for stigmatized conditions are 'downshifted' to providers who are from the same community as recipients, this 'reduced distance' may be perceived as a threat to the confidentiality and privacy of recipients.

Health workforce

Pre-service and in-service training. Problems include the inadequate provision of training, training that does not address practice needs, unskilled trainers, inflexible training schedules, and unrealistic and unachievable training requirements. The reviews suggested that training needs to evolve in relation to changes in the roles of cadres or the tasks that they are expected to undertake.

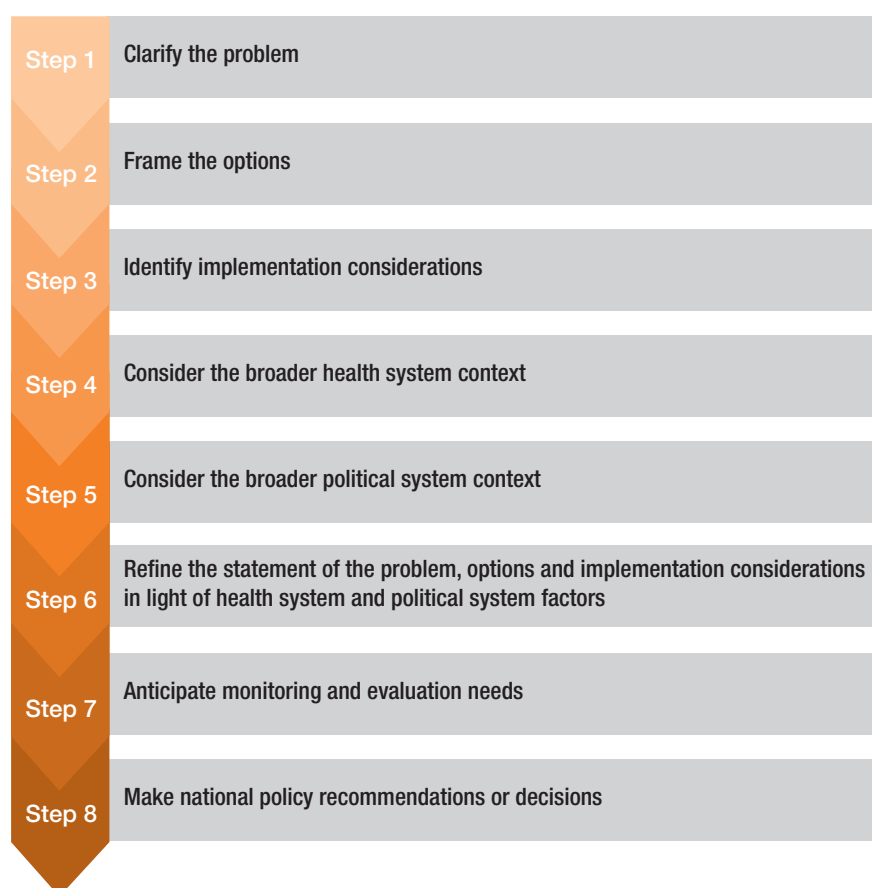
Supervision and support. In addition to clinical supervision, other forms of support need to be provided, including emotional support and advice related to liability issues. Challenges related to supervision include insufficient supervision, a lack of supervisor preparation or confidence, insufficient time, logistical issues (such as a lack of funds for supervisors to travel to peripheral facilities), and the bureaucratization of supervision. Field-based supervision which is closely related to day-to-day working conditions and practice, together with peer interaction, may help to improve provider support.

6. Contextualizing guidance

Using evidence-informed global guidance, such as recommendations issued by the WHO, can help countries to improve their health system performance. However, developing or changing health policies and health systems involves complex processes. Most guidance documents do not contextualize recommendations in relation to specific national needs, particularly with regard to health and political systems. This section therefore offers a brief overview of how the OptimizeMNH guidance can be contextualized at a national level using an 8-step ‘health systems guidance for policy-making’ framework (Figure 3). Detailed information about the individual steps can be found in [Annex 8](#).

According to this 8-step process, users should first identify specific national policy-making processes in order to determine an appropriate venue (such as a national guidance panel or Ministry of Health) in which such guidance can be addressed. This step is important for determining the appropriate product form, audience, format, and language that will be used when making recommendations or policy decisions. Identifying the right time for moving a policy forward – an open ‘policy window’, for example – can be important for maximizing success.

Figure 3. Framework for evidence-based health systems guidance for policy-making



Step 1 – Clarify the problem: Clarifying the problem as it is experienced in a country is a critical part of the policy-making process and can influence whether and how policy-makers take action to address a problem (26).

Step 2 – Frame the options: Policy or programme options may be more appropriate when they are technically feasible (e.g. appropriate resources are available), fit with dominant values (e.g. there is political support), and are workable within the budget available (27). During Step 2, policy options are developed based on the findings from Step 1.

Step 3 – Identify implementation considerations: The implementation of a policy can be complex and a policy is likely to fail if inadequate attention is given to implementation considerations (28). Identifying barriers to implementation and finding strategies to deal with these issues will facilitate the work of translating policy into practice (28). Cross-cutting equity considerations are also important and are specified in Steps 1–3 of the 8-step framework.

Step 4 – Consider the broader health system context: After working through the problem and then the option and implementation considerations in Steps 1–3, it is important to consider how the key features of the health system are likely to influence decision-making and *whether* and *how* to act on the guidance recommendations regarding the relevant cadres (24). Step 4 involves an assessment of these health system factors, and consideration is given to delivery arrangements (e.g. training and supervision supports and referral processes), financial arrangements (e.g. incentives), and governance arrangements (e.g. regulations governing the scopes of practice).

Step 5 – Consider the broader political system context: Understanding how key features of the political system influence the prospects of a policy option will help to identify potential barriers to, or facilitators of, policy development and implementation (24). Consideration should be given to political system features, including institutions (e.g. what decision-making arenas and processes could be encountered), interests (e.g. which cadres or other stakeholders are likely to experience concentrated benefits or costs), ideas (e.g. values about equity of access/utilization), and external factors (e.g. the appointment of a new Health Minister).

Step 6 – Refine the statement of the problem, options and implementation considerations in light of health system and political system factors: Step 6 is a tool for users to reflect upon the process of contextualizing the problem and upon implementation considerations for the policy options in light of national health and political system characteristics. A consideration of context is important as this can influence the likelihood of a policy option being adopted and implemented successfully.

Step 7 – Anticipate monitoring and evaluation needs: Monitoring and evaluation are used to determine if a policy has been implemented as expected and if it is working (29). Monitoring involves the systematic collection of evidence to answer questions regarding the nature and extent of implementation, while evaluation typically focuses more on the achievement of the results (29). Indicators are factors used to measure achievement or reflect the changes resulting from an intervention. An impact evaluation helps to determine if changes observed in the outcomes (impacts) are caused by a policy (29).

Step 8 – Make national policy recommendations or decisions: Identifying the relevant national processes for policy-making and the appropriate venue for addressing the contextualization and implementation of the guidance are important. This is because doing so helps to ensure the use of the appropriate product, audience, format, and language when developing policy recommendations or making policy decisions. If policy recommendations are created using the 8-step framework outlined above then policy-makers will have a good sense of which options are workable. They will also have an understanding of the pros and cons of each option with reference to implementation issues, health system features, political system features, monitoring and evaluation needs, and cross-cutting equity issues.

The timing of *when* policy options are brought forward (e.g. during an election in which the relevant and related issues are being discussed) can also increase the likelihood of action. If a decision is taken to consider acting on the recommendation/s in this document in light of the health and political system assessments noted above, then local data and evidence as well as local tacit knowledge, views and experiences can be combined with the global evidence provided in the OptimizeMNH guidance documents when preparing an evidence brief for policy. Evidence briefs for policies (or policy proposals) that are structured in this way can enable decision-makers to have focused discussions (such as policy dialogues) that are based on sound global and local evidence (24).

7. Research implications

The following general observations regarding future research were made by the Guidance Panel during the meetings:

- There was a general agreement that despite the attention given to task shifting and to lay health worker programmes in LMICs in particular, the paucity of reliable research data was alarming.
- Most of the research evidence identified related to both barriers and facilitators and the effectiveness of lay health worker programmes. Far less evidence about mid-level providers was found, especially evidence related to auxiliary nurses, auxiliary nurse midwives and associate clinicians.
- The qualitative research that was synthesized was helpful in identifying factors that may influence the success of task shifting initiatives. However, there is still lack of qualitative research conducted alongside trials of the effectiveness of task shifting interventions. Such research can shed more direct light on the reasons for the described trial results.
- It may be desirable to evaluate the optimized delivery of *packages* of interventions (e.g. the effectiveness of using auxiliary nurses to deliver a range of tasks related to childbirth) rather than individual interventions (e.g. the effectiveness of using lay health workers to deliver misoprostol to prevent post-partum haemorrhage). This would constitute a more holistic approach to complex health systems questions and would allow both the roles and competencies of particular cadres to be considered.
- This guidance makes recommendations for individual health worker categories. Some members of the Guidance Panel felt that it should be complemented by additional guidance on the relative effectiveness of *teams* with different health worker configurations.
- While many research questions were proposed during the meeting, there was insufficient time to reach consensus about future research priorities. The members of the Guidance Panel suggested that the WHO Secretariat should conduct a research prioritization exercise using these proposed ideas. This, it was suggested, should be done after the publication of the guidance and using different knowledge exchange channels and platforms.

Some of the specific questions suggested by the Guidance Panel members are listed below. The order of the questions in the list below is not intended to imply any order of priority.

General questions	
How are specific interventions adapted at the point of implementation?	
How does task shifting impact on (a) interprofessional and (b) provider-patient relations?	
To what extent are additional competencies retained over time and which strategies are effective in maintaining them?	
Questions related to specific health worker categories	
Traditional healers/ practitioners	What are the roles of traditional practitioners (if any) in delivering health care in the community?
LHWs	What is the cost-effectiveness of CPADs over standard syringes when used by LHWs across practices/interventions?
LHWs	What are the opportunity costs of using LHWs to provide certain emergency obstetric and newborn interventions? How do these opportunity costs impact on the access of women to skilled birth attendance?
LHWs	What is the level of community acceptability of LHWs providing certain emergency obstetric care interventions?
LHWs	Which forms of LHW supervision are effective?
LHWs	How can the linkages between LHWs and the formal health care system be strengthened?
LHWs–MLPs	What factors influence the relationship between LHWs and other health workers?
LHWs–MLPs	What is the relative cost-effectiveness of the different health worker provider groups included in this guidance for the delivery of specific interventions or practices?
Midwives	Does the addition of non-maternal/newborn health-related tasks to the responsibilities of a midwife impact on her ability or willingness to provide adequate maternal health services?
Associate Clinicians	What factors influence the clinical work and performance of associate clinicians (basic NPCs)?
MLPs	How do the provider retention rates of MLPs compare to the retention rates of doctors in rural areas?

8. Dissemination of the recommendations

The ultimate goal of these recommendations is to improve the quality of care and health outcomes for mothers and infants. The dissemination and implementation of this guidance are crucial steps which should be undertaken by the international community and national and local health care services.

The WHO Department of Reproductive Health and Research has adopted a formal Knowledge-to-Action framework for the dissemination, adaptation and implementation of this guidance (10). In addition to this framework, a list of priority actions was agreed upon during the WHO technical consultations, and this will be used by the WHO and other partners to foster the dissemination and implementation of this guidance. The recommendations in this guidance will be disseminated through a broad network of international partners, including WHO country and regional offices, Ministries of Health, WHO collaborating centres, other United Nations agencies, and non-governmental

organizations. They will also be published on the WHO web site and in *The WHO Reproductive Health Library* (30) where they will be accompanied by an independent critical appraisal based on the AGREE (Appraisal of Guidelines Research and Evaluation) instrument (www.agreecollaboration.org/instrument). In addition, a policy brief aimed at a wide range of policy-makers, programme managers and clinicians will be developed and disseminated through the WHO country offices.

The successful introduction of evidence-based policies related to task shifting into national programmes and health care services depends on well-planned, participatory, and consensus-driven processes of adaptation and implementation. Guidance on national adaptation and implementation processes is elaborated on further in Chapter 6 ('Contextualizing guidance'). All recommendations made in this document require a consideration of local context.

Priority actions for dissemination

Prepare guidance derivatives for policy-makers, consumers, clinicians and other groups (e.g. a two-page policy brief and a press release for engaging the public via the media).

Prepare translations of the Executive Summary of this guidance into official United Nations languages.

Seek endorsement by national and international professional societies, including the International Federation of Gynecology and Obstetrics, the International Confederation of Midwives, and other organizations such as the American College of Obstetricians and Gynecologists, and the Royal College of Obstetricians and Gynaecologists.

Continue working with The Norwegian Knowledge Centre for the Health Services to develop tools, including educational videos and other audiovisual presentations, to facilitate the formulation of evidence-informed health policies based on the recommendations in this guidance.

Meetings and events at which this guidance has or could be disseminated

- » Royal Tropical Institute (KIT), the Netherlands – The role of community based providers in improving maternal and newborn health: 30 May 2012, Amsterdam, The Netherlands
- » USAID Community Health Worker Summit: June 2012, Washington DC, United States of America
- » Family Planning Summit: 11 July 2012, London, United Kingdom
- » International Federation of Gynecology and Obstetrics (FIGO) Conference: 7–12 October 2012, Rome, Italy
- » Canadian Network for Maternal, Newborn and Child Health Annual Meeting: October 2012
- » Second Global Symposium on Health Systems Research: 31 October–3 November 2012, Beijing, China
- » East Central and Southern Africa Association of Obstetrical and Gynaecological Societies (ECSAOGS) Conference: 2012, Maputo, Mozambique
- » Maternal Health Task Force meeting: 15–17 January 2013, Arusha, United Republic of Tanzania
- » All India Congress of Obstetrics and Gynaecology (AICOG): 16–20 January 2013, Mumbai, India
- » Women Deliver 2013: 28–30 May 2013, Kuala Lumpur, Malaysia
- » French Speaking Countries Summit 2013

Other activities

Piloting the workbook ([Annex 8](#)) in countries

Using web-based, audiovisual dissemination channels such as YouTube to place clips and information describing the guidance methods and recommendations. Afro-Nets and community practice and discussion lists could also be used

Dissemination via the WHO Regional Office for South-East Asia (SEARO) working group on human resources and task shifting in the region

USAID may support derivative products to communicate the recommendations to stakeholders

9. Review and updating of the recommendations

The recommendations included in this guidance and the derivative products will be used in international and national adaptation initiatives. Feedback received will be recorded and used to contribute to future updates. Members of the WHO Technical Secretariat and researchers from The Norwegian Knowledge Centre for the Health Services are currently conducting user testing of the evidence-to-recommendation frameworks outlined in this guidance. This testing will assess how well these frameworks function as a process tool for

the presentation of evidence and decision-making within guidance panels (further information can be found at: www.decide-collaboration.eu). This evaluation will also contribute to future guidance revisions.

The recommendations will be updated within five years (by 2018) unless significant new evidence emerges and earlier changes are needed.

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