THE STATE OF THE
WORLD'S MIDWIFERY
—— 2014 ——

A UNIVERSAL
PATHWAY.
A WOMAN'S RIGHT
TO HEALTH

UNFPA

International
Confederation
of Midwives
Strengthening Midwifery Globally

World Health
Organization

REPRODUCTIVE HEALTH   PREGNANCY   CHILDBIRTH   POSTNATAL

CONTRIBUTORS AND ACKNOWLEDGEMENTS

ABBREVIATIONS AND ACRONYMS

AAAQ	availability, accessibility, acceptability and quality
AVD	assisted vaginal delivery
B-EmONC	basic emergency obstetric and newborn care
C-EmONC	comprehensive emergency obstetric and newborn care
CHW	community health worker
CMDP	Community-based Midwifery Diploma Programme
EC	emergency contraception
EmONC	emergency obstetric and newborn care
GIS	geographic information system
GPS	Global Positioning System
HCPAs	health-care professional associations
HRH	human resources for health
ICM	International Confederation of Midwives
ICN	International Council of Nurses
ISCO	International Standard Classification of Occupations
MDG	Millennium Development Goal
MMR	maternal mortality ratio
NMR	neonatal mortality rate
MNH	maternal and newborn health
NGOs	non-governmental organizations
PMNCH	The Partnership for Maternal, Newborn & Child Health
SRMNH	sexual, reproductive, maternal and newborn health
SoWMy	State of the World's Midwifery
STIs	sexually transmitted infections
TBA	traditional birth attendants
UNFPA	United Nations Population Fund
UHC	universal health coverage
WHO	World Health Organization

Cover photos (left to right): Viviane Fortaillier, Viviane Fortaillier, ICM/Liba Taylor, Save the Children

THE STATE OF THE WORLD'S MIDWIFERY **2014**

A UNIVERSAL PATHWAY. A WOMAN'S RIGHT TO HEALTH

Foreword

The world has reached a turning point for women's and children's health. We can now celebrate the fact that maternal, neonatal and child mortality rates are at their lowest levels in history. We are poised for even greater progress thanks to the *Every Woman Every Child* initiative, our progress toward achieving the Millennium Development Goals, as well as the ongoing discussions regarding a set of global sustainable development goals to succeed the Millennium Development Goals after their target completion date of 2015.

This report links two specific areas of focus that I care deeply about: first, maternal and newborn health, and second, the overarching principles and values of the post-2015 development agenda, providing new evidence for decision-makers.

The midwifery workforce, within a supportive health system, can support women and girls to prevent unwanted pregnancies, provide assistance throughout pregnancy and childbirth, and save the lives of babies born too early.

With leadership and resources, the world can prevent the vast majority of avoidable yet tragically common losses of life and address the vicious cycle of impoverishment that ensues.

The *State of the World's Midwifery 2014* documents growing momentum since the first call to action in the 2011 report. Every year, more governments, professional associations and other partners are acting on the evidence that midwifery can dramatically accelerate progress on sexual, reproductive, maternal and newborn health and universal health coverage.

I fully support the Midwifery 2030 vision articulated in this report. This vision is within reach of all countries, at all stages of economic and demographic transition. Its implementation will help governments to deliver on women's right to health, ensure that women and newborn infants obtain the care they need, and contribute to our shared, global ambition to end preventable maternal and newborn deaths.

I commend this report to all those interested in joining the United Nations as we work towards the Midwifery 2030 vision and improve the future of women's and children's health.

Ban Ki-moon
Secretary-General of the United Nations

Executive Summary

The State of the World's Midwifery (SoWMy) 2014: A Universal Pathway. A Woman's Right to Health takes its inspiration from the United Nations Secretary-General's *Every Woman Every Child* initiative and his call to action in September 2013 to do everything possible to achieve the Millennium Development Goals (MDGs) by 2015 and work towards the development and adoption of a post-2015 agenda based on the principle of universality.

SoWMy 2014's main objective, agreed at the 2nd Global Midwifery Symposium held in Kuala Lumpur in May 2013, is to provide an evidence base on the state of the world's midwifery in 2014 that will: support policy dialogue between governments and their partners; accelerate progress on the health MDGs; identify developments in the three years since the *SoWMy 2011* report was published; and inform negotiations for and preparation of the post-2015 development agenda.

SoWMy 2014 focuses on 73 of the 75 low- and middle-income countries that are included in the "Countdown to 2015" reports. More than 92% of all the world's maternal and newborn deaths and stillbirths occur within these 73 countries. However, only 42% of the world's medical, midwifery and nursing personnel are available to women and newborn infants (hereafter 'newborns') in these countries.

Midwifery is a key element of sexual, reproductive, maternal and newborn health (SRMNH) care and is defined in this report as: the health services and health workforce needed to support and care for women and newborns, including sexual and reproductive health and especially pregnancy, labour and postnatal care. This enables analysis of the diverse ways in which midwifery is delivered by a range of health-care professionals and associate professionals.

SoWMy 2014 has been co-ordinated by the United Nations Population Fund, the International Confederation of Midwives and the World Health Organization on behalf of government repre-

sentatives and national stakeholders in the 73 countries and 30 global development partners.

Tangible progress has been made in improving midwifery in many countries since the *SoWMy 2011* report: 33 of the 73 countries (45%) report vigorous attempts to improve workforce retention in remote areas; 20 countries (28%) have started to increase recruitment and deployment of midwives; 13 countries (18%) have prepared plans to establish regulatory bodies; and 14 (20%) have a new code of practice and/or regulatory framework. Perhaps the most impressive collective step forward is the improvement in workforce data, information and accountability, reported by 52 countries (71%).

The evidence and analysis in *SoWMy 2014* is structured by the four domains that determine whether a health system and its health workforce are providing effective coverage, i.e. whether women are obtaining the care they want and

Not all countries have a dedicated professional cadre focused on supporting women and newborns. *(Mamaye Sierra Leone)*

need in relation to SRMNH services. These four domains are: availability, accessibility, acceptability and quality.

Availability: *SoWMy 2014* provides new estimates of the essential SRMNH services needed by women and newborns. This need for services, in each country, can be converted into the need for the midwifery workforce.

Midwives, when educated and regulated to international standards, have the competencies to deliver 87% of this service need. However, midwives make up only 36% of the reported midwifery workforce: not all countries have a dedicated professional cadre focused on supporting women and newborns. Instead there is diversity in the typologies, roles and composition of health workers contributing to midwifery services, and many of these workers spend less than 100% of their time on SRMNH services.

The new evidence on diversity presented in *SoWMy 2014* can inform policy and planning. Firstly, the availability of the midwifery workforce and the roles they perform cannot be deduced from job titles. Secondly, the full-time equivalent midwifery workforce represents less than two thirds of all workers spending time on SRMNH services. Therefore, any analysis comparing

or correlating the midwifery workforce with SRMNH outputs/outcomes should take full-time equivalent staffing as the measure of availability.

The evidence identifies opportunities to: align job titles, roles and responsibilities; strengthen linkages between education and employment: improve efficiency; and assess and reduce high levels of turnover and attrition. In particular, progress is required on the identity, status and salaries of midwives, removing gender discrimination and addressing the lack of political attention to issues which only affect women.

Accessibility: Although nearly all of the 73 countries recognize the importance of financial accessibility and have a policy of offering at least some essential elements of SRMNH care free of charge at the point of access, only 4 provide a national "minimum guaranteed benefits package" for SRMNH that includes all the essential interventions. Gaps in the essential interventions include those known to reduce the four leading causes of maternal mortality: severe bleeding; infections; high blood pressure during pregnancy (pre-eclampsia and eclampsia); and unsafe abortion.

Lack of geographical data on health facilities and midwifery workers precludes reliable assessment of whether all women have access to a health worker when needed. Improving accessibility requires making all urban and rural areas attractive to health workers, and ensuring that all barriers to care, including lack of transportation, essential medicines and health-care workers, are removed.

Acceptability: Most countries have policies in place to deliver SRMNH care in ways that are sensitive to social and cultural needs. However, data on women's perceptions of midwifery care are scarce, and countries acknowledge the need for more robust research on this topic. Contributors to the SoWMy 2014 workshops noted that the issue of acceptability is strongly linked to discrimination and the status of

women generally, both as service users and health workers.

Quality of both care and care providers can be increased by improving the quality of midwifery education, regulation and the role of professional associations. *SoWMy 2014* indicates that although the curricula in most countries are appropriate and up-to-date, pervasive gaps

remain in education infrastructure, resources and systems, particularly for direct-entry midwifery programmes.

Nearly all of the 73 countries have a regulatory infrastructure for midwifery, with prescribed standards for midwifery education, including in the private sector. Quality of care would be further strengthened by licensing/re-licensing systems that

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🔑 KEY MESSAGES

The report shows that:

1 The 73 Countdown countries included in the report account for more than **92% OF GLOBAL MATERNAL AND NEWBORN DEATHS AND STILLBIRTHS** but have only **42% OF THE WORLD'S MEDICAL, MIDWIFERY AND NURSING PERSONNEL.** Within these countries, workforce deficits are often most acute in areas where maternal and newborn mortality rates are highest.

92%

2 **ONLY 4 OF THE 73 COUNTRIES** have a midwifery workforce that is able to meet the universal need for the 46 essential interventions for sexual, reproductive, maternal and newborn health.

3 Countries are endeavouring to expand and deliver equitable midwifery services, but **COMPREHENSIVE, DISAGGREGATED DATA** for determining the availability, accessibility, acceptability and quality of the midwifery workforce **ARE NOT AVAILABLE**.

4 Midwives who are educated and regulated to international standards can provide **87% OF THE ESSENTIAL CARE** needed for women and newborns.

87%

5 In order for midwives to work effectively, **FACILITIES NEED TO BE EQUIPPED TO OFFER THE APPROPRIATE SERVICES**, including for emergencies (safe blood, caesarean sections, newborn resuscitation).

6 Accurate data on the midwifery workforce enable countries to plan effectively. This requires **A MINIMUM OF 10 PIECES OF INFORMATION THAT ALL COUNTRIES SHOULD COLLECT:** headcount, percentage time spent on SRMNH, roles, age distribution, retirement age, length of education, enrolments into, attrition and graduation from education, and voluntary attrition from the workforce.

7 Legislation, regulation and licensing of midwifery allow midwives to provide the high-quality care they are educated to deliver and thus protects women's health. High-quality midwifery care for women and newborns saves lives and **CONTRIBUTES TO HEALTHY FAMILIES AND MORE PRODUCTIVE COMMUNITIES.**

8 The returns on investment are a "best buy":

- Investing in midwifery education, with deployment to community-based services, could yield a **16-FOLD RETURN ON INVESTMENT** in terms of lives saved and costs of caesarean sections avoided, and is **A "BEST BUY" IN PRIMARY HEALTH CARE.**

- Investing in midwives frees doctors, nurses and other health cadres to focus on other health needs, and contributes to achieving a grand convergence: reducing infections, **ENDING PREVENTABLE MATERNAL MORTALITY** and **ENDING PREVENTABLE NEWBORN DEATHS.**

require the midwifery workforce to demonstrate continuing professional development.

The ultimate goal of professional associations is to foster a dynamic, collaborative, fit-for-purpose, practice-ready team of health-care professionals who are responsive to the needs of women and children. Although almost all countries have at least one professional association for midwives, nurse-midwives or auxiliary midwives, their role in quality improvement could be strengthened if they were enabled to contribute to policy discussions and key decisions affecting midwifery services.

There are substantial gaps in effective coverage in both the availability and quality dimensions. Reducing these gaps requires the collection and better use of workforce data and leadership to prioritize midwifery and release resources to support workforce and service planning. The minimum 10 data elements required for health workforce planning are: headcount, percentage time spent on SRMNH, roles, age distribution, retirement age, length of education, enrolments into, attrition and graduation from education, and voluntary attrition from the workforce.

Midwifery2030: Quality midwifery care is central to achieving national and global priorities and securing the rights of women and newborns. *SoWMy 2014* has developed *Midwifery2030* as a pathway for policy and planning. Starting from the premises that pregnant women are healthy unless complications, or signs thereof, occur, and that midwifery care provides preventive and supportive care with access to emergency care when needed, it promotes woman-centred and midwife-led models of care, which have been shown to generate greater benefits and cost savings than medicalized models of care.

Midwifery2030 focuses on increasing the availability, accessibility, acceptability and quality of health services and health services and health providers to achieve the three components of universal health coverage (UHC): reaching a greater proportion of women of reproductive age (increasing coverage); extending the basic and essential health package (increasing services); while protecting against financial hardship (increasing financial protection). Central to this are an enabling policy environment that supports effective midwifery education, regulation and association development, and an enabling practice environment that provides access to effective consultation with and referral to the next level of SRMNH services. This should be underpinned by effective management of the workforce, including professional development and career pathways.

Implementing the recommendations of *Midwifery2030* can lead to significant returns on investment. A value for money assessment in Bangladesh reviewing the education and future deployment of 500 community-based midwives ranked positively for economy, efficiency and effectiveness. The assessment calculated a beneficial impact comparable to that of child immunization, with a 16-fold return on investment and confirms that midwifery is a "best buy" in primary health care.

Essential building blocks for putting the *Midwifery2030* vision into practice include political will, effective leadership and midwifery "champions" who will drive the agenda, supported by the current regional and international momentum for improvements to SRMNH.

Midwives can offer woman-centred and supportive care that goes beyond childbirth.
(World Vision/ Sopheak Kong)

INTRODUCTION

In September 2013, United Nations Secretary-General Ban Ki-moon presented his annual report on progress towards the Millennium Development Goals (MDGs) to the United Nations General Assembly [1]. His report, *A life of dignity for all*, calls for all countries and the international community at large to do everything possible to achieve the MDGs by the end of 2015 and to work towards the development and adoption of a post-2015 agenda based on the principles of universality, leaving no one behind. It identifies an emerging vision that includes every woman and girl having "equal access to health services, including sexual and reproductive health and reproductive rights", as part of the increasing momentum to realize "universal health-care coverage, access and affordability", for example, in resolutions adopted by the World Health Assembly [2] and United Nations General Assembly [3].

This report, *The State of the World's Midwifery 2014 (SoWMy 2014)*, takes inspiration from the United Nations Secretary-General's above-mentioned call to action, as well as his *Every Woman Every Child* initiative, launched in 2010 [4]. *SoWMy 2014*'s main objective, as agreed at the 2nd Global Midwifery Symposium held in Kuala Lumpur in May 2013 [5], is to provide an evidence base on the state of the world's midwifery in 2014 that will:

- support policy dialogue between governments and their partners;

- accelerate progress on the health MDGs;

- identify developments in the three years since *SoWMy 2011* was published [6];

- inform negotiations for and preparation of the post-2015 development agenda.

Partners at the 2nd Global Midwifery Symposium reaffirmed that the returns on investing in a proficient, motivated and supported midwifery workforce are enormous, and they committed to improving midwifery services in all regions of the world [5]. Specifically they committed to "improve the data collection and evidence base for midwifery and identify actions to address the context-specific barriers to midwifery services within countries". This report responds to that commitment by updating the 2011 report, which has proved to be a valuable source of evidence and tool for advocacy [7].

SoWMy 2014 focuses on the 75 low- and middle-income countries that are included in the "Countdown to 2015" reports (hereafter Countdown) [8]. 73 countries agreed to contribute to the preparation of *SoWMy 2014*; Equatorial Guinea and the Philippines were unable to contribute due to emergency and scheduling commitments. *SoWMy 2014* adds detailed information on the midwifery workforce and enabling environment in each country to inform national efforts to achieve universal, sustained and equitable coverage of the essential interventions [9] in sexual, reproductive, maternal and newborn health (SRMNH) [10] that are proven to save women's and children's lives.

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Preparations included collating updated data on the midwifery workforce*, midwifery education, regulation, professional associations, policy and planning frameworks, and progress since 2011. Where feasible, participating countries hosted a policy workshop exploring barriers, challenges and solutions to the availability, accessibility, acceptability and quality (AAAQ) of midwifery services, and in particular the midwifery work-force. For this reason, the preparation of this report has been in many countries an impor-tant element of the national effort to improve women's and newborn infants' (hereafter: new-borns) access to competent health professionals. Figure 1 illustrates a selection of key indicators for the 73 countries included in the report.

* The SoWMy survey requested countries to submit data on all professional, associate professional and other health cadres engaged in the provision of maternal and newborn health care (whether they work in the public or private sectors). Data should however be considered as indicative of those working in the public sector.

As shown in Figure 1, more than 92% of all maternal and newborn deaths and stillbirths [11–13] occur within these 73 countries. They are home to women giving birth to 107 million babies per year, making up 78% of the world's total births in 2009. Yet the number of deaths in these countries is 96% of the global burden of maternal mortality, 91% of stillbirths and 93% of newborn mortality [11–15]. The Global Health Observatory indicates that only 42% of the world's medical, midwifery and nursing person-nel are available in these 73 countries [16].

What is midwifery? *SoWMy 2014* looks at the inequitable state of the world shown in Figure 1 through the lens of midwifery [17]. The definition of "midwifery" used in this report is: the health services and health workforce needed to support and care for women and newborns, including sexual and reproductive health and especially pregnancy, labour and postnatal care. This

FIGURE 1   **Key indicators for maternal and newborn health and the health workforce in 73 of 75 Countdown countries**

Percentage of births attended by skilled attendant

- <20%
- 20% - 49%
- 50% - 74%
- 75% - 94%
- 95% or over
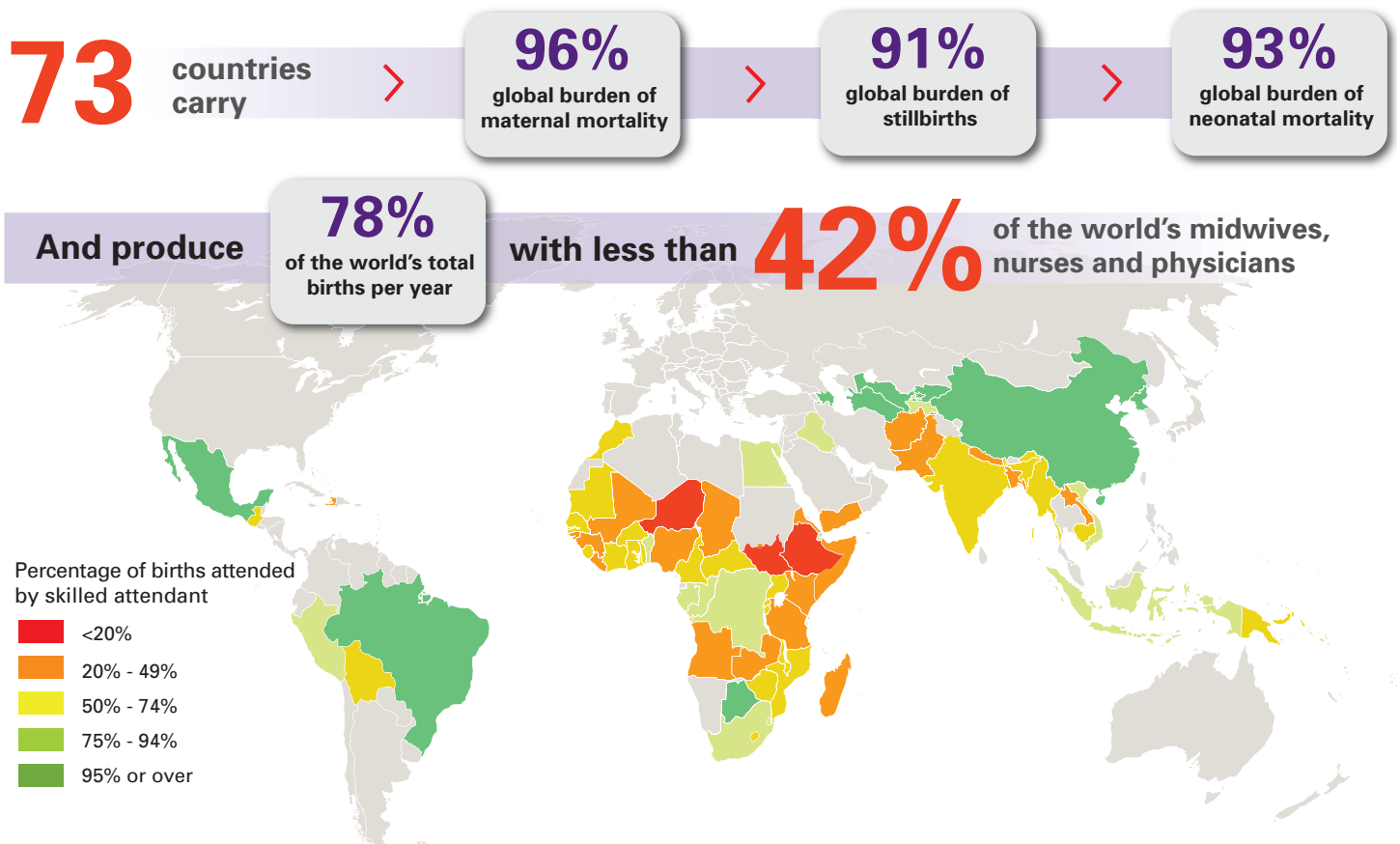
includes a full package of sexual and reproductive health services, including preventing mother-to-child transmission of HIV, preventing and treating sexually transmitted infections and HIV, preventing pregnancy, dealing with the consequences of unsafe abortion and providing safe abortion in circumstances where it is not against the law. This definition is wider than, for example, the Medical Subject Headings definition, introduced in 1966, which simplifies midwifery to "the practice of assisting women in childbirth" [18]. This report emphasizes that midwifery involves far more than the care of the mother during childbirth: it promotes woman-centred care and the well-being of women more generally [19–21] through a supportive and preventive model of care [22,23]. Note that the terms "woman-centred care" and the "well-being of women" include, at appropriate times, the mother and her newborn child.

The report generally uses the term "midwife" to include those health professionals who are educated to undertake the roles and responsibilities of a midwife regardless of their educational pathway to midwifery, whether direct-entry or after basic nursing. This is aligned with the recommendations and standards of the International Confederation of Midwives (ICM) [24-27] and the position statement of the International Council of Nurses (ICN) [28]. For example, ICM's *Essential competencies for basic midwifery practice* asks the questions "What is a midwife expected to know?" and "What does a midwife do?" and acknowledges that, a midwife acquires her/his knowledge and skills through different educational pathways [26]. Where differentiation is required for analysis and explanation, for instance in Chapter 2 on the percentage of time spent providing maternal and newborn health services or on education pathways, the report uses the titles of midwife and nurse-midwife.

The vocabulary of midwifery and its use in different regions of the world and in different languages is not without complexity. For instance, not all languages have a word that literally translates as mid-wife (i.e. to be "with woman"). *SoWMy 2014*

Every woman and girl should have equal access to sexual and reproductive health services.
(ICM/Liba Taylor)

does not seek to promote one definition over another, nor to prescribe how countries, languages, professional associations and/or others define or refer to midwifery services and the midwifery workforce. The priority is to contribute to the evidence base — using terms that enable comparison across regions and countries — which can inform new policy dialogue and action in support of quality midwifery services and the rights of women and their newborns to obtain quality health care.

About this report
ICM, the United Nations Population Fund (UNFPA) and the World Health Organization (WHO) co-chaired the development and launch of *SoWMy 2014*, with UNFPA and WHO coordinating on behalf of the H4+ agencies (UNAIDS, UNFPA, UNICEF, UN Women, WHO and the World Bank). Fourteen partners were convened through a Steering Committee (see acknowledgements). ICS Integrare, a UNFPA Implementing Partner, managed the secretariat for the Steering Committee, and led the data collection, research, writing and production of this report with support from the University of Southampton (UK), the University of Technology, Sydney (Australia) and other partners (see acknowledgements).

Government representatives in each of the 73 countries collaborated with UNFPA/WHO country offices and development partners in

completing a questionnaire available in English, French and Spanish with national stakeholders and experts. Data collection took place between October 2013 and February 2014. Of the 73 countries, 37 convened a workshop, engaging more than 500 participants in policy dialogue, including staff from ministries of health and education, health-care professional associations, regulatory bodies and medical, midwifery and nursing schools (see page 198 for a list of all contributors). UNFPA/WHO country offices submitted the completed questionnaire and workshop reports on behalf of countries to the secretariat through an online platform.

The data collection and the report have been made possible through the contributions of many individuals and organizations. Their willingness to convene, collect, collate and analyse the data demonstrates the global commitment to midwifery. However, the report recognizes there are inherent limitations in a multi-country study, not least the gaps in available data in many countries. That absence of data is itself a finding that presents national partners with the opportunity to take immediate action. Examples of how this spurred action in Afghanistan, Sierra Leone and Togo are provided in Box 6 in Chapter 2. Notwithstanding the limitations, the report

Midwives can offer woman-centred and supportive care that goes beyond childbirth.
(UNICEF/Shehzad Noorani)

provides new analysis and evidence to inform policy, planning and implementation:

- Chapter 2 updates the evidence base and provides a detailed analysis of efforts to improve the quality of midwifery in the 73 countries;

- Chapter 3 explores the future challenges and opportunities facing midwifery and proposes a people-centred, woman-focused vision that can accelerate progress on universal access by 2030;

- Chapter 4 includes two-page "policy briefs" for each of the 73 countries.

The policy briefs are an innovative mix of 2012 data and needs-based projections for the period to 2030. Health workforce projections have been described as "a policy-making necessity" [29]. Their purpose in the briefs, mirroring previous needs-based projections on the workforce requirements to deliver priority services [30–33], is to inform policy dialogue and decisions within countries on "what actions need to be taken in the near future" [29]. All needs-based projections are sensitive to the quality of data informing them and a global modelling exercise has limitations due to the standard, evidence-based parameters employed [34]. In particular, the projections are based on the rational assumption that human resources are allocated efficiently. This may not reflect the reality in a country. The briefs should therefore be used, not as a fact-sheet, but as a tool to review and improve the quality of data and policy options within countries, enabling further identification and analysis of disaggregated data to improve needs-based modelling and costing exercises.

This report (in pdf, E-pub and Kindle formats) and additional information are available online at www.sowmy.org. Additional information includes the data collection instruments and the guidance given to country teams, workshop reports, and supporting background papers. An advocacy and communications toolkit on how to use the report to inform policy dialogue at the country level is also available (in English, French and Spanish).

THE STATE OF MIDWIFERY TODAY

Evidence of progress

This chapter contains a broad assessment of the state of the world's midwifery, including an account of progress since *SoWMy 2011*. The chapter is based mainly on 73 country responses to the SoWMy survey, as well as records of the national workshop discussions. The resulting analysis gives an in-depth description of what women and newborns need in the 73 countries, the characteristics of the workforce that should serve them and a detailed breakdown of what is actually available to those in need. Also included is a new assessment of the gaps in and challenges to expanding effective coverage of the 46 essential interventions in SRMNH recommended by the Partnership for Maternal, Newborn and Child Health [1] (see Annex 4).

Much has happened in the three years since the launch of *SoWMy 2011*. Although MDG 5* will not be reached in many countries by 2015 (19 countries have achieved this ahead of 2015 [2]), maternal mortality decline is now an established feature of development. All but 1 of the 73 countries that completed the 2014 survey have made progress in reducing their maternal mortality ratios, with an average annual rate of reduction of 3% since 1990 [2]. One reason for this progress is that many low-income countries have improved access to midwifery care [3]. Building on these success stories, it is widely recognized that more needs to be done

to strengthen midwifery in order to come closer to (and eventually achieve) maternal survival targets and universal access to reproductive health, not only those articulated in MDG 5, but also those that may be set in the future (e.g. the *Ending Preventable Maternal Mortality by 2030* targets [4] and/or achieving universal access to sexual and reproductive health and rights). It is also recognized that reducing newborn mortality is key to achieving MDG 4**; all but 4 of the 73 SoWMy countries have made progress, with an average annual rate of reduction of 1.9% since 1990 [5]. The 2014 *Every Newborn: An action plan to end preventable deaths* [6] is a roadmap for change. It provides guidance on interventions that have the highest impact - with a triple return on maternal and newborn mortality, and stillbirths [7,8]. The plan is in accordance with the principles of universal health coverage [9] and calls for qualified and dedicated midwifery personnel to provide services. High-quality sexual and reproductive health for women, adolescents, pregnant women and their infants is an essential feature of UHC [10] and therefore implies the development of midwifery services, a midwifery workforce and an enabling environment that is fit for this purpose.

Bold steps since 2011

Tangible progress has been made in improving midwifery in many countries since the *SoWMy 2011* report, which outlined a series of bold steps to be taken by governments, regulatory bodies, midwifery and nursing schools, professional associations and international agencies. Analysis of updates from the 73 countries participating in

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* MDG 5A: to reduce by three quarters, between 1990 and 2015, the maternal mortality ratio; and MDG 5B: to achieve, by 2015, universal access to reproductive health.

** MDG 4A: to reduce by two thirds, between 1990 and 2015, the under-five mortality rate.

TABLE 1

ACTIONS reported by countries that relate to the BOLD STEPS identified in *SoWMy 2011*

BOLD STEPS RECOMMENDED		ACTIONS TAKEN SINCE 2011
By governments (including ministries of health and finance and other government departments and leaders)	• Promote midwifery as a career with appropriate terms of service. • Include midwifery and midwives in costed MNH plans, and align human resources for health plans. • Assure management competencies tools and procedures for appropriate human resource management. • Invest in active data collection and monitoring of the practising midwifery/MNH workforce.	• Promotion of midwifery at higher education levels to increase career prospects, reported by 6 countries (8%). • 18 countries (25%) report increased production of health workers (including midwives) to reduce shortages and/or deficits; 12 (16%) have opened new midwifery schools and programmes; 8 countries (11%) report new programmes, mostly direct-entry midwifery. • 33 countries (45%) report vigorous attempts to improve retention in remote areas, including the introduction of a bonding system and/or incentives. • 52 countries (71%) report that they have data information systems. Actions in data collection include: capacity building with external technical and financial support, establishment of information coordinating bodies, revision of data tools, recruitment of data specialists, and establishment of information centres. In addition, 5 countries (7%) report that they plan to establish information systems or update existing ones.
By regulatory bodies	• Establish criteria for entry into the profession. • Establish educational standards and practice competencies. • Accredit schools and education curricula in both public and private education systems. • License and relicense midwives. • Maintain codes of ethics/conduct.	• 51 countries (70%) report that regulatory bodies are responsible for setting education standards, and 39 (53%) report that they are responsible for the accreditation of education providers. • Revision of code of practice, putting in place new legislation and/or establishing mechanisms for relicensing reported by 14 countries (19%).
By schools and training institutions	• Review curricula to ensure that graduates are proficient in all essential competencies set by government and the regulatory body. • Use the ICM and other education standards to improve quality and capacity.	• 19 countries (26%) report that tools and guidelines are being developed. The majority of these relate to competencies, development or updates of curricula and revision of codes of practice. • 8 countries (11%) have made positive efforts to align education with ICM global standards.
By professional associations	• Promote standards for in-service training and knowledge updates. • Ensure respect of patients' rights in service delivery. • Develop the voice of and contributions by the midwifery workforce in the national policy arena.	• Survey countries report that 92% of associations are performing continuous professional development. • 88% of associations in survey countries are reported to advise their members on quality standards for SRMNH care. • Survey countries report that 77% of professional associations have advised the government on the most recent national SRMNH or health policy document, and 53% have negotiated work or salary issues with their government.
By international organizations, global partnerships, donor agencies and/or civil society	• Encourage international forums and facilitate exchanges of knowledge, good practices and innovation. • Encourage the establishment of a global agenda for midwifery research (for the MDGs and beyond) and support its implementation at country level.	• Second Global Midwifery Symposium (May 2013) brought together midwives, policymakers, and representatives of non-governmental organizations, donor partners and civil society, to discuss various issues around midwifery strengthening, showcase results and innovations and address challenges. • *Lancet* Special Issue on Midwifery (June 2014): aims to consolidate and improve the available knowledge on midwifery to facilitate evidence-based decision-making at country level in support of effective SRMNH services. • The H4+ including UNFPA and WHO, is providing technical support to regions and countries on midwifery workforce assessments, quality of care and national policy. • Civil society organizations are active participants in global, regional and national forums.

this report shows that many of these steps have been and are continuing to be taken (see Table 1).

For example, 33 of the 73 countries (45%) report vigorous attempts to improve workforce retention in remote areas since 2011. 20 countries (28%) have started to increase recruitment and deployment of midwives, 13 countries (18%) have prepared plans to establish regulatory bodies, and 14 (20%) have a new code of practice and/or regulatory framework. Perhaps the most impressive collective step forward since 2011 is the improvement in workforce data, information and accountability, reported by 52 countries (71%). This includes the establishment of information coor-dinating bodies and information centres, and the recruitment of data specialists.

Table 1 complements the evidence that the 2011 report has contributed to changing narratives about the role of midwifery [11], and there are concrete examples (see Box 1) of political support followed by policy and programme development at national level in collaboration with governments, health-care professional associations, education institutions, regulatory bodies and development partners.

Updating the midwifery data from the 58 countries that participated in the 2011 report is an important objective of this report, in part because it contributes to a global emphasis on

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Three-year direct-entry midwifery education introduced as Bangladesh recognizes professional midwives

The Government of Bangladesh made headlines in 2010 when the Prime Minister Sheikh Hasina demonstrated her political commitment to midwifery by launching the training of 3000 midwives. This was a step change for Bangladesh which in the 1980s had focused attention on traditional birth attendants, and subsequently promoted a wide range of cadres including family welfare visitors, nurse-midwives and doctors. Bangladesh has recently moved to a three-year direct-entry midwifery education programme, in recognition of the value of professional midwives in reducing maternal and newborn mortality.

Bangladesh is on track to reach MDGs 4 and 5, yet the Demographic Health Survey 2011 reports the maternal mortality ratio is still high at 194 per 100,000 live births, the neonatal mortality rate is 32 per 1000 and only 32% of women are attended during birth by a skilled birth attendant. This reflects a severe shortage of skilled midwifery personnel, and an extreme concentration of doctors in urban areas.

In 2008 the government Directorate of Nursing Services and the Bangladesh Nursing Council, with technical assistance from WHO, jointly developed "Strategic directions for enhancing the contribution of nurse-midwives for midwifery services to contribute to the attainment of MDGs 4 and 5". This document clearly defined two pathways for the training of midwives through the Ministry of Health and Family Welfare:

(i) Certificate in Midwifery: a six-month advanced midwifery programme for existing registered nurse-midwives;

(ii) Diploma in Midwifery: a new three-year direct-entry midwifery programme.

WHO provided the government with the technical assistance to develop the six-month post basic course curriculum, as well as the new three-year diploma curriculum and UNFPA provide additional financial and technical assistance. UNFPA and WHO are supporting 20 training centres for the Certificate in Midwifery programme based in existing Nursing Institutes and

Education centres, and the 27 Institutes providing the three-year direct-entry diploma are government funded through the multi-donor Health, Population and Nutrition Sector Development Programme.

Key challenges remain. There is an acute shortage of competent teaching staff in both public and private sectors. The process of sanctioning new public sector midwife positions is underway, but needs approval to ensure the diploma midwives can practise. Coordination between the public and private sectors is essential. Importantly, much more needs to be done to provide the professional, economic and sociocultural support to enable these graduate midwives to provide the quality of care that they are committed to achieving. Bangladesh is an example of political commitment to midwifery, joint agency support to government, and public-private enterprise.

Source: UNFPA and WHO.

information and accountability [12]. But *SoWMy 2014* and this chapter do more than follow up on progress. An additional 15 countries have been added to align with the Countdown countries and, more importantly, the data provided by all participating countries are more detailed than in 2011 and represent a major step forward in our understanding of the midwifery workforce and their roles and responsibilities in providing SRMNH services.

What women and newborns need

In the 73 countries included in this report the annual number of pregnancies is reasonably stable at around 160 million per year [13,14].

FIGURE 2 **Pregnancies in 73 countries (1950-2099)**

Legend: Africa | South-east Asia | Western Pacific | Eastern Mediterranean | Americas | Europe

FIGURE 3 **Number of sexual, reproductive, maternal and newborn health visits needed, by WHO region (2012)**

Legend: Reproductive health visits | Antenatal visits | Skilled birth attendance | Postnatal visits

This looks set to continue for many decades (see Figure 2). However, strikingly different demographic trends are seen between world regions. Since 1990 the annual number of pregnancies has increased by 50% across African countries, which means the midwifery workforce in these countries needs to increase significantly just to maintain current levels of population coverage. In order to increase coverage of services and accelerate reductions in mortality and morbidity the workforce needs an even faster increase in supply of staff as well as new thinking on skill-mix and improvements in efficiency. By contrast, Asian countries are seeing reductions in the annual number of pregnancies which should allow them to determine how best to address inequitable population coverage and health outcomes, optimize the skill mix in the midwifery workforce and scale up woman-centred services.

Projections and estimations of where pregnancies are occurring allow for a more accurate assessment of what SRMNH care is needed by women, adolescents and newborns, but this needs to be tailored to demographic and epidemiological contexts. For example, the impact of HIV/AIDS and sexually transmitted infections will require additional counselling, testing and treatment, which has implications for both the number and skill-mix of providers. Figure 3 shows an estimate of what midwifery services women and newborns need, based on recommended coverage [1] for: family planning, antenatal care (at least 4 visits), skilled birth attendance and postnatal care (at least 4 visits) in the 73 countries.

From the number of visits, an additional calculation estimates the total need for the package of 46 essential SRMNH interventions and multiplies this by the time required to provide those interventions, as estimated by One Health [15] and experts. This enables the need for interventions to be translated into need for the midwifery workforce. Midwives, when educated and regulated to international standards, e.g. ICM and WHO [16-20] have the competencies to deliver 87% of the estimated need in the 73 countries.
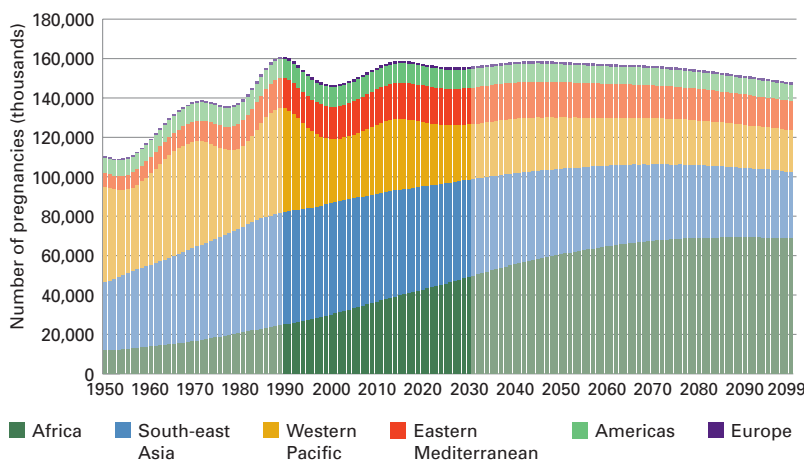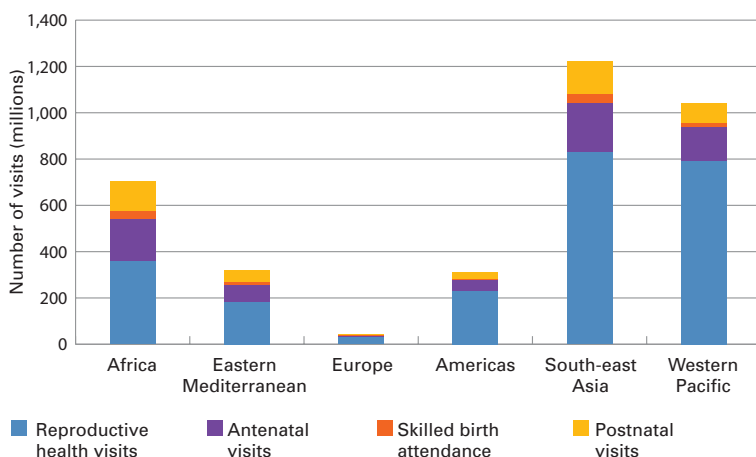
There is significant diversity across countries and regions in the scale and distribution of need per women of reproductive age or per pregnancy, due to different epidemiological and demographic profiles. The diversity across regions is shown in Figure 4 for both a) sexual and reproductive health services and b) maternal and newborn health services.

Towards universal access

Universal access to sexual and reproductive health care and reductions in maternal and newborn mortality are included in the MDG targets. This report explores the extent to which a country's midwifery workforce has the capacity to facilitate universal access to the 46 essential interventions for SRMNH by reference to the concept of effective coverage (see Box 2). Effective coverage is defined as the proportion of the population who need an intervention, receive that intervention and benefit from it [21,22]. It can be measured by the availability, accessibility, acceptability and quality of health services and of the personnel providing those services. Chapter 2 uses these four dimensions to examine the readiness of the midwifery workforce to deliver universal access.

What is the midwifery workforce?

Participating countries provided highly detailed information on the health workers engaged in the midwifery workforce. This includes new data on cadre names, the percentage of available working time [33] spent on SRMNH services, official roles and responsibilities, and length of education. The data demonstrate extensive cross-country variation between country cadres with similar names. Simple approaches such as the classification of skilled birth attendants according to cadre name may therefore prove ineffective.

The 381 different cadres specified by countries were grouped into eight broad categories: midwives, nurse-midwives, nurses, auxiliaries (midwives and nurses), associate clinicians, physician generalists and obstetricians/gyn-

FIGURE 4   **Midwifery workforce: Projected need of full-time equivalent workers to deliver sexual, reproductive, maternal and newborn health services**

Sexual and reproductive health
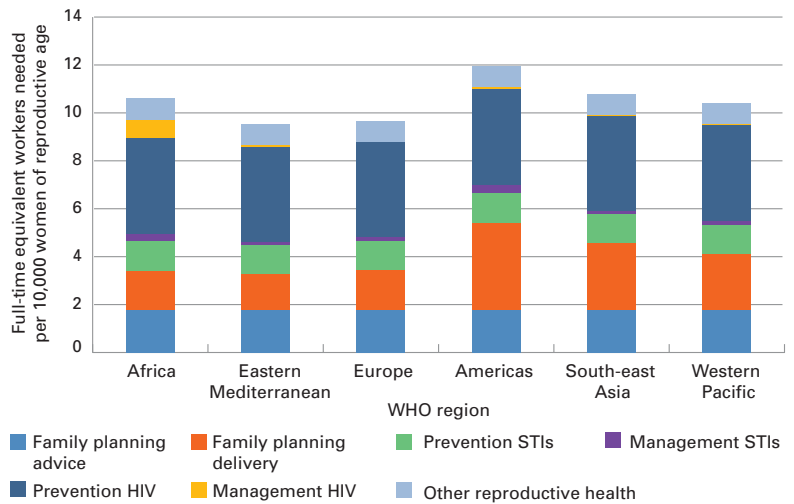
Maternal and newborn health
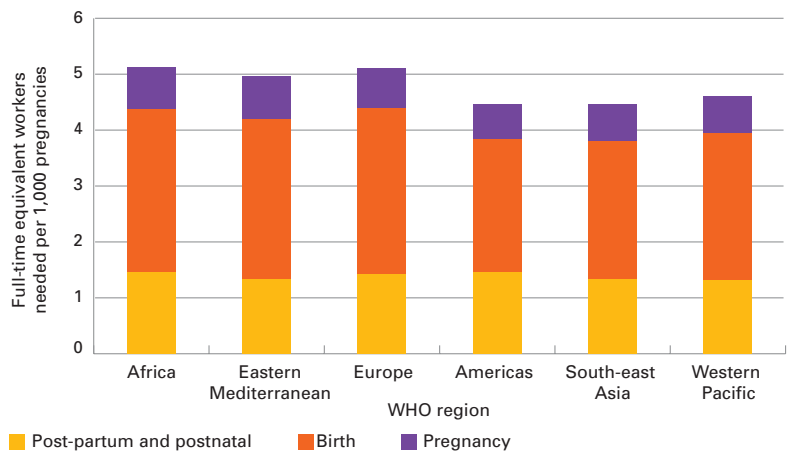
aecologists. These categories are constructed exclusively using each country cadre's name, and are not a statement about cadres' professional recognition, roles or educational pathway. The rest of this chapter focuses analysis on the eight broad categories, not the individual names provided by countries.

Countries also reported on non-professional cadres: 47 countries (64%) reported the availability of community health workers (CHWs) and 20 (27%) reported the availability of traditional birth attendants (TBAs). The role of CHWs in delivering some of the essential SRMNH interventions

at community level, especially in sexual health, family planning and postnatal care, is known to improve coverage and is a viable strategy as part of an integrated health service delivery network [34]. Midwives in 58 countries (79%) supervise CHWs' and TBAs' work concerning SRMNH, suggesting links between health facilities and the community, with opportunities to promote the continuum of care and to improve demand for and utilization of services. However, lack of data, combined with inconsistencies in typology, duration of training, roles and proportion of available working time spent on SRMNH services, limits a comparable, cross-country analysis in this report but would be a valuable addition in future health policy and systems research.

Examining the midwifery workforce through the lens of effective coverage

The concept of "effective coverage" was developed by WHO in the 1970s to explore the delivery of health services. In 1978 T. Tanahashi published a conceptual framework in the *Bulletin of the WHO* [23], which captured the simple logic of how the domains of availability, accessibility, acceptability and the effectiveness of the contact between the service provider and the user (i.e. quality) influences whether the population obtains health services that meet their requirements. Tanahashi argued that the simplicity of the logic could be applied to consider the effective coverage of all health services, or particular services and components of service delivery: for example SRMNH services and the midwifery workforce.

General Comment No. 14 [24] on the right to health, published in 2000, mirrored the Tanahashi domains of availability, accessibility and acceptability with quality as the fourth domain (AAAQ). Article 12 states that "the right to health in all its forms and at all levels contains the following interrelated and essential elements, the precise application of which will depend on the conditions prevailing in a particular State party", before listing each of the AAAQ domains and the obligations for all States. The use of the AAAQ domains is therefore of immediate value for exploring effective coverage, and also reinforces the right to health.

The use of the Tanahashi framework to explore human resources for health, and the AAAQ of the health workers who are at the core of service delivery, is enabling new policy insights across countries [25–28]. Similar insights have been achieved when analysing SRMNH services [22,29,30] and the midwifery workforce [31]. New opportunities have thus been created to review barriers, challenges and opportunities in the delivery of effective coverage and are complementary to similar domains to measure quality of care in health systems [32].

The figure below illustrates the need to focus on measuring whether women obtain health services in relation to need and how the AAAQ of the midwifery workforce influences this. This logic underpins the discussion in chapters 2 and 3.

Effective coverage as applied to SRMNH services and the midwifery workforce

		CRUDE COVERAGE		EFFECTIVE COVERAGE	IMPACT
NEED	AVAILABILITY	ACCESSIBILITY	ACCEPTABILITY	QUALITY	OUTCOME
• How many women of reproductive age? • How many pregnancies per year?	+ SRMNH services are **AVAILABLE?**	+ SRMNH services are **ACCESSIBLE?**	+ SRMNH services are **ACCEPTABLE?**	+ SRMNH services provide **QUALITY CARE?**	Outcomes are subject to the reductions in the AAAQ of SRMNH services
Add the dimension of people-centred, woman-focused care, with professional teamwork and an enabled environment					
Woman of reproductive age *seeking* support through reproductive health, pregnancy, labour and birth, & postnatal follow-up	• A midwife is available in or close to the community • As part of an integrated team of professionals, lay workers and community health services	• Woman attends • A midwife is available • As needed • Financial protection ensures no barriers to access	• Woman attends • A midwife is available • As needed • Providing respectful care	• Woman attends • A midwife is available • As needed • Providing respectful care • Competent and enabled to provide quality care	• Woman obtains quality care for all SRMNH services • She and her baby receive quality, follow-up postnatal care	antenatal care increased postnatal care increased maternal mortality reduced neonatal mortality reduced

Source: Jim Campbell, ICS Integrare. Adapted from Campbell et al, 2013 [25] Colston, 2011 [22].

Figure 5 shows the distribution of the midwifery workforce, in 73 countries and in each WHO region, by category of health worker (excluding community cadres). This figure makes the crucial point that the percentage of time spent by each cadre on SRMNH should be taken into account when determining which cadres deliver midwifery services. Generalist physicians and generalist nurses make up a large proportion of the midwifery workforce in terms of headcount, but their contribution as full-time equivalents is reduced when multiplied by the percentage of time spent on SRMNH.

Figure 5 also shows the radically different composition of the midwifery workforce in different WHO regions, although the small number of countries in some regional groups, as well as the influence of China in the Western Pacific Region and India in the South-East Asia Region, should be noted. For example, there appear to be more midwives in the African Region, the European Region and the South-East Asia Region than in the other three regions.

There is remarkable diversity across country cadres and within broad categories, particularly with respect to the percentage of time spent on the MNH component of SRMNH services, roles and responsibility, and length of education. Most country cadres in the categories for midwives, nurse-midwives, auxiliaries and obstetricians/gynaecologists spend 100% of their time on MNH. However, in no broad category were all country cadres spending 100% time on MNH, even among specialists. A much larger range exists for the generalists reported as operating within the midwifery workforce: nurses and generalist physicians spend 5 to 100% of their time on MNH, with nurses spending an average of 50% and generalist physicians an average of 39% of their time. This is linked to the range of responsibilities they hold, for instance in prevention, management and treatment of illness and disease.

Another point of diversity is the extent to which each country cadre is responsible for carrying out

FIGURE 5 **Midwifery workforce: Distribution in 73 countries, and by WHO region**
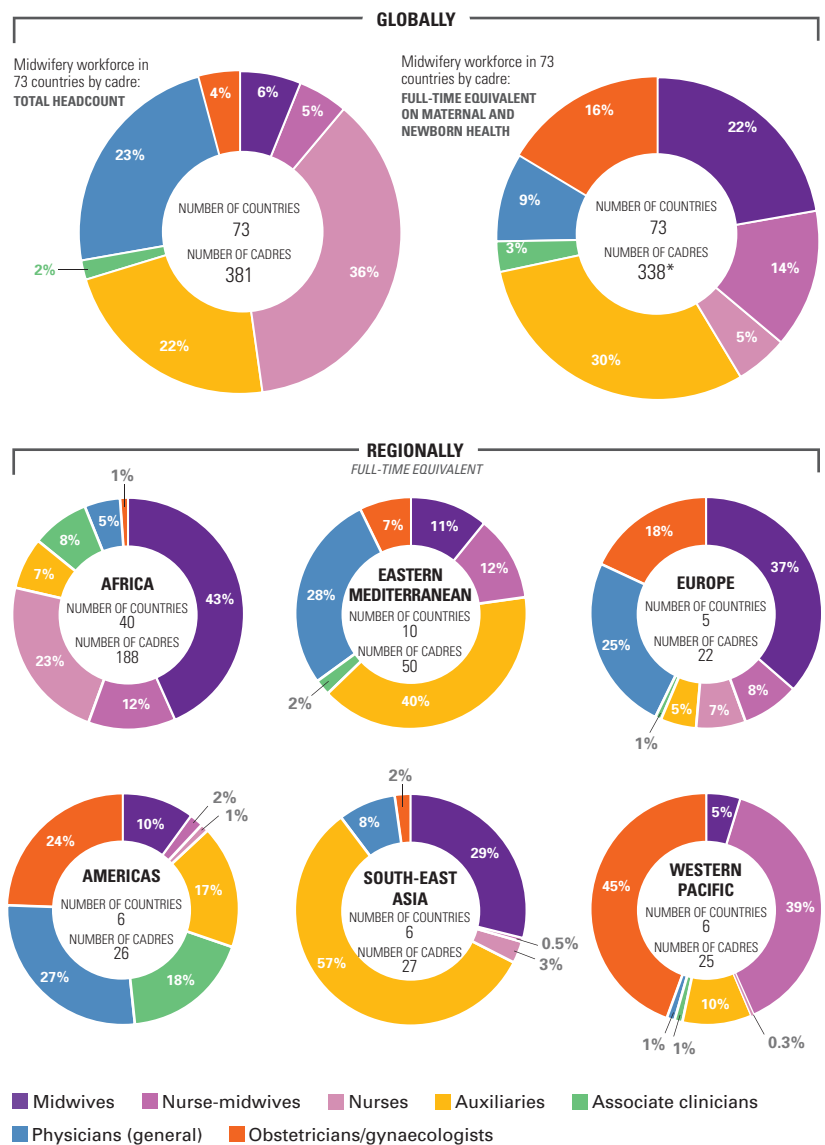
Midwives   **Nurse-midwives**   **Nurses**   **Auxiliaries**   **Associate clinicians**   **Physicians (general)**   **Obstetricians/gynaecologists**

* Full-time equivalent figures do not include those 11% of country cadres for which percentage time spent on MNH was not reported.

tasks within the scope of midwifery practice. The task analysis in Figure 6 follows the International Labour Organization's (ILO) guidance embodied in the International Standard Classification of Occupations (ISCO) [35] (see Annex 5) regarding the tasks that are within the scope of midwifery professionals. It reveals that cadre names are not always a good indicator of the way in which roles and responsibilities for midwifery services have been assigned across the workforce in each country. While there are certainly patterns,

FIGURE 6 **Midwifery workforce: roles and tasks**

- ■ Job description includes all midwifery tasks in ISCO 2008 guidance
- ■ Job description does not include all midwifery tasks in ISCO 2008 guidance

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🔑 **KEY FINDINGS**

Evidence of progress

▸ Since the *SoWMy 2011* report countries and partners have begun to take bold steps to improve midwifery.

▸ Projected changes in the number of pregnancies per annum provide new insights to inform the composition, skill mix, deployment and efficiency of the midwifery workforce in all regions.

▸ Women's need for the 46 essential SRMNH interventions can be quantified: in 2012, this is estimated as 3.8 billion visits for family planning, antenatal and postnatal care and 107 million births.

▸ Midwives, when educated and regulated to international standards, have the competencies to deliver 87% of the estimated need in the 73 countries.

▸ Women's need for sexual and reproductive health care also requires strong linkages with community-based service providers, with supportive supervision from midwives and other health professionals.

▸ Countries should consider the availability, accessibility, acceptability and quality of the midwifery workforce in order to provide quality SRMNH services.

▸ There is remarkable diversity in the typologies of health workers contributing to the delivery of SRMNH services, including significant differences between national use of cadre names and international standards for roles, education and regulation. Therefore, country cadre names do not form a strong basis for global, cross-country comparison of the midwifery workforce or grouping as skilled birth attendants.

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with midwives and nurse-midwives being more likely than auxiliaries to perform the full scope of midwifery practice, there are also many exceptions. This raises concern about whether ISCO classification, which is used for international comparison, is more often based on countries' titles and education pathways than on the official roles, responsibilities and tasks within a country.

There is also diversity within broad categories in terms of the duration of education and the education pathway. Country cadres within the broad category of midwives, and for whom the total length of clinical education was reported, trained for 1 year to 5 years; at least half trained for 3 years or more. Nurse-midwives trained for 2 to 6 years, with at least half training for 4 years or more. For those cadres that only reported post-nursing or post-college education, length of education for midwives ranged from 1 to 2 years, with at least half training 1.5 years or more, while length of education for nurse-midwives ranged from 1 to 3 years, with at least half training for 2 years or more.

Duration of education is relevant to international narratives on educational standards for midwives and nurse-midwives, as duration is linked to the quality and depth of study offered to students, but the data confirm significant differences between national use of cadre names and global standards on midwifery education [16] and regulation [18] and therefore who is entitled to use the term "midwife".

Availability

The first dimension of effective coverage is availability, and is applicable to both midwifery services and the midwifery workforce (see Glossary, Annex 1). The focus in this section is the availability of the midwifery workforce.

Availability depends firstly on the headcount of all workers involved in the midwifery workforce. The 73 SoWMy countries reported 7,377,083 workers who spend some proportion of their available working time providing SRMNH

care. However, simply correlating the reported *headcount* of selected cadres with health outcomes (e.g. the headcounts of midwives, nurses and doctors with the number of stillbirths, or maternal and newborn mortality, or women and adolescent girls with unmet need for family planning) is inadequate. Figure 7 shows the difference between assessing the midwifery workforce in terms of headcount versus full-time-equivalent availability. Among those country cadres for which this information was available, the full-time-equivalent workforce represents less than two thirds of all workers spending at least some time on SRMNH.

Is this level of availability "enough"? If our goal is to deliver universal access to midwifery services, this question can only be answered with regards to each country's need for midwifery services. As discussed earlier, the diversity of need, driven by a multiplicity of demographic and epidemiological factors, is not amenable to global benchmarks that promote a minimum number of health workers per 1,000 population, especially when the minimum number is often interpreted as a "target". Workforce planning in relation to need must account for the country context. A needs-based analysis of the availability of the current and future midwifery workforce has been conducted for each country and is shown in the country briefs in Chapter 4. The reliability of this approach depends on 10 pieces of information that all countries should collect: headcount, percentage time spent on SRMNH, roles, age distribution, retirement age, length of education, enrolments into, attrition and graduation from education, and voluntary attrition from the workforce [36].

Improving availability depends on better understanding and management of new entrants to the workforce and of existing workers who leave the workforce. Managing new entrants to the workforce must imply better management of midwifery education, as this directly determines future availability of the workforce. Enrolment, graduation and student attrition data from coun-

tries are often missing or inconsistent, indicating an apparent disconnect between human resources for health (HRH) management and education planning. Active management of midwifery education involves ensuring that the number of training places available, in both the private and the public sectors, is sufficient and of high enough quality to meet future needs, taking into account student selection and attrition.

Management of medical and midwifery education also involves ensuring that sufficient students graduate from secondary school with skills in numeracy, literacy and sciences adequate to enrol in midwifery or medical education programmes. This was seen as a challenge in 78% of midwifery education programmes (49 out of 63). High school graduates must then be motivated to enrol in midwifery education programmes. Lack of information or negative preconceptions about careers in midwifery were reported by 9 out of 21 African countries that held a policy workshop, indicating

FIGURE 7   **Midwifery workforce: headcount versus full-time equivalent**

Note: Full-time-equivalent figures do not include those 11% of country cadres for which percentage time spent on MNH was not reported.

the need for advocacy and better information. Once enrolled, students need practical, sociocultural and often financial support to remain in their education programmes. Workshop reports suggested that improving the quality of education and creating supportive environments, e.g. financial support and gender-sensitivity, could go a long way towards reducing student attrition.

Pathways from education programmes to the workforce must also be better managed. Educating health workers for whom there are no jobs, or whose postings are severely delayed, is a poor use of resources. SoWMy data show that in more than half of countries, some graduates take longer than a year to join the workforce (except for obstetricians/gynaecologists) by which time their clinical skills may have deteriorated through lack of application. Workshop reports suggested a range of solutions to this problem, including: recruiting workers before their graduation; decentralizing responsibility for recruitment to subnational authorities; and better funding and enforcement of recruitment policies.

Managing exits from the workforce requires a better understanding of the number of workers choosing to leave the workforce every year (see Figure 8). In more than half of such cases, data were missing on voluntary attrition, a significant barrier to understanding the availability

of the workforce. In many other cases it is likely that attrition was under-reported [37]. Solutions to attrition discussed during the workshops centred mainly on improving salaries and incentives, management and supervision, and career development pathways, including through additional training.

Outflows are also heavily influenced by the age distribution of the current workforce. Although an ageing workforce is most common among obstetricians/gynaecologists, other country cadres such as midwives in Ghana and aides de santé in Guinea suffer from the same problem and will experience high losses in the next 10 years due to retirement. Regrettably, this information was unavailable for 56% of all reported country cadres.

Exploring the availability of midwives
Midwives make up 36% of the midwifery workforce across the 73 countries: although a sizeable proportion, they are not the only type of health worker needed to deliver SRMNH services. However, their specific contribution to the physiological process of "normal" birth and their high degree of focus on the SRMNH continuum of care makes them essential. This implies that policymakers should pay specific attention to these cadres within overall workforce planning. Currently, the data show that further progress can be made to encourage students to choose and remain within the profession.

In most of the country responses (58%) a career as a midwife is perceived to be more attractive than other professions open to people with a similar level of education (Figure 9), but almost one quarter of countries (23%) see it as less attractive. This indicates that governments, professional associations and advocates need to do more to promote the profession, a "bold step" recommendation in *SoWMy 2011*. Some countries have taken this step already:

- In Cambodia, midwives have been officially recognized as key to the reduction of maternal

FIGURE 8   **Percentage leaving the workforce voluntarily each year, by cadre**

and newborn mortality, they received a larger pay increase than other health personnel with a similar professional education, they are financially incentivized for deliveries at public health facilities, and they are given priority when the government recruits civil servants for the Ministry of Health.

- In Tanzania, the White Ribbon Alliance for Safe Motherhood has targeted secondary school students, their parents, politicians, and the community in their campaign "Increasing Women's Access to Healthcare through Promotion of Midwifery as a Career in Tanzania" [38]. Objectives included improving public perception of midwives and promoting midwifery as an attractive career path among secondary school students. Results were promising with 89.4% of students reached in one region saying they would recommend midwifery as a career.

In other cases, progress has been made through media and advocacy, for example through the creation of awards recognizing the work of midwives and others, such as the African Union's Mama Afrika award [39].

Status and identity are known to influence the attractiveness of a profession, partly reflected in the accompanying salary levels within each country. Countries provided detailed information on the starting salaries of health personnel, which were validated using the World Bank database on HRH salaries.* Midwives' salaries are among the lowest in low- and lower-middle-income countries, and are comparable to auxiliary nurse-midwives' salaries, although this varies considerably from country to country. On average, midwives are paid more than 2.5 as much in upper-middle-income countries than in lower-income countries (see Figure 10), and in countries where there is a licensing system they are better paid. Other factors associated with higher salaries for midwives include an association active in negotiating employment and salary issues with government.

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FIGURE 9   **Perceptions among survey respondents of the comparative attractiveness of a career as a midwife (73 countries)**

Percentage

MUCH MORE ATTRACTIVE — 36% — *"Midwives were recently recognized by the government as key health professionals" (Cambodia)*

A LITTLE MORE ATTRACTIVE — 22% — *"Society is recognizing more and more the role of the midwife" (Papua New Guinea)*

ABOUT THE SAME — 19% — *"A profession similar to others, not specific in terms of salary or rank" (Guinea)*

A LITTLE LESS ATTRACTIVE — 19% — *"The midwife profession is loved, but the lack of career plans tends to discourage people" (Mauritania)*

MUCH LESS ATTRACTIVE — 4% — *"Women's issues are undervalued" (Nepal)*

FIGURE 10   **Average monthly starting salary per cadre of health worker (international $ purchasing power parity, 2012)**

Monthly salary (international $PPP 2012)

Low-income countries
Lower-middle-income countries
Upper-middle-income countries

Obstetricians/gynaecologists | Physicians (general) | Nurse-midwives | Midwives | Auxiliary nurse-midwives | Auxiliary midwives
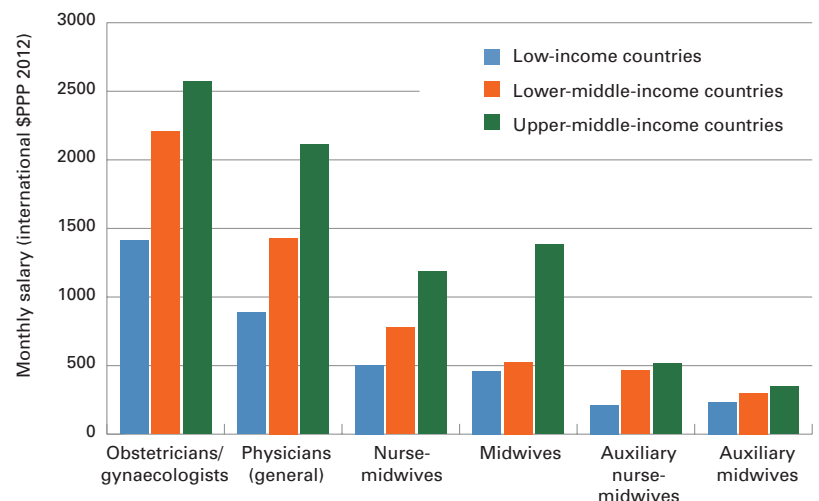
Availability

▸ The availability of the midwifery workforce can only be measured by reference to *full-time equivalent* not *headcount*.

▸ Correlating the reported *headcount* of the midwifery workforce with health outcomes will produce findings that are insensitive to the real availability, as the full-time equivalent midwifery workforce represents less than two thirds of all workers spending at least some time on SRMNH.
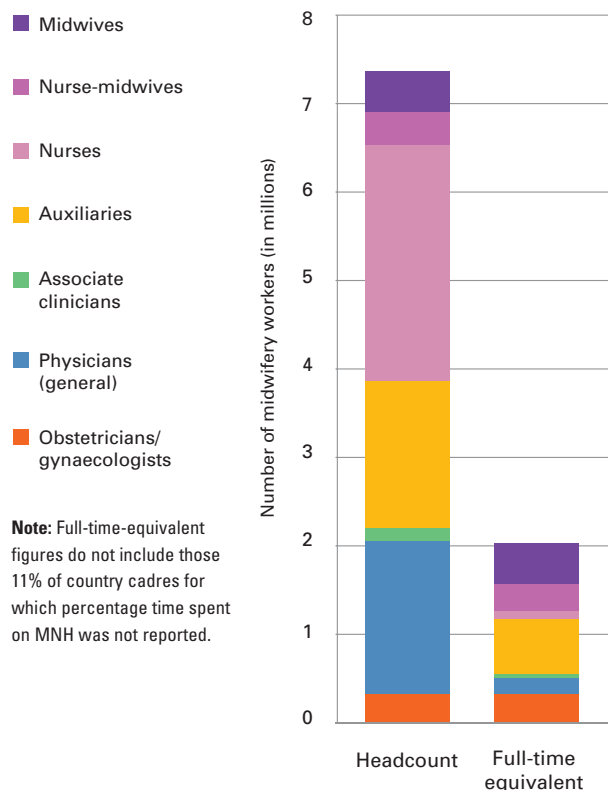
▸ Ten pieces of information that all countries should collect on the midwifery workforce, include: headcount, percentage time spent on SRMNH, roles, age distribution, retirement age, length of education, enrolments into, attrition and graduation from education, and voluntary attrition from the workforce.

▸ Midwifery education must be actively managed to ensure that the future workforce meets the needs of future populations.

▸ A career as a midwife is perceived to be more attractive than other professions open to people with a similar level of education, but not in all countries.

▸ Midwives' salaries are among the lowest for health-care professionals in low- and lower-middle-income countries.

Accessibility

The second dimension is accessibility (see Glossary, Annex 1) of health services and in particular the midwifery workforce. Even if there are enough health workers, adequately remunerated and with the competencies to provide the continuum of care that women and newborns need, accessing the care that they provide remains a problem in many countries. Women need to be active decision-makers on when they choose to access the midwifery workforce (often denied because of gender discrimination) and to be able to reach and afford the care provided, sometimes rapidly during an emergency.

Improving geographical access

The first dimension of accessibility is physical reach. An accessible care system is underpinned by an adequate geographical spread of facilities and health workers, backed up by good transport, information and communication networks. Achieving equitable deployment of the workforce depends at the very least on good information and good planning.

In terms of information, only 15 of the 73 countries surveyed provided an accurate, current list of health facilities, of which only 6 included private sector facilities. Only 4 countries reported that they have access to geo-referenced codes for health facilities. The absence of this basic information diminishes the ability to conduct detailed analysis of supply-side constraints to respond to population need.

In terms of planning, the government decides how to allocate the midwifery workforce according to both the population level and the types of facilities that exist in that country in 53 of the 73 countries. A further 13 countries base these decisions solely on the types of facilities that exist, and 2 solely on the population level; 4 use other methods and 1 gave no response. However, even where one of these planning approaches was followed, it was difficult for countries to cite the exact norms they were using. Of the 66 countries reporting that midwifery workforce planning is partly premised on the types of facilities that exist, 41 (62%) were able to provide at least some information about the numbers of midwifery workers allocated to each health facility. Of the 55 countries reporting that workforce planning also follows population and population-catchment areas, 39 (71%) provided at least some information about the numbers of health personnel allocated to a certain size of population (e.g. the number of physicians per 100,000 population).

Given the wide diversity in some countries on the geographical distribution of need, it may be fruitful to explore the possibility of flexible planning norms at the subnational level, in order to offer the best possible combination of availability, geographical accessibility and quality in each area. These could be informed by the use of an emerging set of methods in geographic information systems (GIS) (see Box 3).

Global guidance on accessibility established in 1997 [46] recommends a minimum of five fully functioning emergency obstetric and newborn care (EmONC) facilities per 500,000 population.

The geography of SRMNH: advances in geo-information systems

Geographical location is all too often a key determinant of whether a woman and her newborn will survive or thrive. Geographical information has been used to explore health outcomes for hundreds of years. Perhaps the most famous example is John Snow's epidemiological study of London's cholera outbreak in 1854, which plotted mortality on a map alongside the cause of the disease. This was one of the earliest examples of "health data visualization": the conversion of health datasets into figures and graphics to clarify findings for researchers and policymakers. Advances in digital technology, design and data management software are enabling a rapid acceleration in visualization. The use of Global Positioning Systems (GPS) to record locations and GIS techniques to analyse and present data is increasing. This facilitates action on "hardwiring" equity into health services [40], promoting the "fair distribution" of services and affording "priority to the worse off' [41] i.e. for the women and children most at need.

Building up layers of geographical information for strategic planning

LAYER

1 **Need for midwifery services**
Recent technical advances in GIS mapping have allowed the production of high-resolution datasets depicting population estimates, including live births and pregnancies, in many countries of the world. These maps, based on satellite mapping, census and survey data and shown in each of the 73 country briefs in this report, can provide the basis for strategic intelligence [42] and planning, and provide denominators for subnational indicators to track progress.

2 **Availability of services and human resources**
Where comprehensive data exist on health facilities they can be used to investigate supply of services. Decentralized and devolved monitoring and planning specific to local needs is enabled by district or facility catchment area data. Flexible context-specific workforce staffing requirements can be calculated that are relevant to population need and specific to the local terrains and geographical features. All countries should therefore seek to develop and maintain an accurate list of all health facilities and health workers with GPS coordinates.
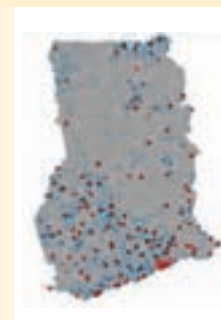
3 **Accessibility of services and human resources**
Using facility maps in combination with datasets on mapped pregnancies it is possible to estimate numbers of pregnancies within user-defined distances or travel times of any type of facility. Many studies have measured, mapped and modelled travel times to health facilities using a range of different approaches [43–45].
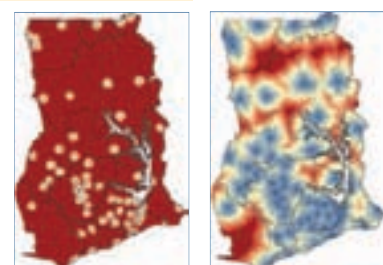
4 **Quality of services and human resources as measured by outputs and outcomes**
Maternal and neonatal mortality indicators reveal huge disparities between countries. The same is true within countries, although data on this are harder to come by. However, adverse health outcomes (i.e. maternal, perinatal and neonatal mortality) can be extracted from GPS-located data in population censuses, surveys and verbal autopsies to construct outcome maps and inform targeted equity approaches in relation to health needs and the quality of the health workforce at subnational level.

Source: Andy Tatem, Jim Campbell and Zoë Matthews, ICS Integrare and University of Southampton.

Although this is an established benchmark, improved information on births and pregnancies has led to current discussion about revising these accessibility standards [47]. SoWMy findings indicate that many countries aspire to the EmONC facility readiness benchmarks and designate a high proportion of their facilities as potentially capable of providing EmONC (see Box 4).

This highlights the need to encourage national and global discussion on how to improve policy, planning, accessibility and monitoring of life-saving care. More tailored guidance or using basic health geographies such as districts and country-designed benchmarks that are related to the annual volume of pregnancies or both normal and complicated births may assist. The implications of 24-hour services, requiring shifts and rotation of the midwifery workforce, must also be considered to maintain the readiness of EmONC facilities.

In the 37 countries which held a policy workshop a number of key challenges to geographical accessibility beyond information and planning were identified, including: health workers preferring not to work in rural areas; poor/expensive transport links to remote areas; insufficient clinic space for women in early labour; and inadequate referral networks. Their suggested solutions included: financial and non-financial incentives for health workers to work in remote/under-served areas; compulsory periods of rural service; improvements to rural facility infrastructure to make rural posting more attractive; addressing the uneven geographical distribution of training institutions; and the provision of maternity homes in hard-to-reach areas. Many of these suggestions are consistent with the evidence base included in WHO guidelines and recommendations [49,50].

Improving economic access
Barriers to accessing care go beyond the geographical location of services. Unsurprisingly,

financial barriers to care are known to have a negative effect on access [51–53].

A very positive finding from the 2014 survey is that 70 of the 73 responding countries have a national "minimum guaranteed benefits package" for SRMNH, defined as "a set of health services that the government has committed itself to making available to all, free at the point of access". For these countries the package includes a prescribed list of interventions or services as a minimum; others may be added as a part of the package, but the minimum list is guaranteed.

The existence of a minimum benefits package does not mean that women and newborns have financial accessibility to all of the essential elements of SRMNH care. Only 2 countries (China and Peru) have a package that includes all 46 essential SRMNH interventions. However, a further 10 countries include all but one or two of the interventions (Brazil, Comoros, Gabon, Guinea, Lesotho, Mexico, Senegal, South Africa, Viet Nam and Zimbabwe) and 45 countries (62%) offer at least 40 of the 46 interventions.

Addressing some of the most common gaps in countries' benefits packages could save lives. Hypertensive disorders, obstructed labour and unsafe abortion have been identified as leading causes of maternal death in developing countries [54]. However, calcium supplementation and low dose aspirin to prevent pre-eclampsia, interventions for cessation of smoking, reduction of malpresentation at term with external cephalic version and safe abortion are included in fewer than half of the countries. Similarly, while preterm birth is a leading cause of newborn death [55], a quarter of countries do not include interventions to prevent preterm birth and protect preterm infants in their minimum benefits package. In particular, use of antenatal corticosteroids to prevent respiratory distress syndrome in preterm infants, continuous positive airway pressure to manage newborns with respiratory distress syndrome, and social support during labour could be included more widely.

Emergency obstetric and newborn care: from designation to readiness

Most pregnant and healthy women experience a normal physiologic process and deliver healthy live babies. However, when that process does not follow a normal course, timely access to quality EmONC can become a matter of life and death. EmONC covers a package of life-saving procedures and drugs to treat complications of pregnancy and childbirth.

SoWMy 2014 findings indicate that almost half (44%) of country respondents reported that *all* the health facilities with childbirth services in their country were designated, from a policy and planning perspective, as either comprehensive (C-EmONC) or basic (B-EmONC) (i.e. all hospitals in the country are designated as C-EmONC facilities, and all non-hospitals are designated as B-EmONC facilities). However, designation as an EmONC facility, meaning that the facility *could potentially* provide emergency life-saving interventions if resourced with the

necessary staff, equipment, drugs and supplies, is often dramatically different from the reality of whether a facility is in a state of readiness and "fully functioning".

For monitoring purposes EmONC is defined by the performance of signal functions. For an EmONC facility to be considered fully functioning, two key aspects are required:

1) it must have performed the 7 basic or the 9 comprehensive EmONC signal functions, and

2) the signal functions must have been performed within the last 3 months.

The figure below uses needs assessment data across 11 countries* to show the disparity between readiness and actual provision of basic signal functions, and which signal functions are the most widely performed. It shows that assisted vaginal delivery (AVD) is the least often

performed. Only 43% of health facilities reported a health worker capable of performing AVD via vacuum extraction or using forceps, even fewer (32%) had the minimum requisite equipment and only 14% of health facilities had performed such a procedure in the last 3 months.

Countries seeking to expand the volume and quality of EmONC facilities are encouraged to align policy and planning with the global guidelines on EmONC coverage [48]. *Designation* can be used as a policy tool to prioritize resource allocation and service improvement, consistent with coverage needs. *Readiness* needs to be actively managed, continuously ensuring that health workers, equipment, drugs and supplies are all available. Monitoring of whether the facility does perform and is *fully functioning* can then be used as a quality improvement tool to ensure that all women and newborns have timely access if required.

Percentage of facilities in 11 countries ready to perform and which did perform each signal function
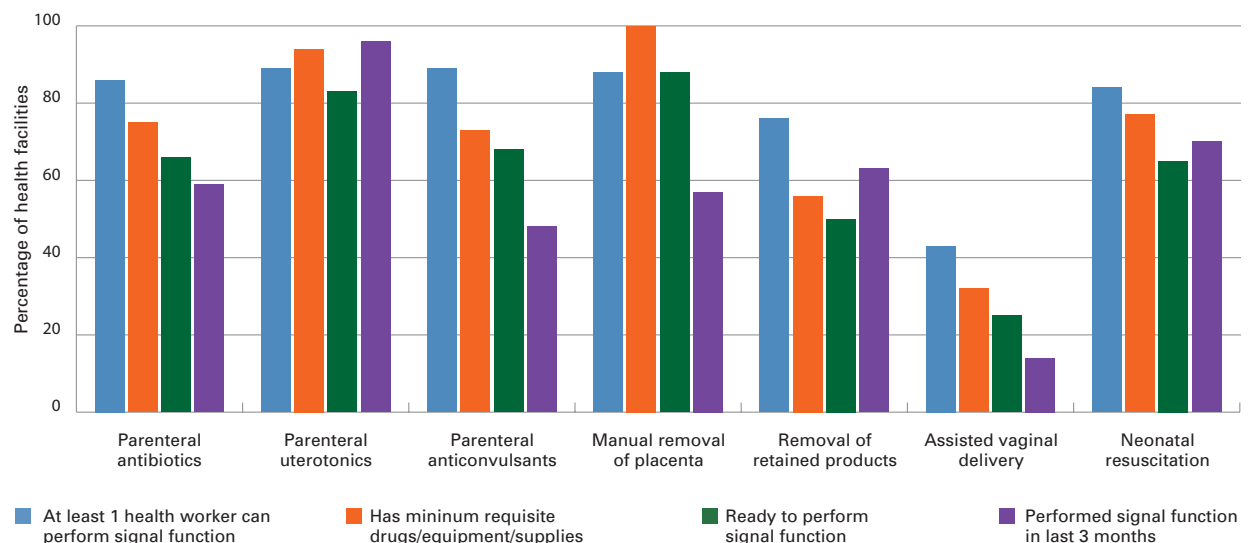
* Data from Averting Maternal Death and Disability EmONC Needs Assessments provided by Patricia Bailey.

Source: Patricia Bailey, Averting Maternal Death and Disability.

Other issues of financial accessibility include: low public awareness of the right to services which are free at the point of access; women's lack of empowerment when it comes to household budget decisions; costs of services/items not covered by the country's benefit package (e.g. transport, drugs); and facilities lacking equipment or supplies to meet demand. Suggested solutions to these financial barriers include: prepayment schemes and safety nets/social protection; including transport costs within the minimum benefits package; health workers supporting communities to organize cooperative community groups to facilitate transport and share costs; and improving governance, ensuring accountability and voice to clients, and addressing corruption/racketeering, e.g. by improved supervision and monitoring.

Equality of access

As well as physical and financial accessibility, many women face additional barriers to accessing midwifery services and the midwifery workforce which relate to their socioeconomic position or cultural group. Rich/poor and urban/rural gaps in access to care are now well documented, and in many contexts gaps are widening [56,57]. Certain regions within a country, or particular marginalized groups such as adolescents, migrants or tribal communities, can also be effectively excluded from care, especially reproductive health care. There is strong commitment to making equity a fundamental part of the post-2015 development agenda. One proposal to measure a country's progress towards UHC is to track the poorest 40% of the population's access to essential health services (see Box 5) which include the continuum of SRMNH care.

BOX 5

Reaching the poorest 40%

The World Bank and WHO are in process of developing a measurement framework to track country progress towards UHC [58,59], "assessing the aggregate and equitable coverage of health services and financial risk protection." As part of the proposed framework it is suggested that:

All measures should be disaggregated by socioeconomic strata to assess the degree to which service and financial protection coverage are equitably distributed.

Disaggregation would permit progress to be measured at the population level (the aggregate goal) and among the poorest 40% of the population (the equity goal). This is consistent with the measurement of equity in the Countdown to 2015 reports.

An equity goal for SRMNH services will pose significant challenges for many countries. The figure below shows the coverage level for skilled attendance at birth and four or more antenatal care visits for the poorest 40% and the rest of the population in 34 countries, with countries grouped according to coverage levels.

Only four countries are reaching the equity goal for both indicators (Armenia, Colombia, Dominican Republic and Jordan): these countries have achieved overall coverage of at least 90% and have

SRMNH coverage for the poorest 40%, grouped by overall coverage rate for 34 countries

Percentage of live births with skilled birth attendant

Percentage of live births for which mother had at least 4 antenatal visits
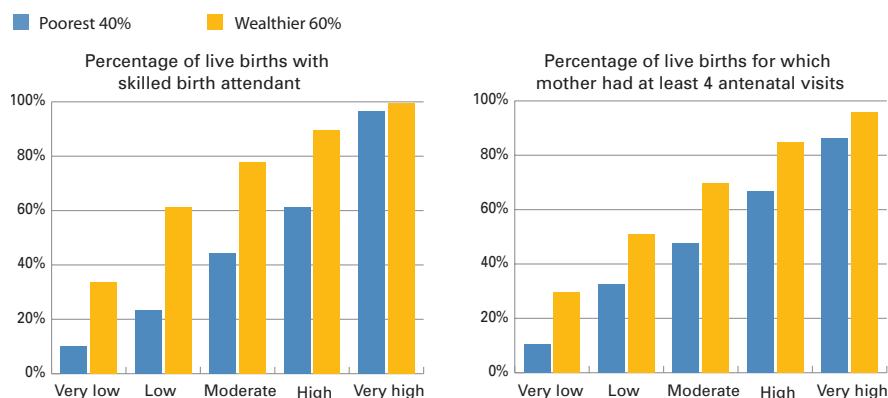
Note: The 34 countries have been categorized into 5 groups based on the overall level of skilled birth attendance/ at least 4 antenatal visits nationally: very low (<31%), low (31%-50%), moderate (51%-70%), high (71%-85%) and very high (>85%).

Clearly, strategic intelligence could be used to plan equity-focused approaches. However, not all governments have policy priorities on workforce deployment that are commensurate with population distribution and need; most countries report using facility-based planning (number of health workers per facility type) or workforce to population ratios, which are inconsistent with addressing need and areas of special need or deprivation. An example in Sierra Leone (see Box 6), triggered by discussions in the *SoWMy 2014* policy workshop, highlights how countries can take immediate action to improve available data on health facilities and on where the midwifery workforce is actually practising.

very little inequity between the poorest 40% and the rest of the population.

One important characteristic of an equity goal is that it is an absolute rather than a relative target: countries with the lowest coverage will need to make the most progress. Analysis across countries with low coverage demonstrates that the recent rate of progress towards higher coverage is very poor [60]. These are countries where the infrastructure is weakest, and attempts to increase coverage of key SRMNH interventions will require sustained investments in the health system and the health workforce. Further, as inequities in coverage reduce, it is important that greater efforts are made to reduce inequities in quality [61,62].

Equity-focused approaches will be required [63–66] targeting the poorest [41,67] if both aggregate and equity goals for SRMNH coverage are to be achieved in the future.

Source: Sarah Neal, Amos Channon and Zoë Matthews, University of Southampton.

Accessibility

▶ Most countries deploy their midwifery workforce using facility-based planning or workforce to population ratios; these may be inconsistent with needs and access to care.

▶ Human resource information systems linked to facility GIS codes would enable new insights into people's ability to access a skilled and competent health-care provider.

▶ The provision of EmONC services could benefit from new approaches to designate, make ready and monitor those facilities which are capable of providing life-saving care.

▶ Countries are urged to develop a "minimum guaranteed benefits package" for SRMNH, defined as "a set of health services that the government has committed itself to making available to all, free at the point of access".

▶ 70 of the 73 responding countries have a national "minimum guaranteed benefits package", but there are gaps in the essential interventions.

▶ Many countries will face significant challenges to ensure universal coverage, especially for the poorest 40%.

▶ Equity-focused approaches will be required that target the poorest, if both aggregate and equity goals for SRMNH coverage are to be achieved in the future.

▶ Countries can take immediate action to improve their strategic intelligence on accessibility to the midwifery workforce.

BOX 6

Country actions in Afghanistan, Sierra Leone and Togo

The Midwives Association of Afghanistan capitalized on the opportunity presented by the SoWMy 2014 survey to organize two stakeholder workshops for data collection, validation and policy discussion. Plans are already underway for a national SoWMy 2014 launch and dissemination, including round-table policy discussions and media coverage [68].

In Sierra Leone, *SoWMy 2014* participants identified poor working conditions, inefficient deployment mechanisms, lack of motivation, and insufficient opportunities for continuous professional development as some of the problems facing the midwifery workforce. A new mapping exercise has been commissioned by the government, in partnership with UNFPA, which will collate bio-data on all practising midwives and the geographic location of the facility they are working in.

Togo is another example of how the SoWMy 2014 process has strengthened national dialogue. The Togo Midwives Association coordinated the national workshops [69]. The meetings and discussions brought results in the form of data, and helped to strengthen relationships between the Midwives Association, the Ministry of Health, UNFPA and WHO.

Source: UNFPA and ICM.

Acceptability

The third dimension is acceptability (see Glossary, Annex 1). Even if care is available and accessible, effective coverage will be reduced if either the care or the midwifery workforce is unacceptable to women, their families and communities. Despite the rising proportions of women giving birth in facilities with professional health workers, there is evidence that in some instances lack of respectful care continues to be a disincentive to access (see Box 7). Acceptable care requires that all health facilities, goods and services should be respectful of medical ethics and culturally appropriate, i.e. respectful of the culture of individuals of all age groups including adolescents, minorities, peoples and communities [70]. It should be sensitive to gender and life-cycle requirements, as well as being designed to respect confidentiality and improve the health status of those concerned. Improving accept-

ability means listening to the voices of women and their communities, and building their preferences into policy and training initiatives and feedback loops. This aspect of service improvement has historically been lacking in many countries [71] but strategies are now emerging to address the problem.

It is difficult to increase acceptability without understanding current public attitudes towards the midwifery workforce and their practice. Just 18 of the 73 responding countries are aware of studies on this in their country. Among these is South Africa, which reported *"lack of information or being shouted [at] instead of being given clear information ... being turned away from the facilities and delivering at the gate or on the way home ... neglect and abandonment during labour or childbirth"*. More robust, peer-reviewed research is needed on this important topic. The SoWMy

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BOX 7

Respectful care in maternity services

White Ribbon Alliance Charter for Respectful Maternity Care

All women need and deserve respectful care before, during and after pregnancy and birth. Sadly, in many countries this is not what women are receiving. The Charter for Respectful Maternity Care [72] was developed in 2011 by a group of multiple stakeholders and development partners. The Charter was in response to a 2010 landscape report by Bowser and Hill, Exploring evidence for disrespect and abuse [73], that described seven kinds of disrespect and abuse to which women and their newborns can be subjected. These range from subtle disrespect and humiliation, through abandonment or denial of care, to detention in facilities.

Many countries are faced with this issue. Some are taking positive steps to gather new evidence and throw more light on this pervasive barrier to care:

• A recent study in **Kenya** by the Heshima project (heshima means dig-

nified in Kiswahili) found that 20% of women reported feeling humiliated or disrespected during care at childbirth. Correlations were found between the women's socio-economic status and the different categories of disrespect and abuse, with wealthier women more likely to be detained or asked for bribes, younger women more likely to experience non-confidential care, and the poorest experiencing more abandonment [74].

• An assessment of the quality of care in pregnancy and delivery in **Kanakapura Taluk, India** [75] showed that lack of respect by providers was a strong disincentive to giving birth in a care facility, and that feeling uncomfortable asking questions, being denied a birth companion and lack of support from care providers were strong factors in deterring women from seeking care in the future. 1 in 4 women reported that their provider revealed personal information they did not want others to know. This

finding was consistent across public, private, basic and referral hospitals [76].

• In **Tanzania**, following a Discrete Choice Experiment, one of the most important factors women identified as influencing their choice of a whether to give birth in a care facility was provider attitude. The authors estimate that improving these facility characteristics would lead to a 43-88% increase in births in care facilities [77].

• In **South Africa** women reported not seeking antenatal care because health providers were so rude; they sought attention only when in labour [78].

• In **Peru** many women are reluctant to utilize EmONC facilities because they felt service providers paid little attention to their needs and showed little sensitivity to local culture [79].

Source: Zoë Matthews, University of Southampton and Petra ten Hoope-Bender, ICS Integrare.

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survey asked for reasons why a woman or girl might be unable to or uncomfortable about seeking care from a midwife; a sample of the responses is provided in Table 2.

In responding to the SoWMy survey most countries (79%) stated that policies are in place specifically to address how SRMNH care will be delivered in a way that is sensitive to social and cultural needs, for example in relation to age, ethnicity, religion and language. These include a National Sexual and Reproductive Health Policy (Malawi), the Inclusion Strategy for Gender Equality in the Health Sector (Mozambique) and the Five Year Plan for Reproductive Health (Myanmar). The Afghanistan policy highlights support of gender equality issues and reproductive health and rights, as well as enhancing women's decision-making role in relation to health-seeking practices. China's policy notes increased investment in rural and remote regions and an extraordinary commitment to the universal provision of subsidies for all those who give birth in hospitals. In Liberia, the government regards health as a basic human right and aims to ensure every Liberian will have access to

services, regardless of economic status, origin, religion, gender or geographical location.

During country workshops the issue of acceptability was strongly linked with (1) women's role in society (lack of empowerment among and discrimination against women as both service users and service providers) and (2) the attitudes of health-care providers towards service users (care not being provided in a gender- or culture-appropriate way; lack of humane, woman-centred

By providing humane, informed and culturally-sensitive care, midwives can encourage women to seek SRMNH services. *(Jhpiego/Kate Holt)*

TABLE 2

Reasons why women do not seek care or feel uncomfortable about seeking care

REASON	ILLUSTRATIVE QUOTE/EXPLANATION
Social, cultural and religious beliefs and needs are not being met in institutions	Perception that institutions, and the health personnel within them, can be unfriendly or disrespectful of women's cultural or religious beliefs.
Mothers recognize that midwives are overloaded (including with non-midwifery tasks)	"There is a severe shortage of midwives and the few who are there are overloaded."
Health system incentives may encourage medicalized care	New financing mechanisms that favour medical interventions can encourage women to use high-level medical services in preference to midwifery care.
Lack of information on the professional role of the midwife	"The general public is unaware of the competency levels of a midwife."
Where women know about and prefer care by skilled midwives, they still face geographical and financial barriers	"Women will prefer care from a midwife if they are in a position to do so or make choices. Some women are located in remote, hard-to-reach areas and they only have access to traditional birth attendants."
Midwifery is socially undervalued	In some countries, paying for a doctor is seen to give greater social status to the family than attendance by a midwife.

care). Suggested solutions to these issues include: women's empowerment by improved education; improved mentoring/supervision of clinicians by regulatory bodies, professional associations and employers; and the inclusion of respectful care and sociocultural sensitivity as part of pre-service and in-service training. This suggests there is a need for further analysis of the gendered role of midwives, building on existing research [80].

Improving the acceptability of care can also be tackled by enhancing community voice, promoting client/provider interaction and ensuring accountability for services. Understanding the gaps in care provision, and mobilizing citizens and providers alike to call for greater accountability from local services and governments to deliver on their SRMNH commitments, can help to ensure that the conditions are in place to

deliver quality care. A number of new initiatives have promoted accountability mechanisms at local and national levels (see Box 8).

Quality

The fourth dimension is quality (see Glossary, Annex 1). Even if the midwifery workforce are available, accessible and acceptable to the population, poor-quality care can substantially limit their effectiveness. Evidence from settings that have provided 100% institutional care at birth shows that maternal mortality ratios can remain high unless quality is addressed [81]. There are many aspects to quality of care [82] including level of staffing, resources and work environment, and many reasons for variations in quality. The competencies of the workforce are only one component of this. Nonetheless, the midwifery workforce is a valuable starting point for

Midwives can empower women through education and by providing health-care information.
(Jhpiego/Kate Holt)

KEY FINDINGS

Acceptability

▸ More robust research is needed on women's perceptions of and attitudes towards the midwifery workforce.

▸ Only 18 countries are aware of studies documenting public attitudes towards the midwifery workforce and their practice, which limits the understanding of acceptability.

▸ The issue of acceptability is strongly linked to discrimination against women as both service users and providers. Further analysis on gendered-roles in the midwifery workforce would be valuable.

▸ Countries are developing policies to promote care that is sensitive to social, cultural and traditional needs; these policies need to be implemented and monitored.

▸ Mobilizing citizens and providers to champion greater accountability from local services and governments to deliver on their SRMNH commitments can help to ensure the conditions for delivering quality care.

Ensuring acceptability of service through accountability

Increasingly, activists and advocates are seeking to stimulate accountability in the delivery and monitoring of SRMNH services by calling for stronger legal, policy, regulatory, governance and financial environments. SRMNH service delivery improves when communities, clients, providers and health managers work together to review evidence of shortcomings and take action.

Maternal Death Surveillance and Response, facility scorecards and client-provider partnerships can build momentum for change

- In **Ethiopia** maternal death reviews are seen as a key element of the accountability and response cycle; these form part of a new and expanding system of maternal death surveillance and response for the country.

- In **Sierra Leone** the death review system is under improvement with the support of the First Lady of Sierra Leone, and a Maternal Survival Network is conducting high-level advocacy to address recommendations arising from national maternal death review data.

- Facility assessments and scorecards are used by health system managers in **Sierra Leone** and **Ghana** with civil society stakeholders benchmarking the quality of care provided at their local maternity facilities. Scorecards are used by clients and providers alike to advocate for systemic changes in SRMNH service delivery.

- In **Malawi** the powers of the district level ombudsman's office have been extended to include the power to report inaction at facility and district levels directly to the Ministry of Health. District ombudsmen's offices often lack independence from health facilities, although at national level powerful and effective accountability mechanisms exist.

Schoolgirls engage with SRMNH issues in Ghana through the MamaYe campaign. *(MamaYe Ghana)*

Tracking government commitments can increase accountability

- In **Nigeria** the group Accountability for Maternal and Newborn Health has been established to track progress, facilitate transparency in SRMNH issues, and stimulate action on priorities and commitments. In a pioneering move for African countries, a new National Independent Accountability Mechanism has been set up to track progress on implementing the recommendations of the Commission on Information and Accountability for Women's and Children's Health and the national roadmap.

- Stakeholders in **Tanzania** have established a Countdown Country Case Study (Countdown to 2015 group) with in-country activities which are providing evidence on the progress (and lack thereof) in SRMNH care that will be fed directly into the mid-term review of the national policies for achieving MDGs 4 and 5, as well as the One Plan and the Health Sector Strategic Plan III.

Supportive governance and an enabling financial environment are essential for accountability

- Tracking domestic resources dedicated to SRMNH services is often difficult:

reports can be difficult to obtain and flows of SRMNH financing may not be disaggregated.

- Countries of the African Union pledged, through the 2001 Abuja Declaration, to allocate 15% of their overall national budget to the health sector, but only a few countries have fulfilled this pledge. Advocacy campaigns and community action groups are now working to keep SRMNH-related commitments in the public eye, in order to bring decision-makers and those in power to account.

Civil society can call for social accountability

Five African countries have launched and developed an SRMNH campaign called MamaYe, which aims to bring together all actors working in SRMNH, from local to national level, to increase and sustain the visibility of SRMNH issues. Advocacy campaigns and national websites are platforms from which evidence, advocacy and accountability initiatives can be linked together and shared widely with a multitude of stakeholders in each country. They allow greater publicity and dialogue in both formal and informal settings, in order to focus attention and promote action on SRMNH.

Source: Adriane Martin-Hilber and Louise Hulton, Evidence for Action.

considering quality of care, particularly education, competencies, skill-mix and collaborative practice.

Midwifery education: still neglected

SoWMy data provide strong evidence of pervasive gaps in the infrastructure, resources and systems that affect midwifery education. The SoWMY survey collected a fair proportion of the information used by the forthcoming Rapid Midwifery Assessment Tool* to evaluate the quality of midwifery education. The tool has six sections: infrastructure; teachers, tutors and preceptors; students (discussed in the Availability section above); clinical education; curriculum; and influencing factors (discussed in the Regulation and Policy sections below).

Inadequate infrastructure is a key problem for midwifery education. Insufficient or poor-quality equipment at teaching institutions is a problem for 80% of midwife cadres, 69% of nurse-midwife cadres and 44% of nurse cadres. Lack of classroom space is perceived as a challenge to the education of 53% of midwife cadres, 43% of nurse-midwife cadres and 17% of nurse cadres.

Concerns relating to teaching staff were also common. Difficulties in recruiting sufficient teaching staff were reported in relation to 82% of midwife cadres, 62% of nurse-midwife cadres and 39% of nurse cadres. Similarly, difficulty in recruiting appropriately qualified teaching staff was reported in relation to 77% of midwife cadres, 62% of nurse-midwife cadres and 39% of nurse cadres. Teacher retention is also problematic. In many countries there is inadequate investment in the education of faculty and teachers are unable to update their theoretical knowledge and/or clinical practice skills. This limits the quality of education provided, and learning is often lecture-based. This has profound implications for the ability to educate and train midwives competent to provide the full range of services needed. The greater challenges with recruiting teachers and maintaining competency in direct-entry education programmes may be due to the fact that in some countries direct-entry education for a midwife is only recently established and they are struggling to recruit from a smaller pool of qualified teachers with pedagogic skills and specialized knowledge of midwifery.

In terms of the clinical practice requirement in education programmes, the number of births a midwife must conduct under supervision prior to graduation varies across countries (see Figure 11). The median reported number of supervised births required for midwives is 34, for nurse-midwives 30, and for nurses 20. Each of these medians is less than the indicative number discussed in ICM's education standards companion guidelines [16], which encourages forward planning to ensure that sufficient midwifery practical experience be factored into education pathways and suggests a median of 50 supervised births (though some students will require more for competency demonstration and others less). Difficulties in providing students with sufficient clinical experience were reported in relation to 80% of midwife cadres, 62% of nurse-midwife cadres and 61% of nurse cadres. In many settings, therefore, midwives and other professionals may graduate from their education programmes without enough practical experience of childbirth.

FIGURE 11 **Minimum number of births to be conducted under clinical supervision**
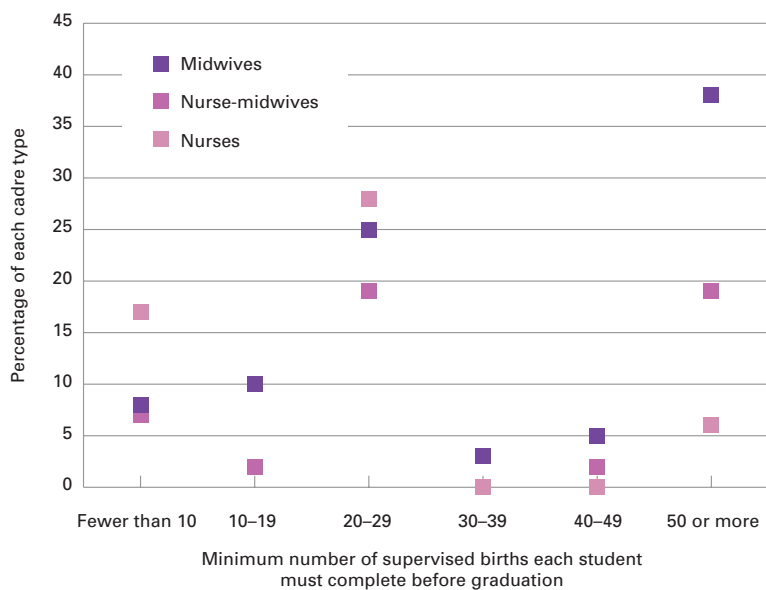
* This tool is being developed by ICM and Jhpiego for particular use in low- and middle-income countries.

Most midwifery and nursing cadres have a national curriculum that is followed by all schools (85% of midwife cadres, 64% of nurse-midwife cadres and 78% of nurse cadres). The ICM recommends that curricula be reviewed every five years [16] and this has happened for 78% of midwife cadres, 48% of nurse-midwife cadres and 28% of nurse cadres. This may reflect the increasing number of direct-entry midwifery programmes established in recent years. The content of these curricula is not generally perceived to be a challenge to the provision of quality midwifery education, but this is an issue for a significant minority of cadres. Among countries where there is no standard curriculum, there are national standards for assessing education quality for only 33% of midwife cadres and 38% of nurse-midwife cadres.

Potential ways to improve the quality of midwifery education suggested by SoWMy workshop participants include the implementation and regular review of minimum standards for curricula (aligned with ICM global standards), and the introduction of faculty development plans, including regular refresher training and formal qualifications for teachers/tutors/supervisors. Other suggestions included: improved access to simulation training and equipment; regulation/accreditation of private midwifery schools (although far from all public schools are regulated or accredited either); more "hands-on" training in health facilities; and improvements in monitoring and evaluating education and training institutions. More in-service training and continuing professional development are seen as good means of improving quality, and this included supportive supervision of teachers/tutors. Such investments would enable improvements on a range of issues, including: productivity, competency and quality of care; accountability of service providers to service users; workforce morale; continuous professional development; effective regulation; and collaboration between different professional associations. The involvement of midwifery staff in maternal and perinatal death

Midwives, when educated and regulated to international standards, are able to provide quality care and have a positive impact on sexual, reproductive, maternal and newborn health outcomes. *(Jhpiego/Ali Khurshid)*

reviews helps to identify areas for improvement and to overcome systemic problems.

Improving legislation, regulation and licensing mechanisms

Supporting and protecting midwives by law (providing a legal right to practise) is an important acknowledgement of their worth. Only 35 out of the 73 responding countries (48%) have legislation recognizing midwifery as a regulated profession, and in five of these countries the legislation is not applied. Among the 54 countries who took part in both *SoWMy 2011* and *SoWMy 2014*, the proportion of countries with such legislation has increased only slightly (from 35% to 37%). Yet progress is being made: 12 countries reported that legislation is being created. This does, however, leave 26 countries with no such legislation and none being created.

In nearly all responding countries there is at least one organization with responsibility for the regulation of midwifery practice (see Figure 12). Half (51%) said that midwifery is regulated by the Ministry of Health or other government department, and a similar proportion (47%) mentioned a government-approved regulatory

FIGURE 12 **Regulation and licensing of midwives**

Government department or government approved regulatory body regulates midwifery practice

Officially recognized definition of professional midwife

System of licensing

Midwife is a recognized and regulated profession

Electronic register for licensing

0   20   40   60   80   100

Percentage of 73 responding countries

■ Yes   ■ Yes, but with conditions   ■ No, but it is being created   ■ No

organization such as a Board or Council. A few countries have more than one regulatory body. Just 6 of the 73 countries report having no regulatory body whatsoever, of which 3 (Democratic Republic of Congo, Guatemala and South Sudan) said that one is being set up. The existence of a regulatory body is necessary, but not sufficient, to ensure effective regulation. Survey respondents were asked to state the responsibilities of their regulatory organization(s) (facilitating a comparison with ICM's global standards [18]). Figure 13 shows that the main responsibilities currently held by regulatory organizations are: setting standards for midwifery practice; registration; applying sanctions in misconduct cases; and setting ethical standards. Relatively few countries mentioned accreditation of education providers or protection of the professional title of "midwife".

Although most countries report that a regulatory organization is responsible for the functions listed in Figure 13, information from the 37 country workshops indicates that in some countries regulatory organizations do not fulfil these functions effectively, due to issues such as: lack of clear description of midwifery competencies; lack of nationally agreed standards for midwifery education (especially in the private sector); and lack of effective regulatory processes, e.g.

due to political instability or insufficient resources. Adequately resourced regulatory systems are a key priority for quality improvement. The workshop participants considered ways to tackle these issues, and suggestions included ensuring that regulation of midwifery is separate from regulation of other health professions, but with appropriate coordination.

The scope of practice for different cadres in the midwifery workforce should be laid down by regulatory mechanisms, but these are often ineffective. For instance, there are countries in which midwives perform some or all of the seven basic signal functions without being authorized to do so, often because they are the only health-care provider present when the need arises. The SoWMy data allow a comparison of the authorized and actual activities of midwives in relation to the seven B-EmONC signal functions as shown in Figure 14. Assisted vaginal delivery stands out as the function with the most significant disparity between authorization and provision, with 19 countries stating that midwives perform this even though they are not authorized to do so.

Midwives are also authorized to provide at least one type of family planning product in 71 out of the 73 countries, the two exceptions being China and Iraq. In 57 countries midwives are authorized to provide all four types listed in the questionnaire: contraceptive injection, contraceptive pill, intra-uterine device and emergency contraception (EC), commonly referred to as the "morning-after pill". Authorization does not, of course, guarantee availability or quality; at country level there is very little correlation between unmet need for contraception and the number of family planning products that midwives are authorized to provide. Out of the four types of contraception listed in the questionnaire, EC is the least likely to be provided by midwives, although 61 of the 73 countries reported that it was.

Neither women nor midwives are protected or supported without appropriate regulation, registration and licensing. For the latter, licensing systems for

midwives exist in 34 of the 73 countries (47%) and are being created in a further 11 countries (15%). In all but one of the 34 countries with a licensing system, licensing is compulsory before a midwife can practise. Again, a system is a crucial first step, but does not guarantee effective implementation. This is illustrated by the survey, which found that only 26 of the 73 countries have a system of regular re-licensing (typically annually or every five years) and only 17 make continuing professional development a condition of re-licensing.

A register of licensed midwives exists in 48 of the responding countries, of which 28 have an electronic register. Among the 54 countries which took part in both SoWMy 2011 and SoWMy 2014 there has been a 40% increase in those with an electronic register. This progress is likely to continue: a further 18 countries reported plans to create a register. Paper-based registers are updated less frequently than electronic ones (10% of countries with a paper-based register and 43% of those with an electronic one say that the register is updated at least once a month).

Improving professional associations

All 73 countries except Turkmenistan reported at least one professional association, college or union which is open to midwives, nurse-midwives or auxiliary midwives. 51 of the 73 countries are represented within the ICM and 45 in the ICN, providing linkages to the global bodies and the technical support this offers. The 73 countries listed a total of 119 professional associations of which 71 (60%) were created in or after 1990; nearly all are specifically for midwives and/or nurses. In a few countries no midwifery or nursing association was mentioned, but instead information was provided about, for example, an association for obstetricians which midwives and nurse-midwives are entitled to join.

Although nearly all countries named associations, only 60 were able to provide data on the number of members of each association. Across

FIGURE 13 **Functions and responsibilities of regulatory bodies**

Percentage of 73 responding countries

Setting standards for midwifery practice	79
Registration of practising midwives	78
Applying sanctions to midwives found to have been guilty of misconduct	74
Setting standards for professional ethics	73
Establishing the scope of midwifery practice	70
Setting standards for education	70
Investigating alleged misconduct or incompetence	70
Ensuring the quality of education	68
Verification of midwives joining the workforce from other countries	68
Continuing professional development	67
Advising government on MNH care policy	67
Assessing competency prior to registration	62
Protection of the professional title 'midwife'	60
Accreditation of education providers	53
Other	11

FIGURE 14 **B-EmONC signal functions: midwives' authorized and actual roles**

Number of countries

- Parenteral administration of antibiotics
- Administration of oxytocics
- Administration of anticonvulsants
- Assisted instrumental delivery by vacuum extractor
- Manual removal of placenta
- Manual vacuum aspiration for retained products
- Newborn resuscitation with mask

■ Authorised and do ■ Not authorised but do ■ Authorised but don't do ■ Not authorised and don't do

An effective and clear regulatory environment strengthens the role of midwives and contributes to improving quality of care. *(Jhpiego/Kate Holt)*

these 60 countries nearly 670,000 members were reported (not all are midwives/nurse-midwives because some associations are also open to other cadres of health professional). Across the 50 countries that provided data on the number of members currently practising, 86% of the total membership is currently practising in-country, which suggests that, in these 50 countries, membership lists are kept reasonably up to date.

The "bold steps" recommended in *SoWMy 2011* for professional associations included contributing to the policy arena and advocating for better working conditions. Figure 15 shows that nearly all of the 119 associations play a role in continuing professional development, and a similar

number advise members on quality standards for SRMNH care. Interestingly, 53% report being involved in negotiating work or salary issues with their government, a function that is generally the domain of a trade union.

Participants in the 37 country workshops made several suggestions about how to strengthen professional associations. Associations specifically for midwives were suggested, as well as: encouraging all midwives to join; ensuring professional associations contribute to policy discussions and key decisions affecting SRMNH services at national and regional levels; advocacy to increase the visibility of the profession and advance the rights of the midwifery workforce, e.g. improving staff welfare, security and promotion; improving collaboration and cooperation between all health-care professional associations and other SRMNH stakeholders such as NGOs; and strengthening the administrative and advocacy capacity of professional associations [83].

Policy and planning

The alignment and cohesion of policy and planning instruments, along with data for strategic intelligence, are essential to deliver effective coverage of quality midwifery care.

Across the 73 countries, respondents listed 276 policies, plans and legislations in place for organizing, delivering and monitoring SRMNH services (almost 4 on average per country) and all countries reported at least one policy/plan/legislative in force. 68 countries have a national health plan (although not all used this title), 66 have a national SRMNH plan/strategy/roadmap or similar and national HRH plans are in place in 52 countries. Of the 52 countries with a national HRH plan, 39 (75%) said the MNH workforce targets in the plan are based on or linked to SRMNH service coverage targets in the national SRMNH/health plans.

25 of the 73 countries returned policy documents in support of their responses. These documents were catalogued in relation to the 2014 PMNCH/

FIGURE 15 **Functions of professional associations open to midwives**

Function	Percentage
Continuing professional development	92
Advising members on quality standards for MNH care	88
Advising the government on the most recent national MNH or health policy document	77
Advising/representing members accused of misconduct or incompetence	60
Negotiating work or salary issues with the government.	53
Other	48

Percentage of 119 associations performing each function

WHO Multisectoral Policy Compendium [51], from which it is evident that most of these 25 countries have policy foundations that span the domains of SRMNH and HRH.

Of the 47 countries which reported non-professional cadres, 12 submitted policy documents but only 4 submitted policies which specifically mentioned or included community health workers. In this particular sample, HRH policies seem not to include CHWs and their roles within the health system structure. However, some countries have developed or are in the process of developing policies specifically addressing community services and the roles of CHWs and these linkages are encouraged.

Countries with national health, SRMNH and/or HRH plans tended to report that these are recent (72% of the plans were published in or after 2009). Most are still current, covering a period up to or beyond 2014. National SRMNH plans tend to be less recent than national health plans and national HRH plans: 42%, 12% and 19% respectively were published prior to 2009.

Costed plans are important in order to prioritize service areas in a country. Out of the 276 policy documents reported, 170 (62%) contain plans that are fully costed. National health plans and national SRMNH plans are the most likely to be fully costed (71% and 70% respectively, compared with 60% of national HRH plans). Out of the 73 responding countries, 54 (74%) said that their existing policy documents specifically address how the country is going to improve all four elements of availability, accessibility, acceptability and quality of services. However, it should be noted that the existence of a policy document does not guarantee its effective implementation.

Summary

If our goal is to provide universal, effective coverage of midwifery services to all women and newborns, regardless of wealth, place of residence or age, we must jointly address the

KEY FINDINGS

Quality

▶ Pervasive gaps in infrastructure, resources and systems adversely affect midwifery education.

▶ Key challenges for quality midwifery education include the inadequacy of secondary education, lack of teaching staff, poor quality equipment, lack of opportunities for practical training and lack of classroom space.

▶ The number of births a midwife conducts under supervision prior to graduation varies across countries, and may be insufficient to meet competency requirements.

▶ Nearly all responding countries have at least one regulatory body, but many lack legislation recognizing midwifery as a regulated profession, clearly described midwifery competencies and education standards, and effective regulatory processes.

▶ Nearly all countries reported having at least one professional association open to midwives, 80% provided data on the numbers of midwives in membership and 75% knew who was currently practising in-country.

▶ Among the 54 countries which took part in both SoWMy 2011 and SoWMy 2014 there has been a 40% increase in those with an electronic register of licensed midwives.

▶ Alignment and cohesion of policy and planning instruments in SRMNH and HRH are essential to deliver effective coverage of midwifery services: 75% of countries said the SRMNH workforce targets in their HRH plans was linked to the national SRMNH or health plan.

▶ Of the 276 policy documents reported, 62% contain plans that are costed, among which the SRMNH plans are more likely to be fully costed than the human resource for health plans.

dimensions of AAAQ, the lack of which holds back countries and excludes parts of their populations.

Many countries have moved to make the necessary workforce available, but much needs to be done to meet shortages and/or deficits in the number and composition of the midwifery workforce to ensure progress to universal coverage. The diversity between countries in typologies and composition of health workers contributing to SRMNH services is striking, but using information from the SoWMy survey it is possible to assess the roles, competencies, education and contribution of each and every cadre. As

many of these workers do not spend 100% of their time on SRMNH tasks it is important to calculate the full-time equivalent workforce in each country in order to compare availability with need for services. Clearly this information, along with minimum workforce data, is required to provide strategic intelligence informing policy and planning processes. Countries can use this information to actively manage the education of the midwifery workforce, adequately remunerate those employed, and effectively promote a career as a midwife. This will ensure that the future workforce meets the needs of future populations.

Countries should also press forward with plans to improve the accessibility, acceptability and quality of care. Accessibility can be addressed by using GIS and appropriate equity-based planning tools, as well as ensuring that their national "minimum guaranteed benefits package" for SRMNH includes all essential interventions. Acceptability should be recognized as an important element of care: steps should be taken to reduce disrespectful care and instead to promote care that is sensitive to social and cultural needs, accompanied by robust research on women's perceptions of and attitudes towards the midwifery workforce. Finally, maternal and newborn mortality will remain high unless the quality of care is addressed. Countries should improve the quality of midwifery education, regulation and association, and address pervasive gaps in order to move towards effective coverage.

Figure 16 shows the gap in effective coverage from the availability and quality dimensions: the availability of all workers who participate in the midwifery workforce of the 73 SoWMy countries, and those who have the dedicated time, authorized roles, practical training and competencies to provide quality care. The constraints to coverage within these two dimensions are substantial (leaving aside the problems of acceptability and accessibility).

Reducing this gap requires the collection and better use of data on: what proportion of available midwifery workers are full-time with SRMNH services, how many students are likely to join the workforce in the future, where the health workers are located, how women and their communities feel about the services they experience, and how the HRH plan furthers SRMNH strategies.

To achieve this, strong leadership is needed to prioritize midwifery and release resources to support this new approach to workforce and service planning.

FIGURE 16 **Midwifery workforce: from availability to quality**

Legend:
- Midwives
- Nurse-midwives
- Nurses
- Auxiliaries
- Associate clinicians
- Physicians (general)
- Obstetricians/ gynaecologists

Y-axis: Number of midwifery workers (in millions)

X-axis categories: Headcount; Full-time equivalent; Full-time equivalent, all midwifery tasks; Full-time equivalent, all midwifery tasks, > than 25 supervised births

90% reduction

MIDWIFERY2030

Chapter 2 described the state of the world's midwifery based on analysis of survey, workshop and secondary data from 73 of the 75 Countdown countries. It presented progress since 2011 and consolidated the evidence base to enable stronger policy dialogue within countries on the barriers, challenges and potential policy responses. The evidence has revealed the similarities and differences across countries and captured the bold steps that many are taking to strengthen SRMNH services and the midwifery workforce.

This chapter builds on the evidence of where countries are today and looks ahead to where they could be in 2030. It provides decision-makers, health professionals, stakeholders and supporting partners with additional evidence-based suggestions for strengthening midwifery, improving SRMNH services and accelerating progress on both the MDGs and UHC. It focuses on how governments and their partners can work together to meet international obligations and fulfil women's rights to sexual, reproductive, maternal and newborn services. Finally, it presents *Midwifery2030*, which describes what fully implemented midwifery care can achieve and includes 10 goals and the policy development and planning necessary to achieve them.

Looking towards 2030

As detailed in Chapter 2, the global number of pregnancies per annum in the period 2014-2030 is projected to remain constant at 160 million, but regions, countries and urban/rural communities within them will face very different needs,

and each requires a tailored policy response to develop context-specific health service and health workforce solutions. Figure 17 highlights the projected change in population need for key SRMNH health-care contacts, including family planning visits, four antenatal care visits, skilled birth attendance and four postnatal visits.

Chapter 2 also showed the importance of understanding whether health-care professionals are available, accessible, acceptable and able to deliver quality care in order for countries to ensure that women and newborns obtain the care they need. Encouragingly, 16 (22%) countries are projected to have a midwifery workforce that, by availability and skill-mix of health personnel, is potentially able to provide all women and

New models of practice based on proximity of care to women and communities enable access to health services.
(Jhpiego/Kate Holt)

newborns with at least the 46 essential interventions [1]. Conversely, 57 (78%) countries face projected deficits (by full-time equivalent personnel and/or skill mix) in the midwifery workforce.

In those countries where projected "met need" (the availability of the workforce compared with the need for SRMNH services) is less than universal, ways to fulfil a woman's rights to sexual and reproductive health, including maternal and newborn care, need to be developed. In the 16 countries where the projection of met need is more than 90% policy discussion must occur. For example, a country may have 100% of met need but there may be imbalances in the skill mix needed for resource efficient midwifery teams (e.g. too many physicians and not enough midwives). Projections of more than 90% present an opportunity to analyse: the validity of the data provided; equity of coverage; productive efficiency of the workforce (providing more care with the same resources); alignment between education and employment; and, looking beyond the numbers, the quality of personnel and services. It is also important to analyse whether the aggregate met need conceals economic, geographical or social disparities within the country (e.g.

where the workforce is primarily located in major cities there will be inequitable distribution and underserved groups in rural areas).

The 46 essential interventions save lives and promote health [1]. However, women and newborns have a right to universal coverage [2] which goes beyond the provision of interventions and requires new approaches to enable women to have healthy sexual and reproductive health outcomes, including healthy pregnancies and births, and to receive respectful, supportive, preventive care. The next section sets the scene for policymakers and partners in all countries to consider where on this pathway they are, and how much progress they need to make. Improvement is feasible for all communities in all countries.

Drivers of health, health systems and health financing

Global Health 2035: a world converging within a generation, the report of The Lancet Commission on Investing in Health published in December 2013, highlights the fact that the financial and technical capacities are now available to reduce infections, child and maternal mortality and non-communicable diseases to low levels [3]. The combination of economic growth in many low- and middle-income countries together with increasing availability of health technologies makes a "grand convergence" in health achievable within about two decades [3]. Investing in health could prevent around 10 million deaths by 2035 [3]; in particular, investing in women's and children's health will secure substantial health, social and economic benefits [4]. To achieve return on investment, countries will need to respond to changes in health, health system and financial drivers and the global policy landscape (see Box 9).

The Global Strategy for Women's and Children's Health (the Global Strategy) [22], supported by the *Every Woman Every Child*

FIGURE 17 **Projected change in population need for SRMNH visits between 2012 and 2030, by WHO region**
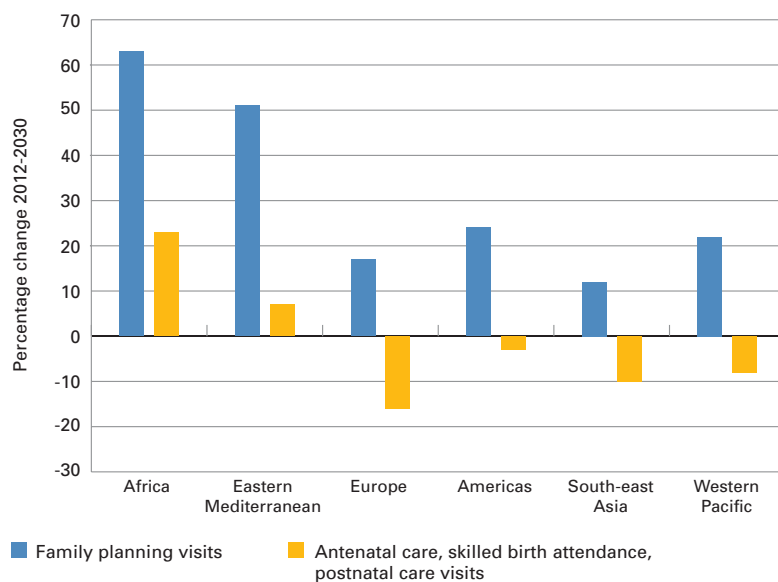
campaign [23], is focused on addressing inequalities and is likely to be a key driver of SRMNH through 2030. The main tools have been developed as follows. In 2011, the Global Strategy's Commission on Information and Accountability for Women's and Children's Health [24] highlighted the need for better data collection and accountability from all stakeholders involved in RMNCH, which led to the creation of the independent Expert Review Group for Women's and Children's Health [25,26]. The Commission on Life-Saving Commodities in 2012 [27] identified the essential life-saving commodities for RMNCH and delivery strategies. Finally, the 2013 Global Investment Framework for Women's and Children's Health [4] added a financial perspective, detailing the health, social and economic benefits (of up to nine-fold) that can be generated.

Changes in the health market will affect the financing of health systems and the capacity of countries to meet the needs of their populations, particularly the poorest and most disadvantaged adults and adolescents [12]. Towards 2030, there will be continuing technological innovations, rising incomes, enhanced consumer education and demand, increased availability of information, urbanization and an increase in weather-related natural disasters [12,28]. The interactions (among consumers, health workers and providers) between the public and private health sectors and increased economic growth will also impact on access to health systems and UHC [29].

Together these changes, drivers and initiatives are creating a unique opportunity for countries to make rapid progress towards realizing the universal right of access to high-quality

Midwifery2030 aims to help women and children stay healthy by increasing the quality and coverage of health services. *(Guifty Banka)*

SRMNH services, with midwifery as one of its core components.

Midwifery2030: A pathway for policy and planning

Most women and children are healthy and need the health system and health-care providers to help them stay healthy. *Midwifery2030* starts from the premise that pregnant women are healthy unless complications, or signs thereof, occur, and that midwifery care provides preventive and supportive care with access to emergency care when needed. *Midwifery2030* presents a coherent policy and planning pathway to guide the provision of services to women and newborns across the two continuums of SRMNH care: from sexual and reproductive health through to pregnancy and the postnatal period (as needed), and from communities to referral hospitals. *Midwifery2030* focuses on increasing the AAAQ of health services and health providers aligned with the three components of UHC: reaching a greater proportion of the population (increasing coverage), extending the basic and essential health package (increasing services) while protecting against financial hardship (increasing financial protection). *Midwifery2030* has the following 10 goals.

1. All women of reproductive age, including adolescents, have universal access to midwifery care when needed (the first and second components of UHC).

2. Governments provide and are held accountable for a supportive policy environment.

3. Governments and health systems provide and are held accountable for a fully enabled environment.

4. Data collection and analysis are fully embedded in service delivery and development.

5. Midwifery care is prioritized in national health budgets; all women obtain universal financial protection (the third component of UHC).

6. Midwifery care is delivered in collaborative practice with health-care professionals, associates and lay health workers.

7. First-level midwifery care is close to the woman and her family with seamless transfer to next-level care (see Figure 18).

8. The midwifery workforce, in communities, facilities and hospitals, is supported through quality education, regulation and effective human and other resource management.

9. All health-care professionals provide, and are enabled to deliver respectful, quality care.

10. Professional associations provide leadership to their members to facilitate quality care through advocacy, policy engagement and collaboration.

Realizing the pathway

Transformative changes within countries are needed to move forward from the reality described in Chapter 2 to achieving the goals of *Midwifery2030*. Collaborative action is required to:

• redesign models of practice to keep women and newborns at the centre of care;

- secure an enabling professional environment, including high-quality education, regulation and professional association;

- secure an enabling practice environment through an effective referral network and a human resources management system that includes supportive supervision, ongoing education and a safe and supportive workplace;

- enable intra- and inter-disciplinary collaboration and teamwork at all levels, from community to tertiary level.

Redesigning models of practice

Midwifery2030 promotes models of practice that position women and newborns at the centre of care. Chapter 2 identified gaps in the continuum of care in many countries, particularly a lack of attention to care during pregnancy, after birth and in access to family planning. *Midwifery 2030* incorporates the full continuum of care from sexual and reproductive health through to pregnancy, birth, postnatal care and the early months of newborn life [30]. It can meet the needs of adolescent girls [16] and includes access to culturally sensitive and appropriate family planning and safe abortion (in accordance with human-rights standards [31] and when it is not against the law respectively) and post-abortion services for all women.

Models of practice must promote the provision of first-level care as close as possible to women's homes and communities, while ensuring access to consultation and referral to next-level services. In order to improve access to quality midwifery and obstetric care, aligned with minimum recommended coverage levels [32], it may be more effective to upgrade specific facilities (e.g. well-functioning facilities with sufficient staff) or to incentivize those facilities which achieve an equitable geographical distribution of services, rather than making birthing services available at all facilities. Efficient use of health workers and collaboration with community-based lay workers and volunteers can facilitate access to cost-effective care, especially for women and families in geographically remote or urban poor settings without transportation. First-level midwife-led units [33] could be established within reach of communities, supported by CHWs and TBAs who assist women to access the health system and facilitate respectful, culturally sensitive care [34].

Models of practice must use the health workforce effectively. *SoWMy 2014* shows that many cadres in the midwifery workforce spend significant proportions of their time on other tasks, resulting in a lack of focus on SRMNH services. For

FIGURE 18   **Key features of first-level and next-level midwifery care**

	First-level midwifery care	Next-level* care
Defining feature	Close to the woman and her family, de-medicalized but professional.	Secondary- and tertiary-level services with seamless transfer and inter-disciplinary collaboration and professional respect.
For whom?	For all women and newborn infants.	For all women and newborn infants who have problems or risk factors that cannot be solved by first-level midwifery care.
By whom?	Best by midwives, alternatively by doctors and associate clinicians if appropriately educated and regulated.	Best by a collaborative team that includes midwives, obstetricians and gynaecologists, paediatricians and other medical specialties as needed; alternatively by appropriately trained doctors, and associate clinicians (including advanced level).
Where?	Preferably in midwife-led units; also in hospitals with maternity units.	In all hospitals.

Source: Adapted from the World Health Report 2005 [43] and WHO Optimize MNH [68].

*Next-level care includes appropriate consultation, teamwork and referral and return when required or requested to secondary- or tertiary-level services.

the care of women and newborns who are pre-dominately healthy and considered at normal risk, a midwife who is educated (regardless of the education pathway), regulated and supported to provide care within an enabled, safe and collaborative practice environment is likely to be the most cost-effective option. A focused and competent SRMNH workforce, with fewer cadres, is likely to be more cost-effective with regard to providing ongoing education, regulation and supervision.

CHWs and TBAs will continue to be part of service delivery models in the coming years, including in those countries where there are severe deficits in the number of professional health workers. In communities where CHWs and TBAs hold a respected position they can influence women's use of midwifery care [35,36] and can provide basic health information about healthy pregnancy, safe birth options, newborn care, nutrition, breastfeeding support, family planning and HIV prevention. Formal and informal links between the traditional birthing services in a community and the professional health services can facilitate both the effective use of available resources and access to quality, respectful care [36–38]. Such links can also open a career pathway for community workers to enter the professional midwifery cadre through appropriate education programmes.

The aims of *Midwifery2030* can be achieved through midwife-led models of practice. There is strong evidence from upper-middle- and high-income countries that midwife-led models, particularly those that provide continuity of care and provider, generate significant benefits and cost savings with no identified adverse effects (33,39–42). Midwife-led care includes: continuity of care and provider; monitoring the physical, psychological and social well-being of the woman and her family; providing individualized education, counselling and antenatal care; continuous attendance during labour, birth and the immediate postnatal period; minimizing technological interventions; and identifying

and referring those who require obstetric or other specialist attention [43]. Midwife-led care can be delivered at community level if there is access to transport for referral to reduce unnecessary delays [43].

Securing an enabling professional environment

The goals proposed by *Midwifery2030* require an enabling professional environment to support effective education, regulation and professional association [44], often identified as lacking in the survey responses from the 73 countries in this report.

Many midwives around the world work in difficult, unsafe, isolated and poorly equipped settings, and themselves experience gender-based violence, poor salaries and working conditions and a lack of access to continuing professional development; all of these factors impede high-quality care [45]. Poor working conditions undermine their ability or willingness to continue practising: many midwives choose to leave the workforce due to frustration with their position and role [46] or because they reach an arbitrary retirement age. An enabling professional environment means that midwives can develop meaningful relationships with women, with occupational autonomy and flexibility, so that they can: control, organize and prioritize their own work; have access to supportive supervision; reflect on practice with peers and colleagues; share ideas and information; and optimize service provision [45,47].

A commitment to education, regulation and association
Implementing an enabling professional environment involves:

1. High-quality education, continuing professional development and career pathways, including: making a career as a midwife attractive; providing educational pathways with sufficient opportunities for clinical experience; having well-prepared faculty and appropriately

resourced programmes; developing or applying accreditation systems with measurable standards and criteria; providing a safe and conducive learning environment; and facilitating community engagement to ensure that what midwives are taught meets community needs and incorporates respectful care and sociocultural sensitivity. Quality initial and ongoing education must ensure that midwives remain competent to do their job effectively, can gain advanced SRMNH clinical skills if desired or follow leadership and management training to become SRMNH leaders. Continuous professional development programmes can increasingly be delivered through information and communications technology, using blended learning that includes e-learning and face-to-face time, potentially in education hubs, either locally or regionally.

2. A strong and functional regulatory system including registration and licensing; incorporation of internationally consistent standards and codes while also meeting country-specific needs, the accreditation of education programmes and continuing professional development frameworks so that periodic re-licensing and evidence of continued competence can be monitored. Effective regulation also includes authorizing personnel to undertake specific tasks depending on the context and need, for example, prescriptive authority and providing expanded HIV services [48,49].

3. Vibrant and committed professional associations that can provide: a point of leadership and advocacy, lobbying for improved working conditions (including flexible hours, adequate remuneration, leave, housing, transport, safety and security); opportunities for career development, promotion and incentives for retention; and access to information and evidence for enhancing practice through continuing education and research. Effective support may include twinning models between individuals or associations [50,51]. Development, training and support are required to ensure the sustainability of associations and to enable members to work at

Motivated and committed professional associations can influence decision-making processes, contributing towards a strengthened profession.
(Jhpiego/Kate Holt)

political and government levels and exercise advocacy both for women generally and for midwives.

Quality education, regulation and professional associations must be supported to ensure the sustainability of midwifery services and to build and sustain momentum for quality maternal and newborn care. Data from the country workshops in *SoWMy 2014* highlighted the need for capacity building in education, regulation and association to enable them to develop, flourish and play a vital role in sustaining and supporting the goals of *Midwifery2030*. Box 10 outlines the regulatory developments that are needed to better protect the public.

Securing an enabling practice environment
An enabling practice environment includes access to effective and reliable consultation and referral networks [52] as well as human resources development, management and capacity building.

Access to effective consultation and referral networks
First-level midwifery services need to be clear about their capability to consult with, and transfer women and/or newborns to, a secondary- or tertiary-level service if required, and about the processes for referral and transfer. In the country-level workshops there were strong themes related to a lack of access to transport, a lack of cooperation between health care levels, poor com-

munication between first-level and higher-level services, and a lack of accountability at the community level. Addressing these issues requires:

- community engagement to gain understanding of, and support for, transfer;

- evidence-based policies, guidelines and indications for consultation and referral;

- access to functional telecommunication systems (including e-health and m-health) between health service levels and between health professionals;

- effective utilization of CHWs or TBAs to ensure timely referral and transfer from the community level;

- education and regulation to enable specific services to be delivered at first level (e.g. prescriptive authority and HIV screening and treatment);

- access to suitable, safe accommodation to await labour and birth if the most suitable place to give birth is away from home;

- access to transport for women and their newborns to next-level care, and return home when ready;

- the possibility for women to be accompanied by a person of their choice if transferred to the next-level service, because social support is a critical component of effective and respectful care.

Protecting the public: a renewed paradigm

Professional regulation is about protecting those we serve. However, many regulatory systems remain under-developed, outdated or, in some cases, completely absent. As a result, those who use the health services are placed at risk, and governments are denied the support of powerful tools in their efforts to secure UHC and redesign health systems.

Over the next two decades governments, the professions and regulatory bodies need to modernize or put in place regulatory models that are in step with current and future needs and proactive in securing public protection at the design stage rather than focusing on approaches that address failure retroactively.

In the future, regulatory frameworks must be proportionate to the level of risk. They need to provide solutions to emerging problems as and when they occur, and/or provide for pre-emptive actions so as to minimize risk of occurrence. Reacting after the fact and waiting for legislative time to change outdated laws must be the exception rather than the rule.

To be effective, the regulatory body needs to be a collaborator and a team player. It must understand the contributions of all actors and seek to synergize opportunities for achieving public safety. Comprehensive regulatory models need to address education, practitioners and the practice environment.

Standards of education and curricular content need to keep pace with the rapidly expanding evidence base, new forms of care delivery and modern educational processes. These processes will often be problem-orientated and team-focused. Educational programmes need to be competency-based and modular in structure.

The practitioner needs to be prepared and authorized to work to their full scope of practice according to population needs. Delegation, supervision and accountability will be clear and regulators will be proactive in engaging users of the services, the various disciplines involved in the matrix of care and governments to ensure that practitioners are not only properly prepared for their own roles but also work in a coherent manner. This provides an opportunity for regulators to work far more closely together, sharing best practice, information and data, and

establishing benchmarks against which their performance will be judged.

A philosophy of life-long learning and continuing competence will be instilled in practitioners from the very outset of their preparation. Regular re-licensure to practise tied to continuing competence processes will be essential. Supervisory systems need to be updated to optimize the use of technology so as to provide, even in the most remote settings, the types of support that can secure better public protection and professional development.

Living in a global world where mobility is a reality requires the development of systems that balance the avoidance of unnecessary delays, overly burdensome requirements and excessive costs with the imperative of protecting the public from poorly performing individuals. To this end, the development and implementation of a regulatory dataset is needed. This will facilitate transparency and assist in the assessment, calibration and recognition of qualifications across jurisdictions.

Source: David C Benton, International Council of Nurses.

Human resources development, management and capacity building

Every country needs a minimum HRH dataset on their midwifery workforce. As described in Chapter 2 this includes: headcount, percentage of time spent on SRMNH, roles, age distribution, retirement age, length of education, enrolments into, attrition and graduation from education, and voluntary attrition from the workforce. This will enable efficient workforce planning and determination of the appropriate SRMNH team [53]. It will allow the assessment and configuration of the most appropriate skill mix for the continuum of care, as well as the intake and deployment options to equitably deliver essential SRMNH interventions at scale and quality, and the financing and investment options to achieve universal coverage and access. Reference to basic health geographies, such as districts, may also help improve services in line with need.

An HRH strategy should include an assessment of a country's health service packages, national clinical guidelines and curricula. Accurate HRH data and needs-based planning will subsequently inform accurate education planning and financing, including the numbers of students to be accepted into programmes, deployment opportunities and new graduate posts. Planning must take account of mobility in health labour markets, where regional and global demand for health workers may affect national supply.

Performance review and development is an important component of human resources management. This will: identify the needs of individuals and services, including learning needs to maintain competence; identify the successes and challenges of their work; and allow service delivery to meet the needs and culture of the local population. Performance review and development will identify the need for continuing professional education and quality improvement.

Advancing along a career path is an important component of job satisfaction. A career matrix can enable people to undertake a range of roles at different times in their career while ensuring that knowledge and skills remain in the health-care system and the professions. Developing opportunities for staff to move into other roles, including extended clinical roles, education, management or research, will require formal development options including faculty development programmes. The use of new technologies [54] can enable "virtual" schools or e-learning programmes to be established and widely accessed.

Making respectful teamwork and collaboration a reality

Midwifery2030 requires that collaborative SRMNH teams work effectively while keeping the woman and newborn at the centre of care. Failures in teamwork and communication account for the majority of sentinel events in maternity care [55,56].

Clarity and agreement about the roles and responsibilities of each team member while working to their full scope of practice will avoid unnecessary overlaps and inefficiencies. Having either too few or too many of one cadre, or too many similar cadres, will impede the full achievement of the aims of *Midwifery2030*, the seamless delivery of the continuum of care, and may lead to over-medicalization. *Midwifery2030* means that a midwife working to the full scope of practice, including providing family planning, with access to consultation and referral, can bridge the gap between the community and health services.

Inter-professional collaboration in education and practice is likely to ensure that a fit-for-purpose workforce is developed [57]. Implementing inter-disciplinary teamwork and collaboration involves: learning together to create a "collaboration-ready" workforce; respecting and building on each other's discipline and competencies; communicating with one another and handing over to ensure continuity and consistency; and debriefing together to learn from errors.

Building on country findings

Midwifery2030 has been developed to respond to the key findings from Chapter 2 (see Table 3) and the needs of women and newborns. It is a cost-effective solution, it can engage national champions and leadership and it can make a significant contribution to global SRMNH initiatives.

Responding to the needs of women and newborns

Midwifery2030 is founded on the premise that women and their newborns are at the centre of SRMNH services. Chapter 2 highlighted the significant concerns raised by many countries about disrespectful and abusive care. The way in which women are treated, and perceive how they are treated, reflects the quality and acceptability of care. A shift towards people-centred care, or more specifically, woman-centred care, is required to achieve the aims of *Midwifery2030*.

Woman-centred care:

• focuses on the individual woman's rights, needs, aspirations, expectations and decision-making, rather than those of institution or professionals;

TABLE 3

How *Midwifery2030* responds to the key findings from *SoWMy 2014*

KEY FINDINGS FROM COUNTRY DATA AND WORKSHOPS	*Midwifery2030*:
Lack of data to support HRH policy and planning.	• **highlights** the need for a minimum HRH dataset on a country's midwifery workforce.
Workforce shortages and deficits in relation to projected need.	• **recognizes** the importance of making the profession and career of a midwife attractive, having quality midwifery education pathways, deployment strategies and strategies to improve retention and reduce attrition.
Lack of clarity of roles and tasks and a mismatch between expected roles and readiness and capacity to undertake the tasks.	• **includes** HRH planning to review roles, tasks and responsibilities and provide clarity. This process can focus on providing the right SRMNH services by the right provider at the right time and in the right location, and reducing duplication.
Gaps in the provision of antenatal interventions in the benefits packages.	• **recommends** models of practice to ensure that women and their newborns have access to care across the continuum.
Gaps in the capacity for family planning counselling and interventions to be delivered effectively.	• **enables** family planning to be delivered through a collaborative midwifery workforce that includes CHWs or similar cadres.
Cost and geography affects accessibility to care.	• **advocates** for first-level care to be provided close to women's homes and communities, with referral pathways and access to transport.
Disrespect and abuse as drivers of non-acceptability to women.	• **ensures** that education incorporates respectful care and sociocultural sensitivity as part of pre-service and in-service training. • **recognizes** that an enabled, sufficiently resourced, safe and supportive practice environment facilitates respectful care.
Limitations: • in the number of midwives educated and retained; • in the quality of education: facilities, faculty, standards and clinical exposure; • having either no regulatory authority, or no regulatory authority able to fulfil its role of protecting the public; • in the ability of professional associations to advocate effectively for midwifery and SRMNH services.	• **is firmly grounded** in the need for a commitment to education, regulation and association. • **highlights** the importance of an enabling professional environment to ensure that the midwifery workforce has the readiness, authority and capacity to undertake the roles for which they have been educated.

- recognizes the right of a woman to have choice, control and continuity from a known caregiver or caregivers;

- encompasses the needs of the baby, the woman's family and other people important to the woman, as defined by her;

- follows the woman from community to acute settings and back to the community;

- addresses her social, emotional, physical, psychological and cultural needs and expectations [58].

Woman-centred care requires an integrated approach such that women have access to appropriate care providers at the appropriate times. Examples include: an obstetrician when there are complications, a paediatrician when the baby requires additional care, and a midwife for normal pregnancy and birth. This approach focuses on which provider the woman needs at a given time, and shifts from making her meet the needs of institutions or health workers to making the system accommodate her needs.

Keeping women and newborns at the centre of services also requires a focus on gender equality and the provision of respectful care in line with human rights principles, covenants and legislation. Every woman has the right to be treated with dignity and respect; this is one of the seven rights of the childbearing woman [59] and is underpinned by numerous international standards, including the International Covenant on Civil and Political Rights (1966, Article 2) [59].

Implementing woman-centred care means:

- providing respectful care that is safe and feels safe and supportive to women, maximizing their chances of a healthy life and positive outcomes;

- enabling women to choose the best and most affordable options for themselves and their families;

- providing access to first-level services in the community, close to where women live, with ready access to higher-level care if needed at a cost that is affordable.

Providing a cost-effective solution
Midwifery2030 is an effective investment strategy, responding to the evidence on returns of investment from increasing family planning services [60–62], the education and deployment of midwives [63] and the midwife-led care model. Box 11 describes the benefits and workforce implications of investing in family planning; Box 12 highlights the value for money and projected return on investment resulting from the education and deployment of midwives in community-based services. Midwife-led care as a model of practice has been shown to be both cost-effective and cost-saving [40,42,64]. It also offers a convincing alternative to the prevailing maternity care model [42] for women with all risks because it includes functional consultation and a referral pathway [40].

Engaging national champions and leadership
Political will, champions and leaders are crucial to making *Midwifery2030* a reality and overcoming barriers to UHC. However, some of those barriers are internal and relate to interprofessional competition and hegemony. To counter this, health-care professionals need to adopt behaviours that enable effective cooperation and teamwork.

Health-care professional associations (HCPAs) play a critical role in providing leadership to their constituencies. In the field of SRMNH, they represent the hundreds of national associations affiliated to ICM, ICN, International Federation of Gynecology and Obstetrics (FIGO) and the International Pediatric Association (IPA). As leaders of change, HCPAs are key to improving SRMNH and thus enabling the realization of *Midwifery2030*.

The mission statements of the four international associations are similar [72–75]. Each is directed to supporting members to achieve

the best for women, children, families and their communities. They range from strengthening midwives' associations and representing nursing worldwide, to the improvement of women's health and rights, and promoting physical, mental and social health for all children. The similarities in these missions and objectives provide the basis and set the example for a paradigm shift in collaborative practice. Working together will strengthen advocacy initiatives, policy cohesion, regulation, licensing and live professional registries, inter-professional education and continuous professional development. The ultimate objective for HCPAs is to foster a dynamic, collaborative, fit-for-purpose, practice-ready team of health-care professionals who are responsive to the needs of women and children.

Contributing to global RMNCH initiatives

In 2014 there is a unique opportunity to build on the current national and international momentum. Since the publication of *SoWMy 2011* [76] in June 2011 several new global RMNCH initiatives have been launched to

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BOX 11

The impact of investing in family planning

One of the most effective ways to improve maternal health outcomes is to reduce unmet need for family planning [60]. Additional benefits include improvements in health, schooling and economic outcomes [65]. The 2012 London Summit on Family Planning generated commitments to expand access to effective contraception for an additional 120 million women and adolescents with unmet need for contraceptives in 69 of the world's poorest countries by 2020 [66]. The impact and return on investment is clear [61], but what are the workforce implications? Key points for policy and planning are as follows.

Fewer pregnancies mean an immediate decrease in population need for maternal and newborn services in the immediate future (0-15 years). As the total fertility rate declines, there will be less need for antenatal care, skilled birth attendance, emergency obstetric care and postnatal care. This will reduce the volume of essential interventions required, with steady decreases year-on-year, mostly within the scope of practice of midwives and obstetricians, thus creating opportunities to increase the quality and coverage of services.

Fewer pregnancies also mean a reduction in the number of women of reproductive age in the longer term. Demographic trends are a key determinant of workforce requirements. Starting 15 years after the initial investment in family planning, and accelerating rapidly for 25 years thereafter, there will be fewer women of reproductive age and therefore a decrease in the overall need for sexual and reproductive health services.

Of the 46 essential interventions for SRMNH, sexual and reproductive health services have the largest impact on health workforce requirements. All women of reproductive age need universal access to sexual and reproductive health care. Not all of them will become pregnant and an even smaller number will need emergency obstetric care. Hence a greater volume of services (and the corresponding capacity of the health workforce) is required for sexual and reproductive health interventions than for emergency obstetric care. The composition and skill mix of health personnel needed to deliver community-based sexual and reproductive health services, including family planning, will ideally be tailored to national settings and where needed can ensure the integration and provision of HIV/AIDS services.

Girls are a central component of the wider "health workforce". Addressing the unmet need for contraceptives and family planning requires engagement with adolescents, teachers, parents and communities who therefore all form part of the expanded "health workforce" for sexual and reproductive health. In addition, children of women who have access to family planning and health services are healthier and better educated than children of women without such access [61]. So increased family planning will reduce the number of children per woman, allowing more of them to go to school which increases the number of high-school graduates (potential health-care workers), reaps social, economic and health benefits and can reduce future demand on health services [67].

Lay workers, auxiliary midwives and pharmacists are key to meeting the need for family planning and containing costs. The Optimize for MNH [68] guidelines provide evidence for new approaches to family planning services. According to these guidelines, lay health workers can initiate and maintain the provision of injectable contraceptives, with targeted monitoring and evaluation. Auxiliary midwives can effectively provide oral contraceptives, condoms, hormonal injections, contraceptive implants and intrauterine devices. These roles could be led by women within communities, resulting in more employment opportunities, and greater potential for normative change while at the same time enabling midwives, nurses and doctors to dedicate more of their time to increase the coverage and quality of SRMNH services.

Source: Jim Campbell and Laura Sochas, ICS Integrare.

Midwives: a "best buy" for primary health care

The Community-based Midwifery Diploma Programme (CMDP) in Bangladesh was launched in 2013. The CMDP provides a university qualification, consistent with national education standards and ICM standards and recommendations [69], to students selected from areas of greatest maternal health need. It incorporates a comprehensive systems approach, combining a "hub and spoke" education model with the WHO guidelines on rural retention [70] to arrive at four core functions: 1) curriculum development and faculty development; 2) student selection; 3) evaluation and deployment; and 4) the availability of appropriately located and equipped training facilities to secure the foundations for the education model.

The "hub" is located in a centre of excellence at the BRAC University; the "spokes" are six independent education institutions located in rural areas of Bangladesh. Over the course of 4 years the CMDP will educate 500 students to diploma level at an estimated cost of US$5,300 per student per year. Comparable programmes in Afghanistan and Sudan are estimated to cost approximately US$7,900 and US$12,700 per student per year respectively [71].

A value for money assessment conducted in 2013 [63] reported on three areas: 1) the economy, efficiency and effectiveness of the hub and spoke model; 2) impact in terms of lives and life years saved; and 3) the return on investment (based on the reduction of unnecessary caesarean sections) [72].

1 **The hub and spoke model ranks positively for economy, efficiency and effectiveness** across curriculum and faculty development, student selection and training site development when compared with single institutions independently developing their own diploma programmes.

2 **The impact in terms of lives and life years saved is similar to that of child immunization.** Midwives graduating in 2015, during an estimated career span of 30 years, will potentially see maternal mortality reduce from 194/100,000 to 35/100,000 live births and infant mortality from 52/1,000

ACTIVITY	ECONOMY	EFFICIENCY	EFFECTIVENESS
Curriculum development	Low cost	Less time	High quality
Faculty development	Low cost	Less time	High consistency
Student selection	Moderate cost	Moderate efficiency	Efficient central selection
Training site development	Low cost	Fast production	Consistent quality

to 12/1,000 live births. Over the same timespan, without the diploma midwives, these rates might drop only to 154/100,000 and 43/1,000. In total, the 500 midwives would save 36,178 lives (a total of 2,635,164 life years) at a cost of US$219 per life saved, or $3.02 per life year saved. This is similar to the cost benefit of child immunization (US$216 per death averted).

3 **Investing in midwives could yield a 16.2 return on investment.** Using only the number of caesarean sections (c-sections) avoided as the measure, and assuming that the increasing trend for c-sections in Bangladesh continues (for example, from 15% in 2015 to 45% in 2045), community-based midwives could reduce the rate of increase by 20% (i.e. 25% in 2045), averting 3,391 c-sections per year or 101,719 over 30 years. At a net price of US$1,264 per c-section the savings could amount to US$128.5 million over 30 years: a return of 16.2 times the total education cost of US$7.9 million. When calculated at a more modest 10% reduction of c-sections (i.e. 35% in 2045), investing in midwives would still yield a return of 6.2 times the investment.

Educating midwives results in good value for money. A targeted intervention for a community-based midwifery workforce ranks positively for economy, efficiency and effectiveness. It has an impact comparable to that of child immunization, and could yield a 16-fold return on investment. It is a "best buy" in primary health care.

Source: Tim Evans, Asiful Haidar Chowdhury, and Ismat Bhuiya, BRAC University. Adapted from Value for Money Assessment: CMDP. April 2013 [63]

promote actions within and across countries (see Table 4 on page 48).

The ambitious targets of the initiatives in Table 4 will only be achieved if they are supported by political will and concerted action for change. Each of the targets requires the accelerated delivery of a health benefits

package for women and newborns, but as noted in analyses for the 2006 World Health Report: "health interventions cannot be delivered without health workers" [83].

Midwifery2030: Inspiring global action
The necessary and transformative changes required in SRMNH outcomes, backed by policy

MIDWIFERY2030

A PATHWAY TO HEALTH
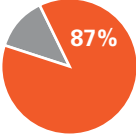
PLANNING AND PREPARING *means:*
- delaying marriage
- completing secondary education
- providing comprehensive sexual education for boys and girls
- protecting yourself against HIV
- maintaining a good health and nutritional status
- planning pregnancies using modern contraceptive methods

ENSURING A HEALTHY START *means:*
- maintaining your health and preparing yourself for pregnancy, childbirth and the early months as a new family
- receiving at least four antenatal care visits, which include discussing birth preparedness and making an emergency plan
- demanding and receiving professional supportive and preventive midwifery care to help you and your baby stay healthy, and to deal with complications effectively, should they arise
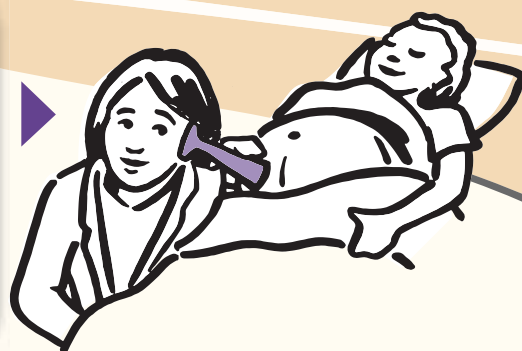
CHALLENGE	SOLUTION	IMPACT	PROGRESS
Only 4 of the 73 countries have a midwifery workforce that is able to meet universal need for the 46 essential interventions for SRMNH.	Midwives can provide **87% of the needed essential care** for women and newborns if educated and regulated to international standards. 87%	Investing in midwives could give a **16-fold return** on investment.	Bangladesh is educating **500 midwives** who can potentially save around **36,000 lives.**

WHAT MAKES THIS POSSIBLE?

1

All women of reproductive age, including adolescents, have universal access to midwifery care when needed.

2

Governments provide and are held accountable for a supportive policy environment.

3

Governments and health systems provide and are held accountable for a fully enabled environment.

4

Data collection and analysis are fully embedded in service delivery and development.

5

Midwifery care is prioritized in national health budgets; all women are given universal financial protection.

SUPPORTING A SAFE BEGINNING *means:*

- safely accessing midwifery services with the partner of your choice when labour starts
- finding respectful, supportive and preventive care, provided by competent midwives who have access to the equipment and supplies they need and receiving emergency obstetric care if required
- participating in decisions about how you and your baby are cared for
- having the privacy and space to experience birth without unnecessary disturbance and interventions
- being supported by a collaborative midwifery team in the event that you do need emergency obstetric care

CREATING A FOUNDATION FOR THE FUTURE *means:*

- starting to breastfeed immediately and being supported to continue breastfeeding as long as you wish
- being provided with information about and support in caring for your child in the first months and years of life
- receiving information about family planning so you can efficiently space your next pregnancy
- being supported by the midwifery team to access child and family health services and vaccination programmes at the appropriate time

6	7	8	9	10
Midwifery care is delivered in collaborative practice with health-care professionals, associates and lay health workers.	**First-level midwifery care** is close to the woman and her family with seamless transfer to next-level care.	**The midwifery workforce** is supported through quality education, regulation and effective human and other resource management.	**All health-care professionals** provide and are enabled for delivering respectful quality care.	**Professional associations** provide leadership to their members to facilitate quality care provision.

cohesion, must be informed by what is most evident: midwifery has the potential to be an enabling factor to achieve the new post-2015 targets in sexual and reproductive health and to accelerate UHC.

National champions from all quarters — politicians, parliamentarians, men, women, boys and girls, private companies and health-care providers, professional associations, regulatory authorities, policymakers and planners — need to stand behind the move towards ensuring available, accessible, acceptable and high-quality midwifery. Many initiatives to that effect are underway and can benefit from joining forces in support of *Midwifery2030* as a pathway to health and well-being and thus to the fulfilment of women's rights.

TABLE 4

Global initiatives and objectives in sexual, reproductive, maternal, newborn and child health

GUIDELINES/CAMPAIGN	TARGET YEAR*	ACTIONS/TARGETS
Stillbirths** [77]	2020	For countries with a current stillbirth rate of more than 5 per 1,000 births, the goal is to reduce their stillbirth rates by at least 50% from the 2008 rates. For countries with a current stillbirth rate of fewer than 5 per 1,000 births, the goal is to eliminate all preventable stillbirths and close equity gaps.
Preventing early pregnancy and poor reproductive health outcomes among adolescents in developing countries [16]	–	To improve sexual and reproductive health outcomes among adolescents by reducing the chances of early unwanted pregnancy which can result in poor health outcomes, by: • reducing pregnancy before the age of 18 years; • eliminating early and forced marriage; • addressing sexual abuse and violence against women and girls • increasing the availability and use of contraception among adolescents who want to prevent pregnancy; • reducing unsafe abortion among adolescents; • increasing the use of skilled antenatal, childbirth and postnatal care among pregnant adolescents; • preventing sexually transmitted infections, including HIV.
Global plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive [78]	2015	The estimated number of new HIV infections in children is reduced by at least 85% in each of the 22 priority countries. The estimated number of HIV-associated pregnancy-related deaths is reduced by 50%.
Family Planning 2020 [66]	2020	To make available affordable, lifesaving contraceptive information, services and supplies to an additional 120 million women and girls with unmet need for contraceptives in the world's poorest countries.
Global targets 2025 to improve maternal, infant and young child nutrition [79]	2025	• 50% reduction of anaemia in women of reproductive age. • 30% reduction in low birth weight. • Increase the rate of exclusive breastfeeding in the first 6 months to at least 50%.
A Promise Renewed [80]	2035	All countries to lower child mortality rates to 20 or fewer deaths per 1,000 live births.
Ending Preventable Maternal Mortality [81]	2030	To reduce maternal mortality ratios to fewer than 70 per 100,000 live births.
Every newborn: An action plan to end preventable deaths [82]	2030 and 2035	To reduce neonatal deaths to fewer than 12 per 1,000 live births by 2030 and fewer than 10 per 1,000 live births by 2035. To reduce stillbirths to fewer than 12 per 1,000 total births by 2030 and fewer than 10 per 1,000 total births by 2035.

* The target years are those provided by the various global initiatives.
** The 2014 "Every newborn: An action plan to end preventable deaths" provides revised targets by 2030 and 2035.

COUNTRY BRIEFS

HOW TO USE THE *SOWMY 2014* COUNTRY BRIEFS

The country brief has been designed to prompt and inform policy discussions on how the composition, skill-mix, deployment and enabling environment of the midwifery workforce impacts on the delivery of SRMNH services for all women and newborns who need them. This visual guide describes the graphics on the two-page country brief and provides examples of the indicative policy questions that may arise.

First page: Where are we now?

The first page of the country brief can be used to discuss the extent to which the workforce is currently able to deliver SRMNH services for all women and newborns who need them. Proxies for availability, accessibility and quality are presented to facilitate these discussions. All data are from 2012.

WHAT DO WOMEN AND NEWBORNS NEED?

The brief starts by showing some of the indicators of need that must be met if universal coverage is to be attained. The number of pregnancies, their geographical distribution, and the volume of services that must be provided in this section. Other needs include the provision of sexual and reproductive health services, including addressing unmet need for family planning.

Indicative policy question: *Is the policy and planning environment in the country consistent with universal coverage of SRMNH services, responsive to what women and newborns need?*

WORKFORCE AVAILABILITY AND MET NEED

The brief then considers how many health workers are available to meet this need. The number (by headcount) of all workers reported and the percentage time each one spends on MNH services are shown. This information provides the number of available health workers by their full-time equivalent. Only by considering the number of full-time equivalent health workers can a true picture of availability be constructed. Health workers are grouped by category, while their country cadre name is provided in footnote 1.

The section also provides an estimate of how workforce availability compares with need. An estimated percentage for the national aggregate summarizes the extent to which the available midwifery workforce, taking into account which health workers provide which services, has enough time to deliver the 46 essential SRMNH interventions to all women and newborns who need them. The estimate of met need is highly sensitive to the package of care (e.g. the 46 essential interventions), the number of health workers reported, the percentage of time they spend on SRMNH services, and the roles they perform.

Indicative policy questions: *Have all cadres that contribute to the midwifery workforce been reported, by name and by the percentage of time each cadre spends on SRMNH services? Does the estimate of met need at the national aggregate level mask inequities, e.g. at the sub-national level, or when disaggregated by urban/rural and socio-economic strata?*

FINANCIAL ACCESSIBILITY

Even if there are sufficient health workers, the services they provide may not be affordable. This graph shows the number of the 46 essential SRMNH interventions that are included in each country's minimum health benefits package and available free at the point of delivery, as an indication of the degree of financial protection offered to women and their newborns in accessing SRMNH care.

Indicative policy questions: *Is the minimum health benefits package guaranteed to all women regardless of ability to pay? Are there national plans to provide a package of SRMNH services that include and go beyond the 46 essential interventions?*

GEOGRAPHICAL ACCESSIBILITY

Health workers, and the facility from which they work, may not be equally distributed with regards to need. This graph shows the number of births in urban versus rural areas to indicate the geographical need for SRMNH services. Where data are available the graph also shows the number of births where a skilled birth attendant was reportedly available. This provides an indicative measure of workforce accessibility.

Indicative policy question: *Is there a marked difference in access to the midwifery workforce in urban and rural areas and what policy measures can be taken to address this?*

EDUCATION, REGULATION, ASSOCIATION

Education, regulation and professional associations are all crucial to support health workers in delivering quality midwifery care. This section provides information on the strength of the enabling environment within a country.

Indicative policy question: *Is the enabling environment for quality health workers and quality health services meeting national and international standards, and if not where can progress be made?*
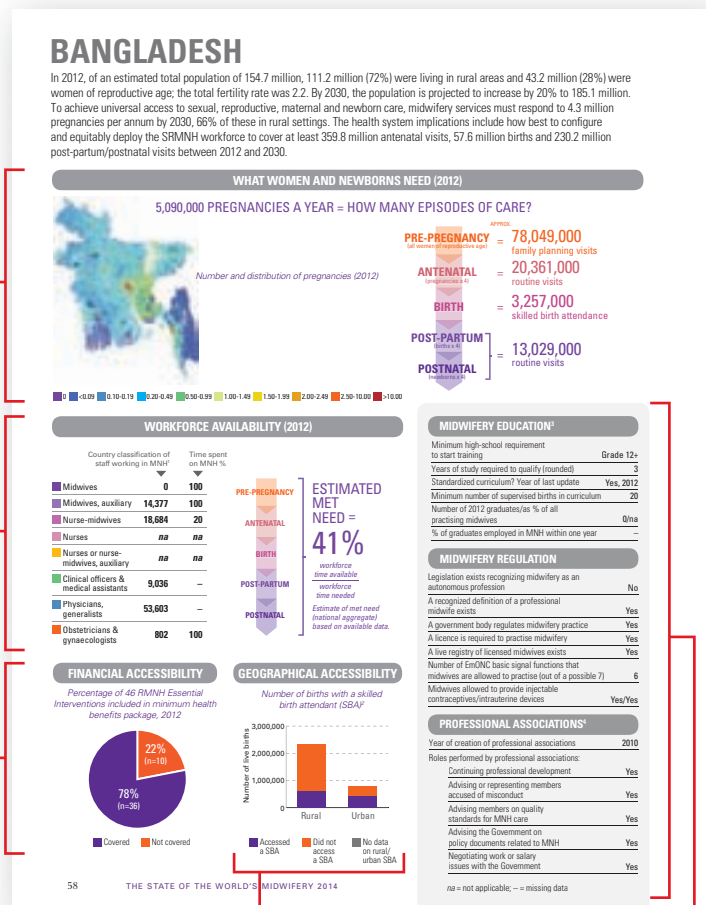
Second page: What might 2030 look like?

The second page of the country brief aims to prompt policy discussion on the future evolution of the midwifery workforce compared with the future scale of population need. The last section, "Estimates and projections to 2030", compares future availability of the health workforce and future needs for SRMNH services under a variety of scenarios. Given the absence of data in some countries, this analysis should be seen as a starting point for policy discussions (including around the availability and quality of national data) rather than as a statement of fact.

BANGLADESH – a brief for policy discussion

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL
Rural · Urban

MORTALITY REDUCTION[5]
Country (MMR, 2013; NMR, 2012) · Target by 2030

MMR · NMR

ESTIMATES AND PROJECTIONS TO 2030
This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS · **PROJECTED INFLOWS** · **PROJECTED WORKFORCE**
by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement · Midwifery professionals · Midwifery professionals, associates · Nursing professionals · Nursing professionals, associates · Paramedical practitioners & medical assistants · Medical practitioners, generalists · Medical practitioners, specialists (Ob/Gyn)

WHAT IF... Estimates of met need based on available data.

1. The number of pregnancies was reduced by 20% by 2030? — 4.3 million CURRENT → 3.4 million SCENARIO — Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards. — 52% MET NEED 2030 → 72% MET NEED 2030

2. The number of midwife, nurse and physician graduates doubled by 2020? — CURRENT → SCENARIO — 52% MET NEED 2030 → 72% MET NEED 2030

3. Efficiency improved by 2% per year until 2030? — CURRENT → SCENARIO — 52% MET NEED 2030 → 66% MET NEED 2030

4. Attrition was halved in the next 5 years (2012-2017)? — 4% leak CURRENT → 2% leak SCENARIO — 52% MET NEED 2030 → 58% MET NEED 2030

CURRENT TRAJECTORY
Need projection · Available workforce projection (adjusted for skill-mix) — 52% MET NEED 2030

WHAT IF... TRAJECTORY
Need projection: Scenario 1 · Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4 — 93% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes direct-entry diploma midwives (new cadre); Auxiliary midwives: includes junior midwives, family welfare visitors, community skilled birth attendant; Nurse-midwives: includes nurse-midwives, nurse-midwives holding a post-basic certificate in midwifery; Generalist physicians: includes MBBS; Obstetricians & gynaecologists: includes specialists in obstetrics and gynaecology; Clinical officers & medical assistants: includes sub-assistant community medical officers (SACMO). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

CHAPTER 4: COUNTRY BRIEFS   59

PROJECTED PREGNANCIES AND MORTALITY REDUCTION

Achieving universal coverage means anticipating and responding to future needs. This section shows the evolution of need (expressed as the annual number of pregnancies in urban and rural areas) in the period 2012-2030. Other needs for sexual and reproductive health services will be determined by changes in the number of women of reproductive age, including the number of adolescents.

The section also provides an indication of the targets for reductions in maternal and neonatal mortality, as proposed in the Ending Preventable Maternal Mortality by 2030 initiative and the Every Newborn Action Plan. These proposed targets are subject to national policy priorities and decisions.

Indicative policy questions: *Is there an opportunity in your country to address unmet need for family planning and therefore reduce the annual number of pregnancies? What is the impact of urban/rural population change on the selection, education and deployment of the midwifery workforce? What are the midwifery workforce implications to achieve the accelerated reductions in maternal and neonatal mortality by 2030?*

ESTIMATES AND PROJECTIONS TO 2030

This section illustrates the potential evolution of the midwifery workforce under "business as usual" assumptions and according to different policy scenarios.

The first row of three graphs considers the number of health workers who will enter and exit the midwifery workforce in the period 2012 - 2030. The graph to the left illustrates how the full-time equivalent number of health workers will reduce over time, and the shaded area represents the 'outflows' in this period. The graph in the centre identifies the entries from national education institutions, and the third graph to the right the cumulative effect of entries and exits.

'What if' scenarios are presented as examples. These illustrate the potential impact of policy decisions and demonstrate the changes in met need that could be realised through four different scenarios: reducing the number of pregnancies per annum, increasing the supply of midwives, nurses and physicians, improving efficiency and reducing voluntary attrition. The bottom two graphics highlight the difference between "business as usual" and the combination of the policy scenarios. The changes in met need are based on the country data reported and a standard set of decision rules in Annex 5.

Indicative policy questions: *What are the opportunities to improve the efficiency and management of the current midwifery workforce? What is the turnover of the midwifery workforce today, and are there mechanisms in place to capture all exits and understand why health workers are leaving? What are the national policy priorities for the skill-mix and deployment of the midwifery workforce and how will this impact on met need?*

AFGHANISTAN

In 2012, of an estimated total population of 29.8 million, 23.5 million (79%) were living in rural areas and 6.5 million (22%) were women of reproductive age; the total fertility rate was 5. By 2030, the population is projected to increase by 46% to 43.5 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.6 million pregnancies per annum by 2030, 73% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 117.8 million antenatal visits, 20.3 million births and 81.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

1,573,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
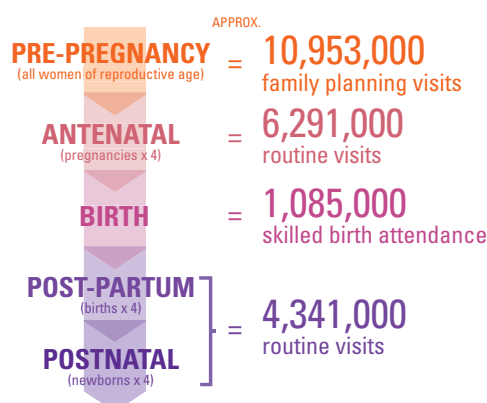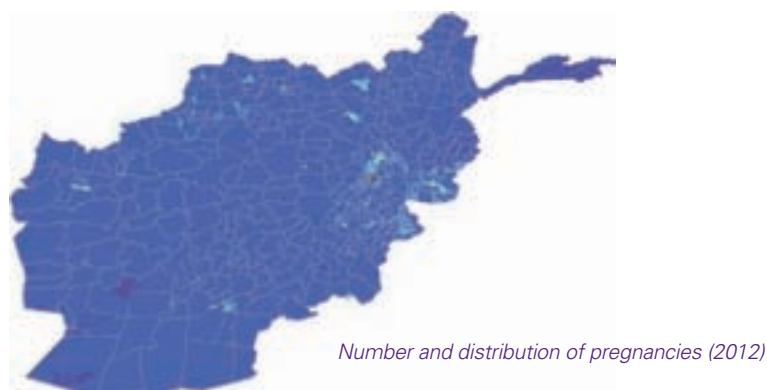
Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

PRE-PREGNANCY (all women of reproductive age) = APPROX. **10,953,000** family planning visits

ANTENATAL (pregnancies x 4) = **6,291,000** routine visits

BIRTH = **1,085,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **4,341,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	3,500	100
Midwives, auxiliary	na	na
Nurse-midwives	na	na
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	4,200	12
Obstetricians & gynaecologists	400	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 23%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10+
Years of study required to qualify (rounded)	2
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	25
Number of 2012 graduates/as % of all practising midwives	–/–
% of graduates employed in MNH within one year	95%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2005
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

17% (n=8)
83% (n=38)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ■ Urban

Number of pregnancies
2,000,000 / 1,500,000 / 1,000,000 / 500,000 / 0

2012 · · 2015 · · · 2020 · · · 2025 · · 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio: 450 / 300 / 150 / 0 — MMR

Newborn mortality rate: 50 / 25 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

by International Standard Classification of Occupations (ISCO-08)

◨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent): 4,400 / 3,300 / 2,200 / 1,100 / 0
2012 2015 2020 2025 2030

PROJECTED INFLOWS

MNH workers (full-time equivalent): 4,400 / 3,300 / 2,200 / 1,100 / 0
2013 2015 2020 2025 2030

PROJECTED WORKFORCE

MNH workers (full-time equivalent): 4,400 / 3,300 / 2,200 / 1,100 / 0
2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.6 million CURRENT → 1.3 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

8% MET NEED 2030 → 14% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

8% MET NEED 2030 → 12% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

11% leak CURRENT → 5.5% leak SCENARIO

8% MET NEED 2030 → 12% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent): 24,000 / 18,000 / 12,000 / 6,000 / 0

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

8% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent): 24,000 / 18,000 / 12,000 / 6,000 / 0

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

31% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

ANGOLA

In 2012, of an estimated total population of 20.8 million, 12.5 million (60%) were living in rural areas and 4.6 million (22%) were women of reproductive age; the total fertility rate was 5.9. By 2030, the population is projected to increase by 67% to 34.8 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.8 million pregnancies per annum by 2030, 60% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 117.4 million antenatal visits, 21.3 million births and 85.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

1,324,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
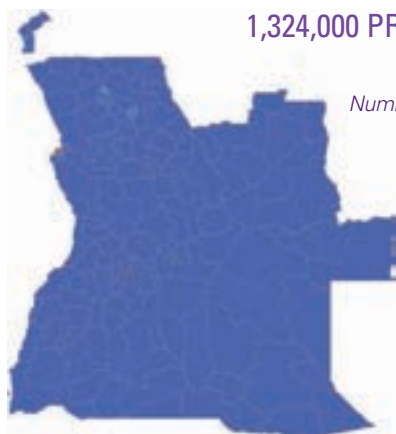
Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**8,876,000**	family planning visits
ANTENATAL (pregnancies x 4)	=	**5,295,000**	routine visits
BIRTH	=	**962,000**	skilled birth attendance
POST-PARTUM (births x 4)		**3,847,000**	routine visits
POSTNATAL (newborns x 4)	=		

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	30	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	70	100
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	1,050	100
Clinical officers & medical assistants	15	100
Physicians, generalists	2,956	30
Obstetricians & gynaecologists	500	99

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

16%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

11% (n=5)
89% (n=41)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (chart, axis 0 to 750,000)

Rural | Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, —
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	–/–
% of graduates employed in MNH within one year	70%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2000, —
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural █ Urban

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) █ Target by 2030

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement | Midwifery professionals | Midwifery professionals, associates | Nursing professionals | Nursing professionals, associates | Paramedical practitioners & medical assistants | Medical practitioners, generalists | Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.8 million **CURRENT** → 1.4 million **SCENARIO**

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → **SCENARIO**

76% MET NEED 2030 → 100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → **SCENARIO**

76% MET NEED 2030 → 99% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

2% leak **CURRENT** → 1% leak **SCENARIO**

76% MET NEED 2030 → 77% MET NEED 2030

CURRENT TRAJECTORY

-- Need projection
Available workforce projection (adjusted for skill-mix)

76% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030
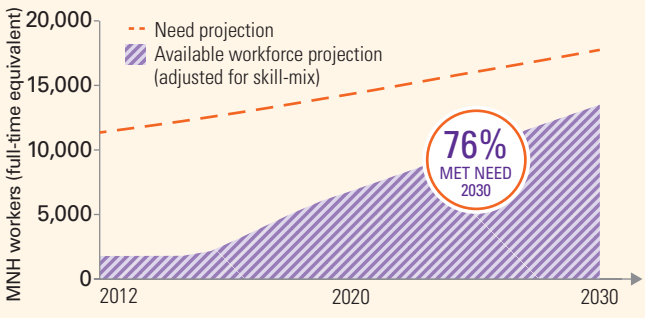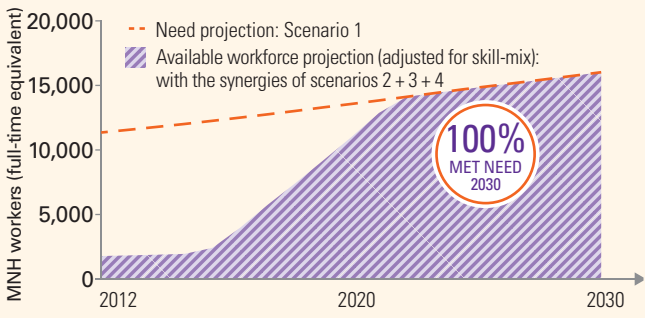
1. These health worker categories include the following country titles - Midwives: includes licenciados em enfermagem; Nurse-midwives: includes enfermeiras parteiras especializadas; Auxiliary nurse-midwives: includes enfermeiras auxiliares; Generalist physicians: includes médicos de clínica geral; Obstetricians & gynaecologists: includes médicos de ginecologia e obstetrícia; Clinical officers & medical assistants: includes licenciades em enfermagem e pós-graduados em ginecologia obstetrícia. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

AZERBAIJAN

In 2012, of an estimated total population of 9.3 million, 5.4 million (58%) were living in rural areas and 2.7 million (29%) were women of reproductive age; the total fertility rate was 1.9. By 2030, the population is projected to increase by 13% to 10.5 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.2 million pregnancies per annum by 2030, 53% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 15 million antenatal visits, 2.8 million births and 11.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

234,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
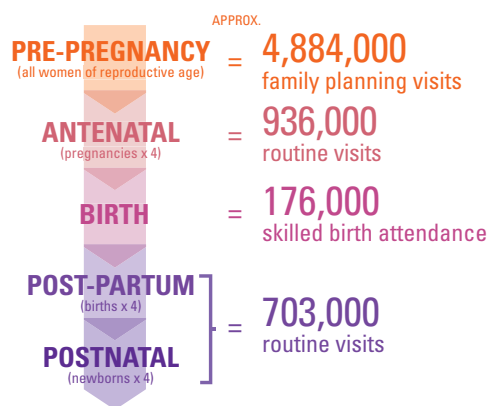
Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **4,884,000** family planning visits

ANTENATAL (pregnancies x 4) = **936,000** routine visits

BIRTH = **176,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **703,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	5,831	100
Midwives, auxiliary	2,533	100
Nurse-midwives	2,200	100
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	8,604	100
Obstetricians & gynaecologists	2,005	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

100%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)

91% (n=42)

■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

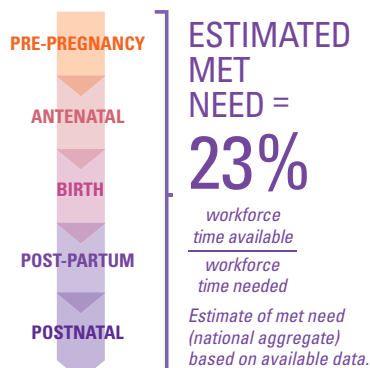■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/urban SBA
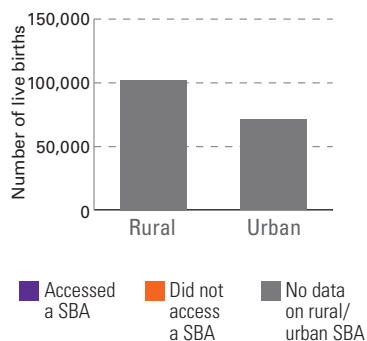
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10+
Years of study required to qualify (rounded)	5
Standardized curriculum? Year of last update	Yes, 2009
Minimum number of supervised births in curriculum	5
Number of 2012 graduates/as % of all practising midwives	356/6
% of graduates employed in MNH within one year	64%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	3
Midwives allowed to provide injectable contraceptives/intrauterine devices	No/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2001
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement Midwifery professionals Midwifery professionals, associates Nursing professionals Nursing professionals, associates Paramedical practitioners & medical assistants Medical practitioners, generalists Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.16 million **CURRENT** → 0.13 million **SCENARIO**

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → **SCENARIO**

100% MET NEED 2030 100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → **SCENARIO**

100% MET NEED 2030 100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

12% leak **CURRENT** → 6% leak **SCENARIO**

100% MET NEED 2030 100% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
Available workforce projection (adjusted for skill-mix)

100% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Auxiliary midwives: includes midwifery associate professionals; Nurse-midwives: includes nurse-midwives; Generalist physicians: includes physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

BANGLADESH

In 2012, of an estimated total population of 154.7 million, 111.2 million (72%) were living in rural areas and 43.2 million (28%) were women of reproductive age; the total fertility rate was 2.2. By 2030, the population is projected to increase by 20% to 185.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 4.3 million pregnancies per annum by 2030, 66% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 359.8 million antenatal visits, 57.6 million births and 230.2 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

5,090,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age) = APPROX. **78,049,000** family planning visits

ANTENATAL (pregnancies x 4) = **20,361,000** routine visits

BIRTH = **3,257,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **13,029,000** routine visits

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	0	100
Midwives, auxiliary	14,377	100
Nurse-midwives	18,684	20
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	9,036	—
Physicians, generalists	53,603	—
Obstetricians & gynaecologists	802	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

41%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	0/na
% of graduates employed in MNH within one year	—

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

22% (n=10)

78% (n=36)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2010
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

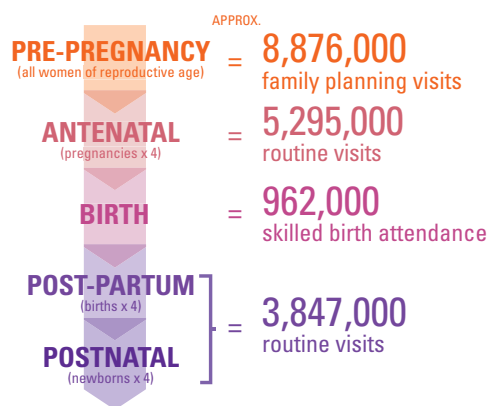## PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

- 🟨 Rural
- 🟪 Urban

Number of pregnancies: 6,000,000 / 4,500,000 / 3,000,000 / 1,500,000 / 0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

- ▨ Country (MMR, 2013; NMR, 2012)
- 🟪 Target by 2030

Maternal mortality ratio: 450 / 300 / 150 / 0 — MMR

Newborn mortality rate: 50 / 25 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

- ▨ Outflow from attrition, death and retirement
- 🟪 Midwifery professionals
- 🟪 Midwifery professionals, associates
- 🟪 Nursing professionals
- 🟨 Nursing professionals, associates
- 🟩 Paramedical practitioners & medical assistants
- 🟦 Medical practitioners, generalists
- 🟧 Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent): 140,000 / 105,000 / 70,000 / 35,000 / 0

Projected outflows: 2012 2015 2020 2025 2030
Projected inflows: 2013 2015 2020 2025 2030
Projected workforce: 2012 2015 2020 2025 2030
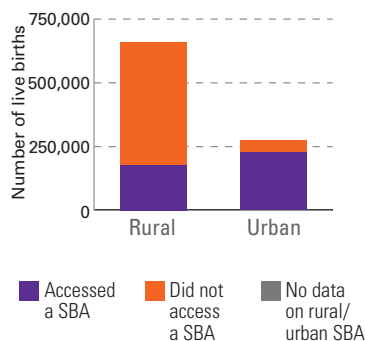
WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

4.3 million CURRENT → 3.4 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

52% MET NEED 2030 → 72% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

52% MET NEED 2030 → 66% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

52% MET NEED 2030 → 58% MET NEED 2030

CURRENT TRAJECTORY

- – – Need projection
- ▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent): 100,000 / 75,000 / 50,000 / 25,000 / 0

2012 2020 2030

52% MET NEED 2030

WHAT IF... TRAJECTORY

- – – Need projection: Scenario 1
- ▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent): 100,000 / 75,000 / 50,000 / 25,000 / 0

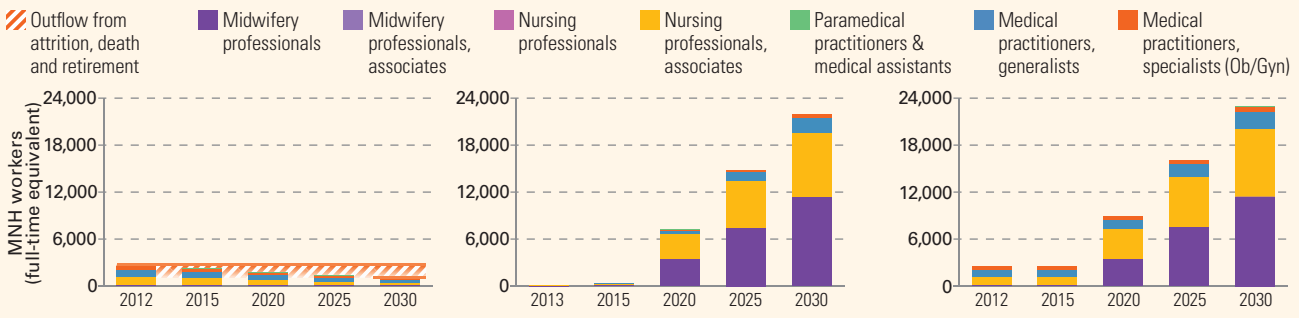2012 2020 2030

93% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes direct-entry diploma midwives (new cadre); Auxiliary midwives: includes junior midwives, family welfare visitors, community skilled birth attendants; Nurse-midwives: includes nurse-midwives, nurse-midwives holding a post-basic certificate in midwifery; Generalist physicians: includes MBBS; Obstetricians & gynaecologists: includes specialists in obstetrics and gynaecology; Clinical officers & medical assistants: includes sub-assistant community medical officers (SACMO). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

BENIN

In 2012, of an estimated total population of 10.1 million, 6.5 million (64%) were living in rural areas and 2.4 million (24%) were women of reproductive age; the total fertility rate was 4.9. By 2030, the population is projected to increase by 54% to 15.5 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.6 million pregnancies per annum by 2030, 59% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 43.4 million antenatal visits, 8.1 million births and 32.5 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

508,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **4,124,000** family planning visits

ANTENATAL (pregnancies x 4) = **2,033,000** routine visits

BIRTH = **381,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **1,524,000** routine visits

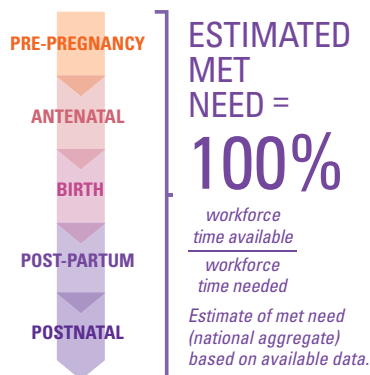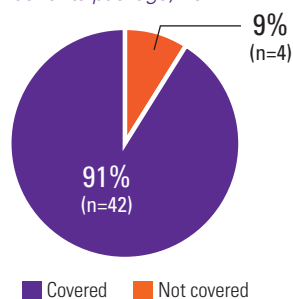|								
■ 0	■ <0.09	■ 0.10-0.19	■ 0.20-0.49	■ 0.50-0.99	■ 1.00-1.49	■ 1.50-1.99	■ 2.00-2.49	■ 2.50-10.00	■ >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	943	81
Midwives, auxiliary	5,462	53
Nurse-midwives	*na*	*na*
Nurses	1,156	51
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	149	24
Obstetricians & gynaecologists	26	76

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 38%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	40
Number of 2012 graduates/as % of all practising midwives	0/*na*
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1990, 2008
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ■ Urban

Number of pregnancies

2012 • • 2015 • • • 2020 • • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio — MMR

Newborn mortality rate — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

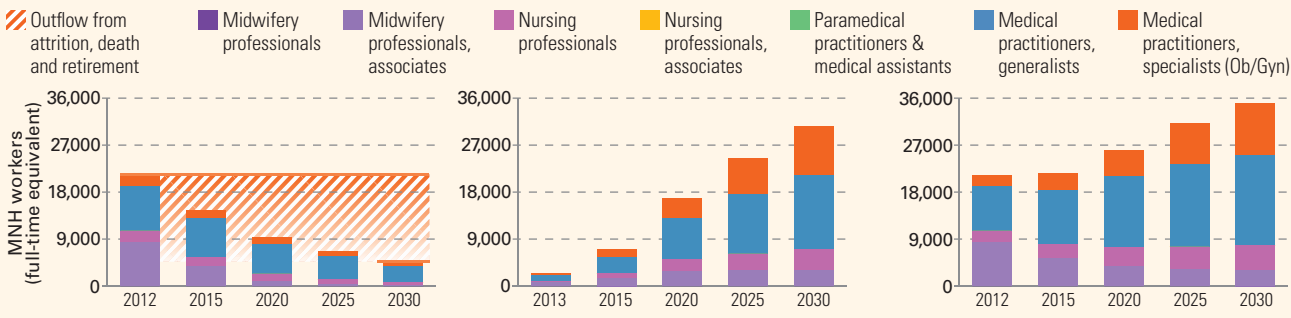*by International Standard Classification of Occupations (ISCO-08)*

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

2012 2015 2020 2025 2030

2013 2015 2020 2025 2030

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.6 million CURRENT → 0.5 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

48% MET NEED 2030 → 66% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

48% MET NEED 2030 → 59% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

3% leak CURRENT → 1.5% leak SCENARIO

48% MET NEED 2030 → 49% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent)

- - - Need projection
▨ Available workforce projection (adjusted for skill-mix)

48% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

- - - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

97% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes sages-femmes; Auxiliary midwives: includes aides-soignantes; Nurses: includes infirmières diplômées d'etat; Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

BOLIVIA

In 2012, of an estimated total population of 10.5 million, 6.7 million (64%) were living in rural areas and 2.7 million (25%) were women of reproductive age; the total fertility rate was 3.3. By 2030, the population is projected to increase by 30% to 13.7 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.5 million pregnancies per annum by 2030, 68% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 39.3 million antenatal visits, 5.5 million births and 22 million post-partum/postnatal visits between 2012 and 2030.
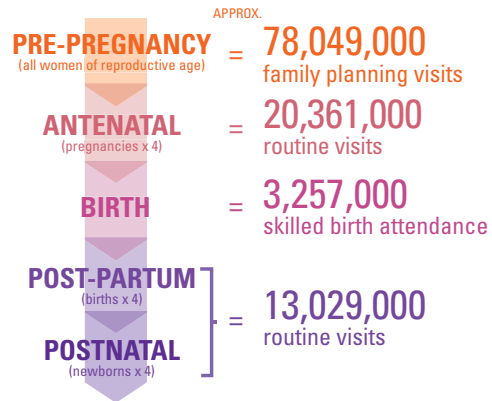
WHAT WOMEN AND NEWBORNS NEED (2012)
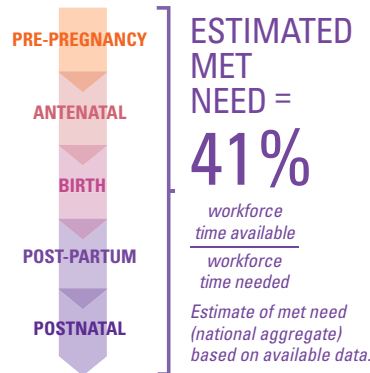
499,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **5,654,000** family planning visits

ANTENATAL (pregnancies x 4) = **1,997,000** routine visits

BIRTH = **279,000** skilled birth attendance

POST-PARTUM (births x 4)

POSTNATAL (newborns x 4) = **1,115,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	15	60
Midwives, auxiliary	7,324	15
Nurse-midwives	10	60
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	1,550	30
Obstetricians & gynaecologists	1,016	60

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 29%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

11% (n=5)

89% (n=41)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural — Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	5
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	60
Number of 2012 graduates/as % of all practising midwives	0/na
% of graduates employed in MNH within one year	—

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	5
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1952
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies

600,000
450,000
300,000
150,000
0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

Maternal mortality ratio
450
300
150
0
MMR

Newborn mortality rate
50
25
0
NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH servi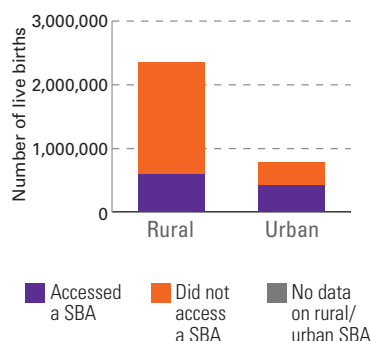ces, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement
Midwifery professionals
Midwifery professionals, associates
Nursing professionals
Nursing professionals, associates
Paramedical practitioners & medical assistants
Medical practitioners, generalists
Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

10,000
7,500
5,000
2,500
0
2012 2015 2020 2025 2030

10,000
7,500
5,000
2,500
0
2013 2015 2020 2025 2030

10,000
7,500
5,000
2,500
0
2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.52 million
CURRENT
→
0.42 million
SCENARIO

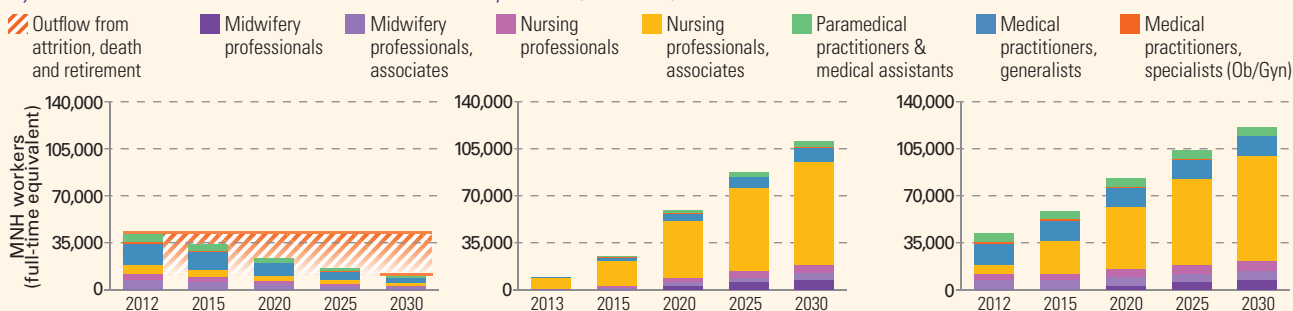Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

89% MET NEED 2030
100% MET NEED 2030

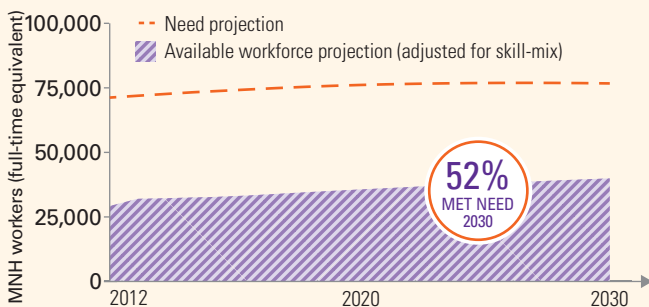**3** Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

89% MET NEED 2030
98% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

89% MET NEED 2030
96% MET NEED 2030

CURRENT TRAJECTORY

- - - Need projection
Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)
8,000
6,000
4,000
2,000
0
2012 2020 2030

89% MET NEED 2030

WHAT IF... TRAJECTORY

- - - Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)
8,000
6,000
4,000
2,000
0
2012 2020 2030

100% MET NEED 2030
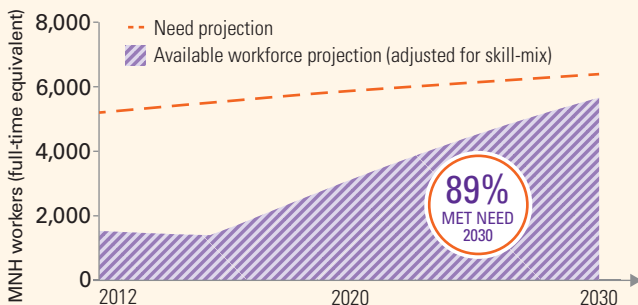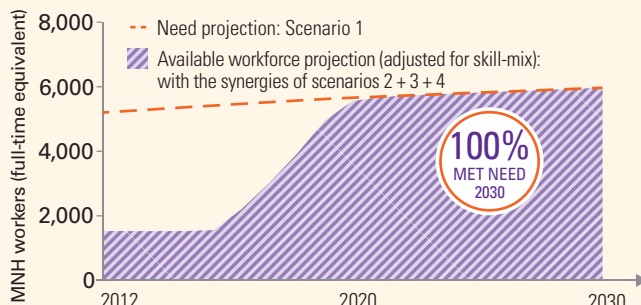
1. These health worker categories include the following country titles - Midwives: includes enfermeras parteras; Auxiliary midwives: includes auxiliares de enfermeria; Nurse-midwives: includes enfermeras obstetrices; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the nurse- midwife cadre category: enfermeras obstetrices.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

BOTSWANA

In 2012, of an estimated total population of 2 million, 1 million (52%) were living in rural areas and 0.5 million (26%) were women of reproductive age; the total fertility rate was 2.6. By 2030, the population is projected to increase by 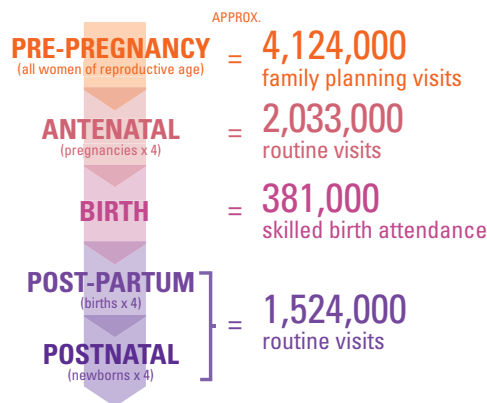17% to 2.3 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.06 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 4.8 million antenatal visits, 0.9 million births and 3.6 million post-partum/postnatal visits between 2012 and 2030.
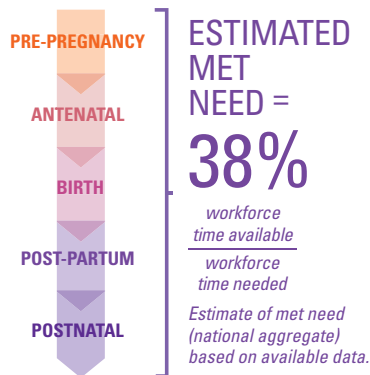
WHAT WOMEN AND NEWBORNS NEED (2012)

65,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

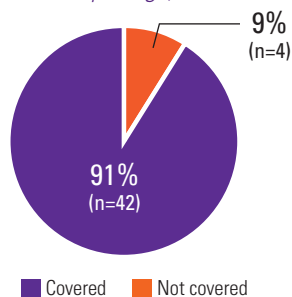*Number and distribution of pregnancies (2012)*

PRE-PREGNANCY (all women of reproductive age)	=	APPROX. **1,154,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**260,000** routine visits
BIRTH	=	**48,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**194,000** routine visits

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	1,501	80
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	–	80
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	591	60
Obstetricians & gynaecologists	3	80

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 41%

workforce time available
workforce time needed
Estimate of met need (national aggregate) based on available data.

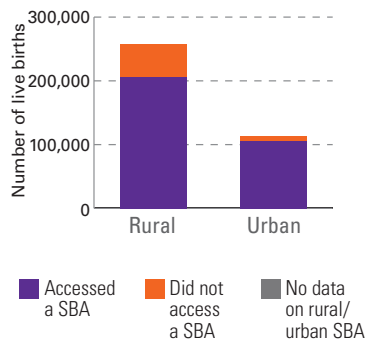## FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

13% (n=6)
87% (n=40)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births
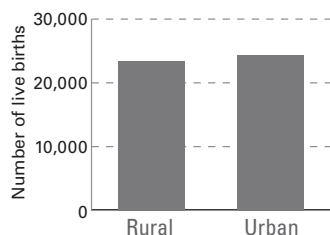
Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	2
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	52
Number of 2012 graduates/as % of all practising midwives	98/7
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	4
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2012
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies

80,000 — 60,000 — 40,000 — 20,000 — 0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio: 300 — 200 — 100 — 0 — MMR

Newborn mortality rate: 50 — 25 — 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

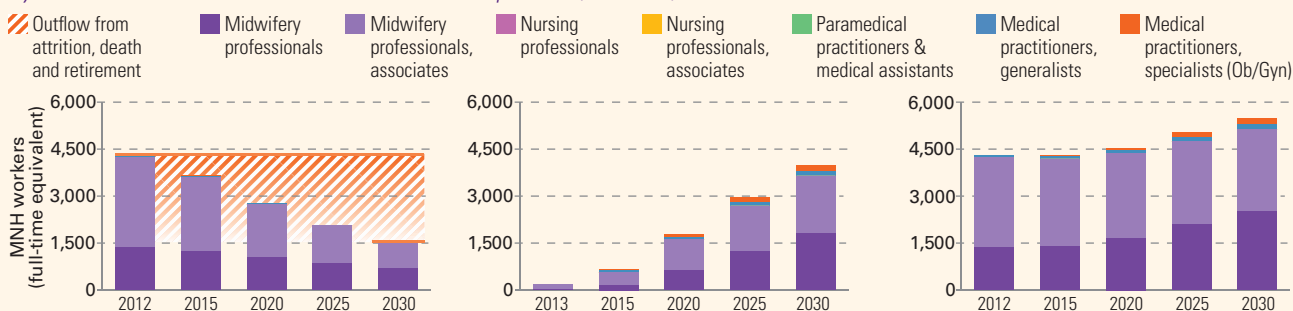This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

3,200 — 2,400 — 1,600 — 800 — 0

2012 2015 2020 2025 2030

3,200 — 2,400 — 1,600 — 800 — 0

2013 2015 2020 2025 2030

3,200 — 2,400 — 1,600 — 800 — 0

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.06 million CURRENT → 0.05 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

47% MET NEED 2030 → 67% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
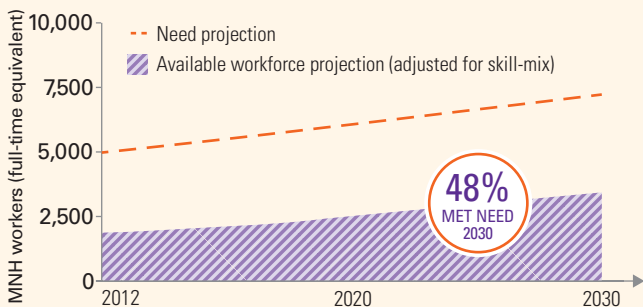
CURRENT → SCENARIO

47% MET NEED 2030 → 59% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

47% MET NEED 2030 → 52% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent)

2,000 — 1,500 — 1,000 — 500 — 0

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

47% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

2,000 — 1,500 — 1,000 — 500 — 0

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

97% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurses: includes community health nurses; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

BRAZIL

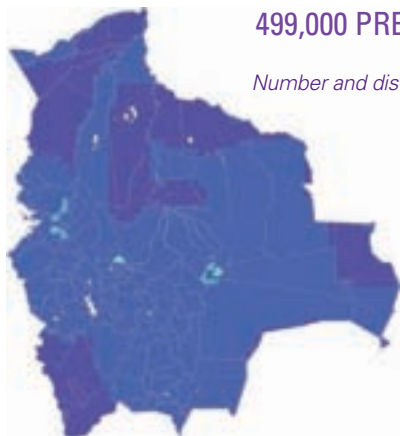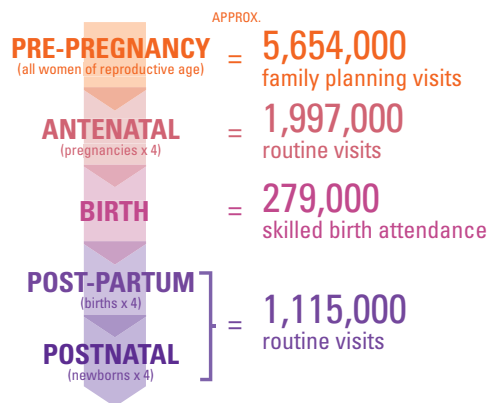In 2012, of an estimated total population of 198.7 million, 78.6 million (40%) were living in rural areas and 54.6 million (28%) were women of reproductive age; the total fertility rate was 1.8. By 2030, the population is projected to increase by 12% to 222.7 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 4.5 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 369.1 million antenatal visits, 55.4 million births and 221.7 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

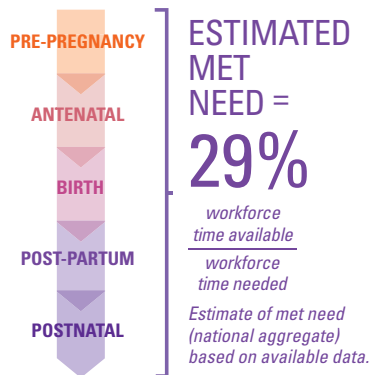### 5,151,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
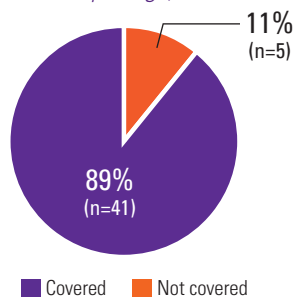

Number and distribution of pregnancies (2012)

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

PRE-PREGNANCY (all women of reproductive age) = APPROX. **120,438,000** family planning visits

ANTENATAL (pregnancies x 4) = **20,605,000** routine visits

BIRTH = **3,094,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **12,377,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	2,981	100
Midwives, auxiliary	na	na
Nurse-midwives	na	na
Nurses	909,610	–
Nurses or nurse-midwives, auxiliary	528,483	–
Clinical officers & medical assistants	na	na
Physicians, generalists	167,225	–
Obstetricians & gynaecologists	22,815	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 100%

workforce time available
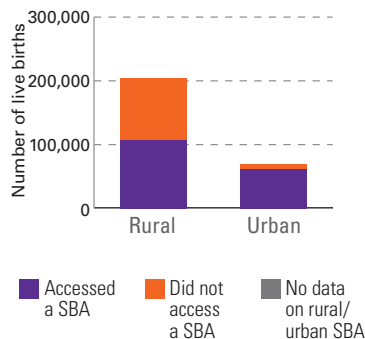workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

4% (n=2)
96% (n=44)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	–/–
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	4
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1926, 1995, 2001
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies
6,000,000
4,500,000
3,000,000
1,500,000
0

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio
75
50
25
0
MMR

Newborn mortality rate
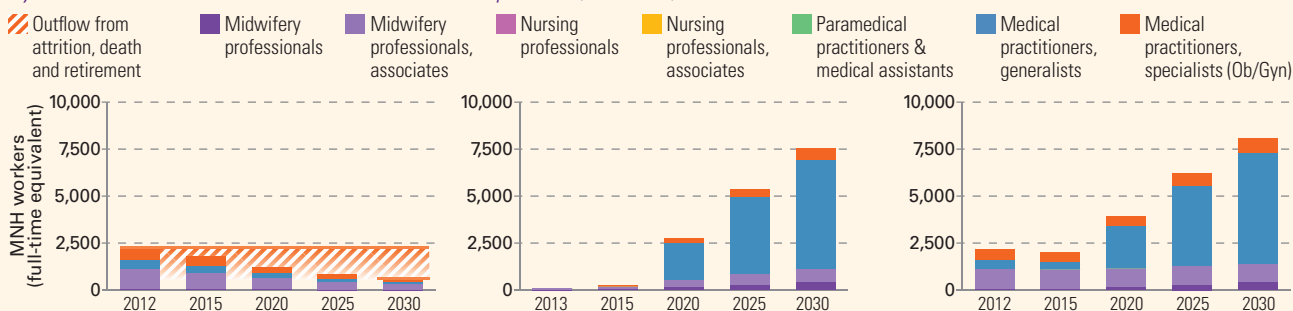10
5
0
NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)
1,800,000
1,350,000
900,000
450,000
0
2012 2015 2020 2025 2030

1,800,000
1,350,000
900,000
450,000
0
2013 2015 2020 2025 2030

1,800,000
1,350,000
900,000
450,000
0
2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

4.5 million CURRENT → 3.6 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

100% MET NEED 2030   100% MET NEED 2030

CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)
140,000
105,000
70,000
35,000
0
2012 2020 2030

100% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)
140,000
105,000
70,000
35,000
0
2012 2020 2030

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes obstetricians, obstetric nurses; Nurses: includes generalist nurses, family health nurses, specialized nurses, nurse technicians; Auxiliary nurse-midwives: includes nursing assistants; Generalist physicians: includes general practitioners, general surgeons, family health doctors; Obstetricians & gynaecologists: includes obstetric doctors and gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
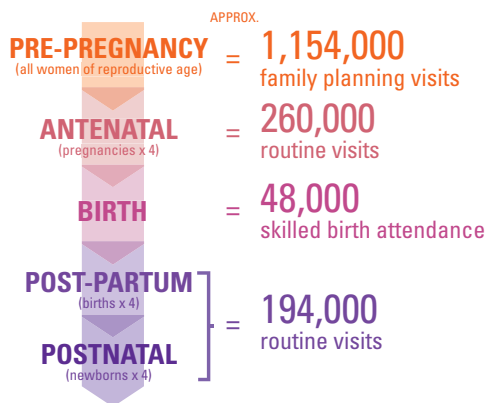4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

BURKINA FASO

In 2012, of an estimated total population of 16.5 million, 11.4 million (69%) were living in rural areas and 3.8 million (23%) were women of reproductive age; the total fertility rate was 5.6. By 2030, the population is projected to increase by 61% to 26.6 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.2 million pregnancies per annum by 2030, 64% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 83.8 million antenatal visits, 15.2 million births and 60.8 million post-partum/postnatal visits between 2012 and 2030.
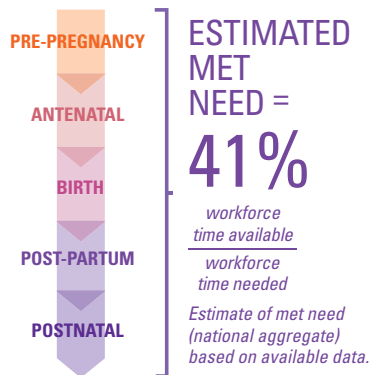
WHAT WOMEN AND NEWBORNS NEED (2012)

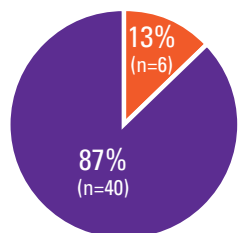### 967,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **6,351,000** family planning visits

ANTENATAL (pregnancies x 4) = **3,868,000** routine visits

BIRTH = **701,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **2,805,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	1,316	100
Midwives, auxiliary	3,130	100
Nurse-midwives	*na*	*na*
Nurses	3,158	30
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	31	100
Physicians, generalists	360	30
Obstetricians & gynaecologists	86	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 37%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)

91% (n=42)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

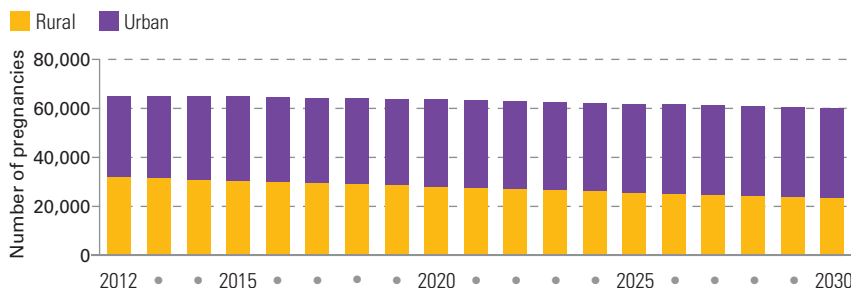|	
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	100
Number of 2012 graduates/as % of all practising midwives	343/26
% of graduates employed in MNH within one year	80%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1973, 1997
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies

1,400,000
1,050,000
700,000
350,000
0

2012　2015　2020　2025　2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012)　■ Target by 2030

Maternal mortality ratio
450
300
150
0
MMR

Newborn mortality rate
50
25
0
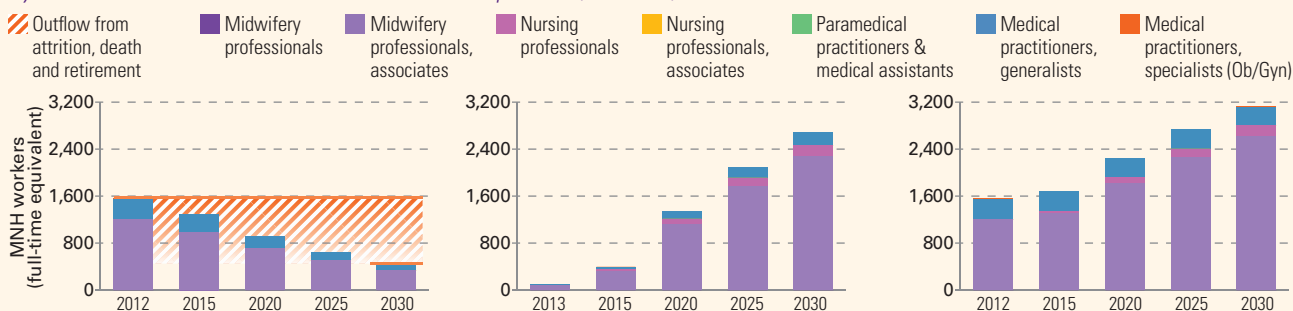NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

8,000
6,000
4,000
2,000
0

2012　2015　2020　2025　2030

8,000
6,000
4,000
2,000
0

2013　2015　2020　2025　2030

8,000
6,000
4,000
2,000
0

2012　2015　2020　2025　2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.2 million **CURRENT** → 1.0 million **SCENARIO**

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → **SCENARIO**

31% MET NEED 2030 → 44% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
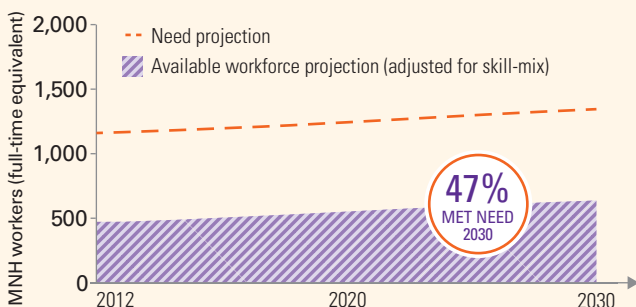
CURRENT → **SCENARIO**

31% MET NEED 2030 → 40% MET NEED 2030
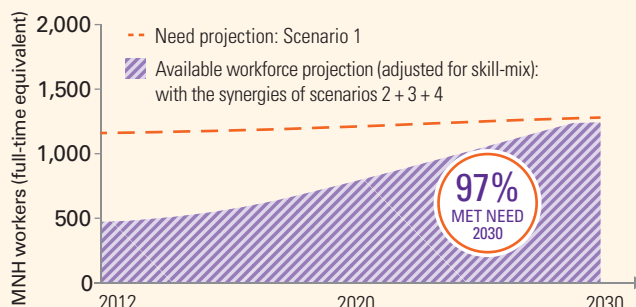
4 Attrition was halved in the next 5 years (2012-2017)?

20% leak **CURRENT** → 10% leak **SCENARIO**

31% MET NEED 2030 → 45% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent)

16,000
12,000
8,000
4,000
0

2012　2020　2030

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

31% MET NEED 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

16,000
12,000
8,000
4,000
0

2012　2020　2030

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

96% MET NEED 2030
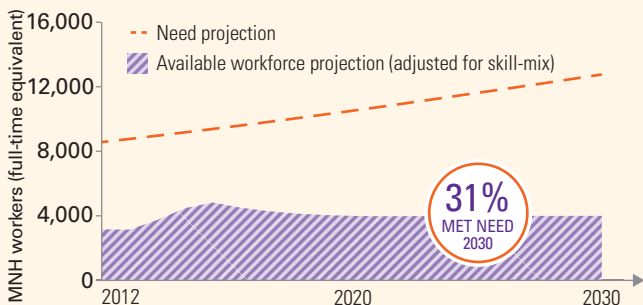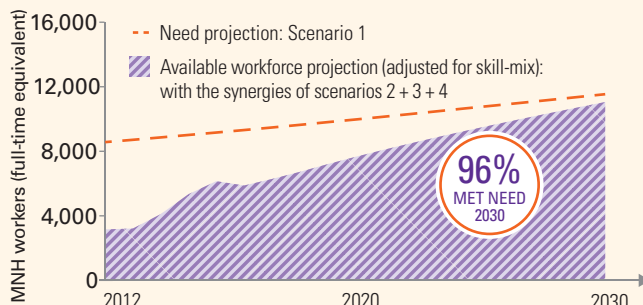
1. These health worker categories include the following country titles - Midwives: includes sages-femmes et maïeuticiens; Auxiliary midwives: includes accoucheuses auxiliaires et accoucheuses brevetées; Nurses: includes infirmières d'état; Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes médecins spécialistes (obstétrique/gynécologie); Clinical officers & Medical assistants: includes attachés de santés en soins obstétricaux et gynécologies. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
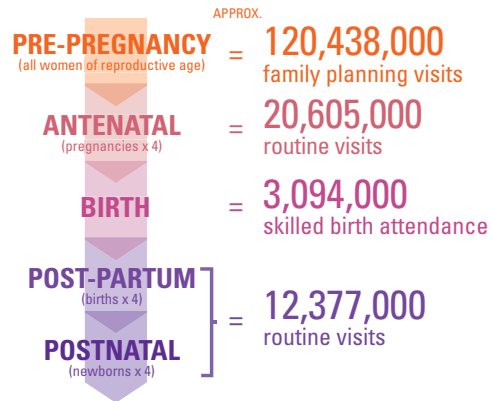
BURUNDI

In 2012, of an estimated total population of 9.8 million, 8.7 million (89%) were living in rural areas and 2.4 million (24%) were women of reproductive age; the total fertility rate was 6.1. By 2030, the population is projected to increase by 66% to 16.4 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.8 million pregnancies per annum by 2030, 85% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 54 million antenatal visits, 9.9 million births and 39.6 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
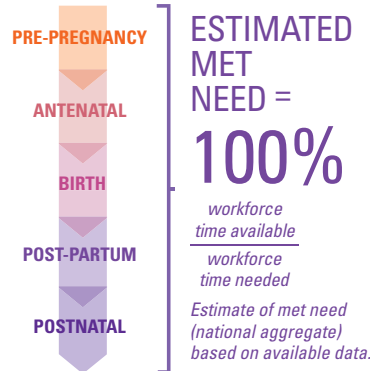
622,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **4,459,000** family planning visits

ANTENATAL (pregnancies x 4) = **2,489,000** routine visits

BIRTH = **457,000** skilled birth attendance

POST-PARTUM (births x 4) / **POSTNATAL** (newborns x 4) = **1,827,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	35	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	5,424	100
Nurses or nurse-midwives, auxiliary	–	100
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	430	100
Obstetricians & gynaecologists	21	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 74%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

22% (n=10)
78% (n=36)

Covered   Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

Accessed a SBA   Did not access a SBA   No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	240
Number of 2012 graduates/as % of all practising midwives	22/63
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

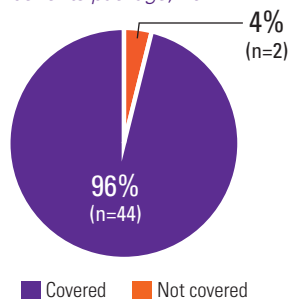|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

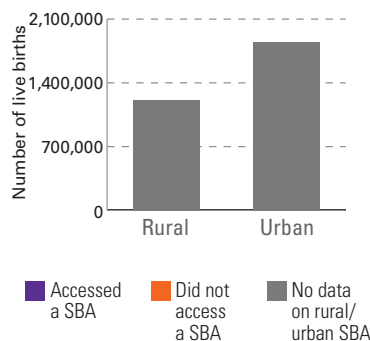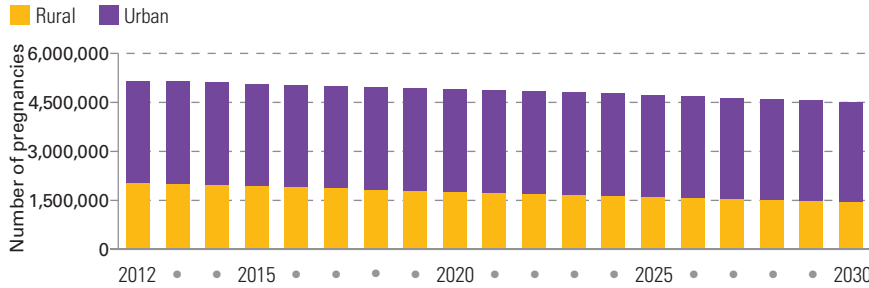|	
Year of creation of professional associations	2006, –
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; – = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies (y-axis: 0 to 800,000)
X-axis: 2012, 2015, 2020, 2025, 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

Maternal mortality ratio (0 to 900) — MMR
Newborn mortality rate (0 to 50) — NMR

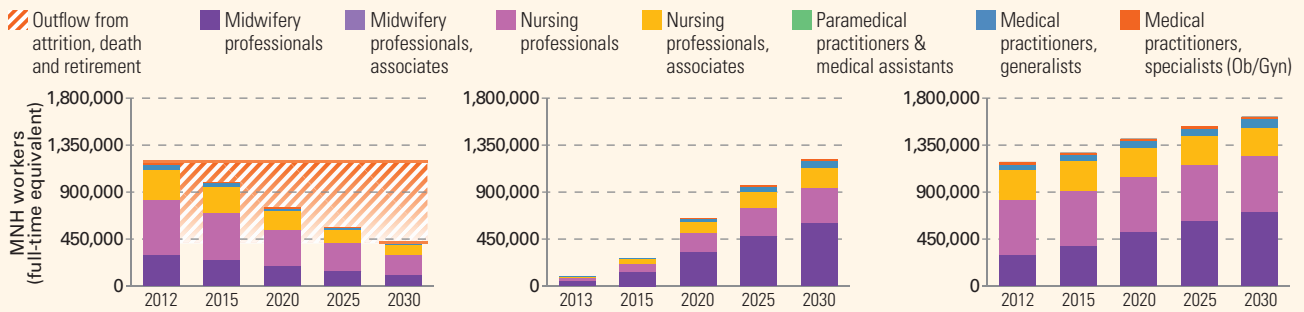# ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement Midwifery professionals Midwifery professionals, associates Nursing professionals Nursing professionals, associates Paramedical practitioners & medical assistants Medical practitioners, generalists Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) (0 to 16,000)
Outflows X-axis: 2012, 2015, 2020, 2025, 2030
Inflows X-axis: 2013, 2015, 2020, 2025, 2030
Workforce X-axis: 2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.79 million CURRENT → 0.63 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

96% MET NEED 2030 → 96% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

96% MET NEED 2030 → 96% MET NEED 2030
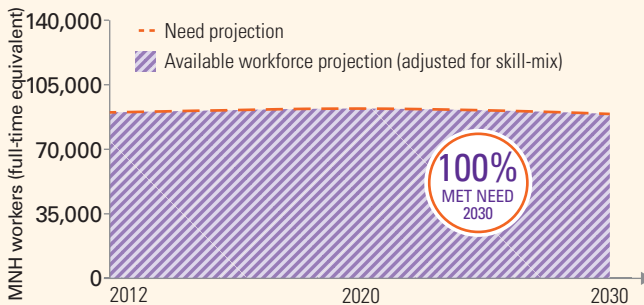
4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

96% MET NEED 2030 → 96% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent) (0 to 10,000)
--- Need projection
Available workforce projection (adjusted for skill-mix)
96% MET NEED 2030
X-axis: 2012, 2020, 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent) (0 to 10,000)
--- Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4
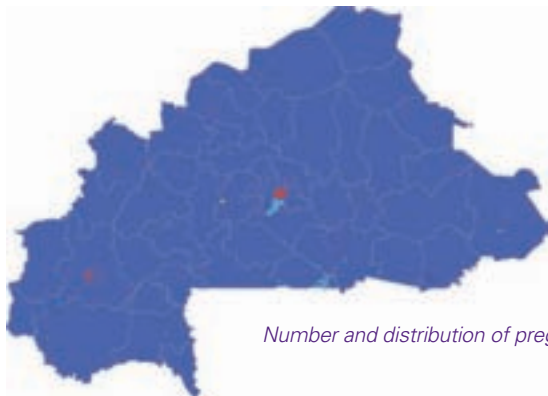96% MET NEED 2030
X-axis: 2012, 2020, 2030

1. These health worker categories include the following country titles - Midwives: includes sages femmes; Nurses: includes infirmières; Auxiliary nurse-midwives: includes infirmières auxiliaires; Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes gynécologues obstétriciens. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan.*
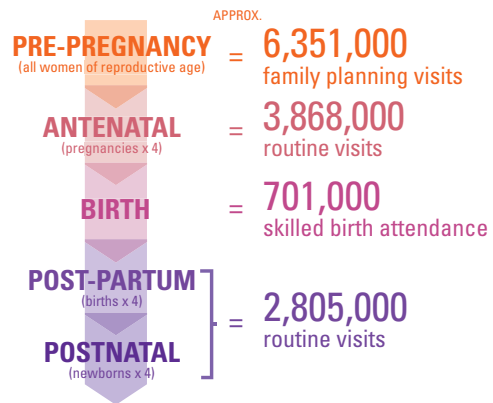
CAMBODIA

In 2012, of an estimated total population of 14.9 million, 12.3 million (83%) were living in rural areas and 4.1 million (27%) were women of reproductive age; the total fertility rate was 2.9. By 2030, the population is projected to increase by 29% to 19.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.6 million pregnancies per annum by 2030, 84% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 50.1 million antenatal visits, 7.3 million births and 29.1 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
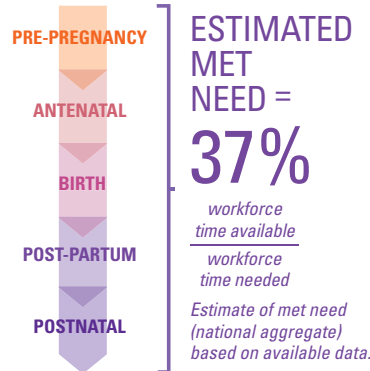
698,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

PRE-PREGNANCY (all women of reproductive age) = APPROX. **7,062,000** family planning visits

ANTENATAL (pregnancies x 4) = **2,790,000** routine visits

BIRTH = **405,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **1,620,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	2,792	100
Midwives, auxiliary	2,336	100
Nurse-midwives	–	100
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	3,219	40
Obstetricians & gynaecologists	–	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = **56%**

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	413/15
% of graduates employed in MNH within one year	95%

MIDWIFERY REGULATION

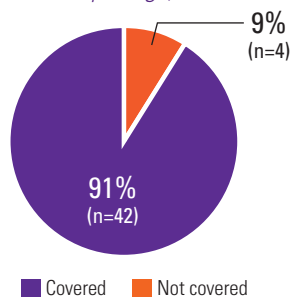|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

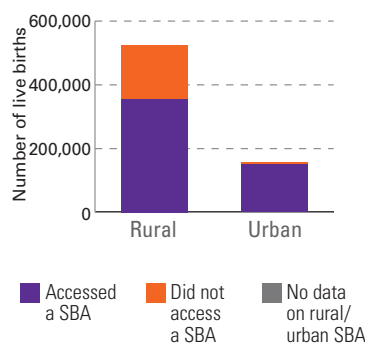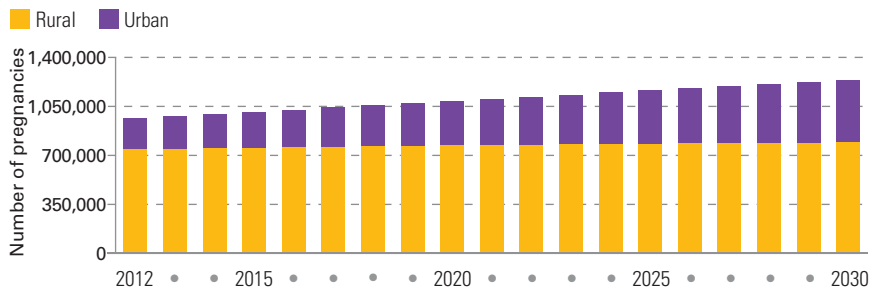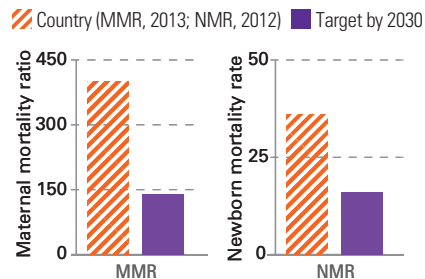|	
Year of creation of professional associations	1994
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies: 800,000 / 600,000 / 400,000 / 200,000 / 0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

Maternal mortality ratio: 180 / 120 / 60 / 0 — MMR

Newborn mortality rate: 20 / 10 / 0 — NMR
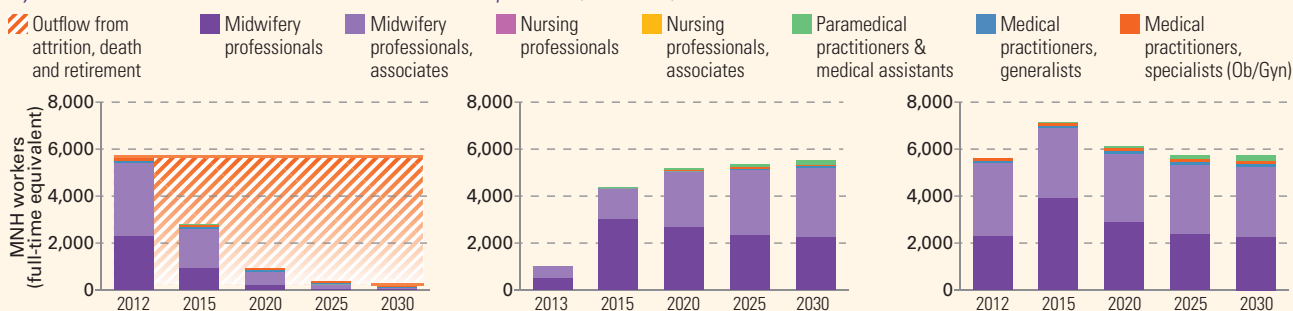
ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

by International Standard Classification of Occupations (ISCO-08)

PROJECTED INFLOWS

PROJECTED WORKFORCE

Outflow from attrition, death and retirement Midwifery professionals Midwifery professionals, associates Nursing professionals Nursing professionals, associates Paramedical practitioners & medical assistants Medical practitioners, generalists Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent): 28,000 / 21,000 / 14,000 / 7,000 / 0

Outflows: 2012 2015 2020 2025 2030

Inflows: 2013 2015 2020 2025 2030

Workforce: 2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.60 million CURRENT → 0.48 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

87% MET NEED 2030 → 88% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

87% MET NEED 2030 → 88% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

0% leak CURRENT → 0% leak SCENARIO

87% MET NEED 2030 → 88% MET NEED 2030

CURRENT TRAJECTORY

Need projection

Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent): 10,000 / 7,500 / 5,000 / 2,500 / 0

2012 2020 2030

87% MET NEED 2030

WHAT IF... TRAJECTORY

Need projection: Scenario 1

Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent): 10,000 / 7,500 / 5,000 / 2,500 / 0

2012 2020 2030

89% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Auxiliary midwives: includes primary midwives; Nurse-midwives: includes: nurse-midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
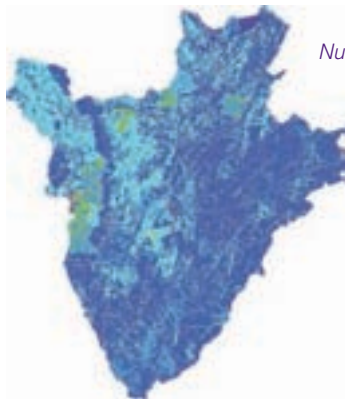4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
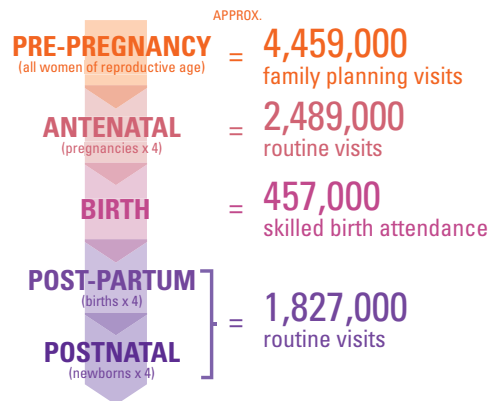
CAMEROON

In 2012, of an estimated total population of 21.7 million, 11.7 million (54%) were living in rural areas and 5.1 million (24%) were women of reproductive age; the total fertility rate was 4.8. By 2030, the population is projected to increase by 52% to 33.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.4 million pregnancies per annum by 2030, 52% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 94.7 million antenatal visits, 17.7 million births and 71 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
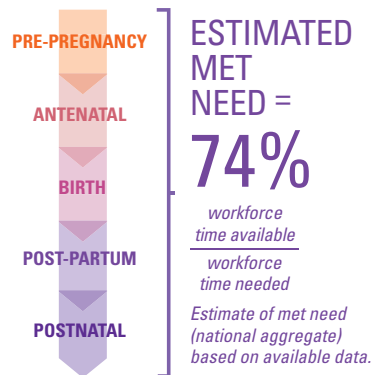
1,126,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **9,102,000** family planning visits

ANTENATAL (pregnancies x 4) = **4,505,000** routine visits

BIRTH = **844,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **3,376,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	127	90
Midwives, auxiliary	*na*	*na*
Nurse-midwives	27	45
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	1,300	90
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	1,420	25
Obstetricians & gynaecologists	140	60
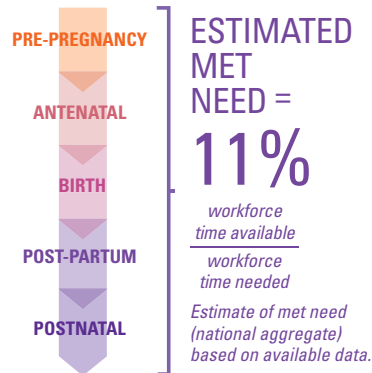
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
11%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

24% (n=11)
76% (n=35)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	85
Number of 2012 graduates/as % of all practising midwives	0/*na*
% of graduates employed in MNH within one year	0%

MIDWIFERY REGULATION

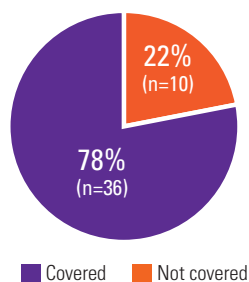|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

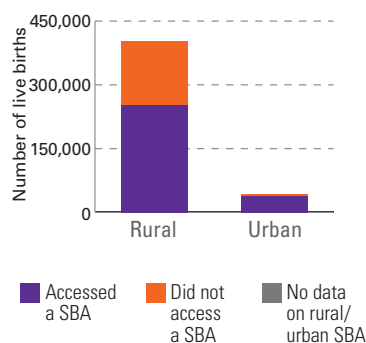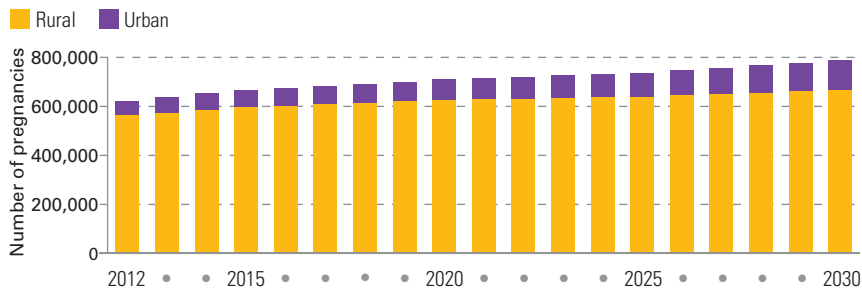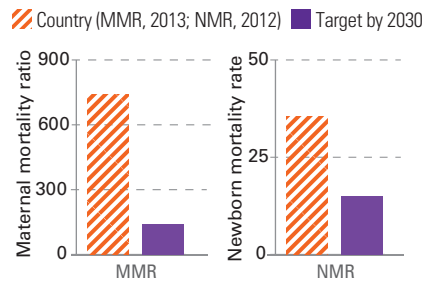|	
Year of creation of professional associations	2008
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies
1,400,000 / 1,050,000 / 700,000 / 350,000 / 0

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio
600 / 400 / 200 / 0
MMR

Newborn mortality rate
50 / 25 / 0
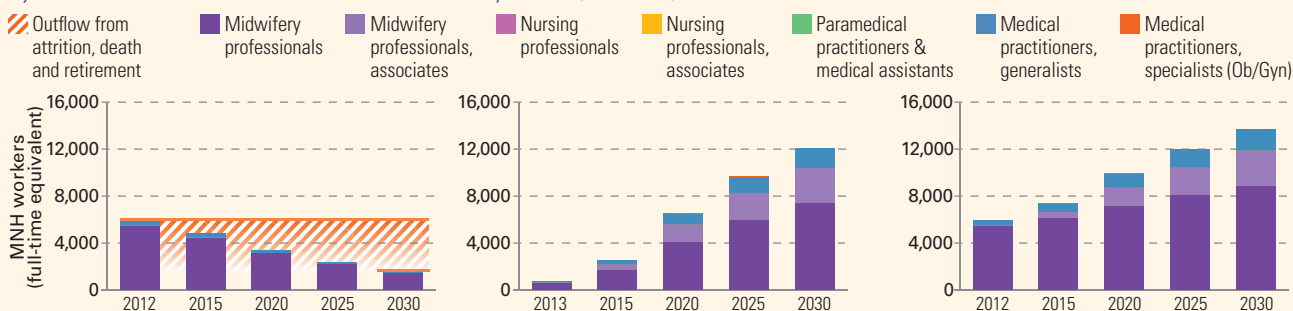NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)
4,400 / 3,300 / 2,200 / 1,100 / 0
2012 2015 2020 2025 2030

MNH workers (full-time equivalent)
4,400 / 3,300 / 2,200 / 1,100 / 0
2013 2015 2020 2025 2030

MNH workers (full-time equivalent)
4,400 / 3,300 / 2,200 / 1,100 / 0
2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.4 million CURRENT → 1.1 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO
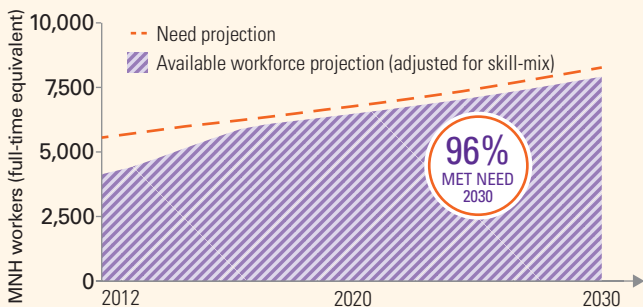
18% MET NEED 2030 → 33% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

18% MET NEED 2030 → 25% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

18% MET NEED 2030 → 20% MET NEED 2030
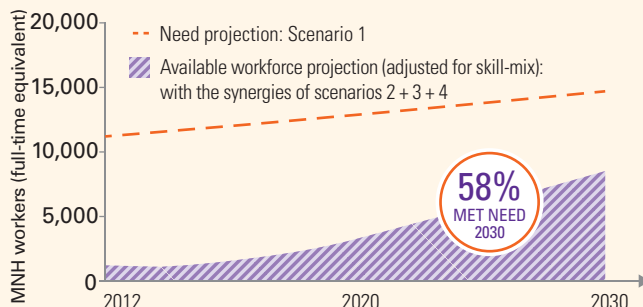
CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)
20,000 / 15,000 / 10,000 / 5,000 / 0
2012 2020 2030

18% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)
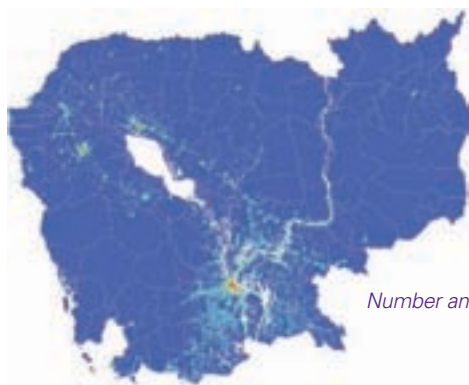20,000 / 15,000 / 10,000 / 5,000 / 0
2012 2020 2030

58% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes sages femmes; Nurse-midwives: includes infirmiers diplômés d'état accoucheurs, infirmiers spécialisés en santé de la reproduction; Auxiliary nurse-midwives: includes infirmiers brevetés accoucheurs (IBA); Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes: gynécologues-obstétriciens. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
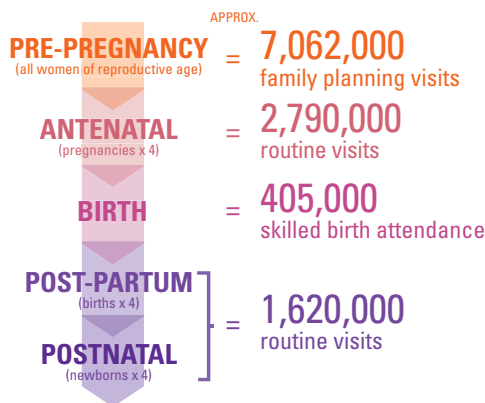
CENTRAL AFRICAN REPUBLIC

In 2012, of an estimated total population of 4.5 million, 3.3 million (72%) were living in rural areas and 1.1 million (25%) were women of reproductive age; the total fertility rate was 4.4. By 2030, the population is projected to increase by 40% to 6.3 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.2 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 17.7 million antenatal visits, 3.2 million births and 12.8 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

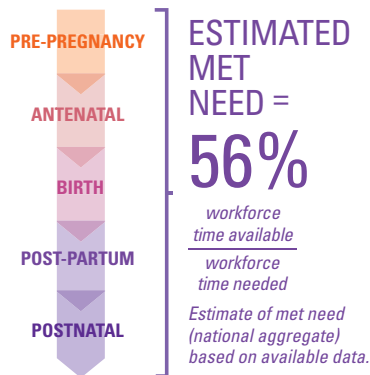### 221,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
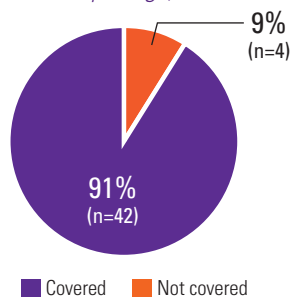
Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

PRE-PREGNANCY (all women of reproductive age) = APPROX. **1,817,000** family planning visits

ANTENATAL (pregnancies x 4) = **883,000** routine visits

BIRTH = **160,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **641,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	241	100
Midwives, auxiliary	273	100
Nurse-midwives	na	na
Nurses	270	5
Nurses or nurse-midwives, auxiliary	342	10
Clinical officers & medical assistants	na	na
Physicians, generalists	72	5
Obstetricians & gynaecologists	8	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = **18%**

workforce time available
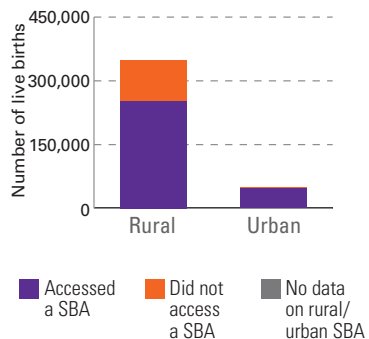workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

- 30% (n=14)
- 70% (n=32)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

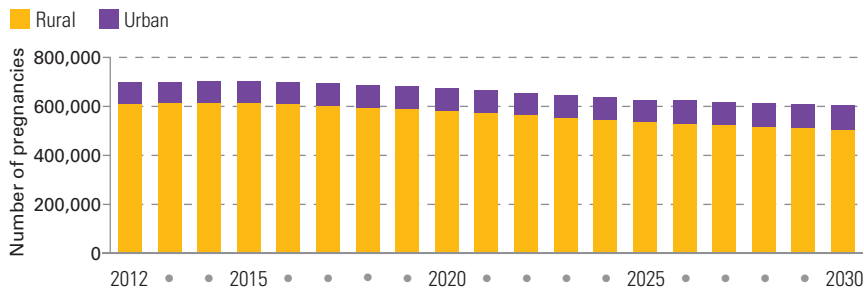|	
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2009
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	21/9
% of graduates employed in MNH within one year	—

MIDWIFERY REGULATION

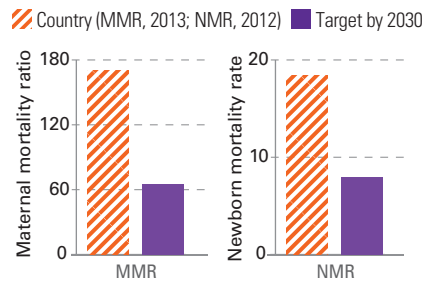|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1983
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural   Urban

Number of pregnancies: 240,000 / 180,000 / 120,000 / 60,000 / 0
Years: 2012 2015 2020 2025 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012)   Target by 2030

Maternal mortality ratio: 900 / 600 / 300 / 0 — MMR
Newborn mortality rate: 50 / 25 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement   Midwifery professionals   Midwifery professionals, associates   Nursing professionals   Nursing professionals, associates   Paramedical practitioners & medical assistants   Medical practitioners, generalists   Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent): 800 / 600 / 400 / 200 / 0
Outflows years: 2012 2015 2020 2025 2030
Inflows years: 2013 2015 2020 2025 2030
Workforce years: 2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.24 million — CURRENT → 0.19 million — SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

17% MET NEED 2030 → 22% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
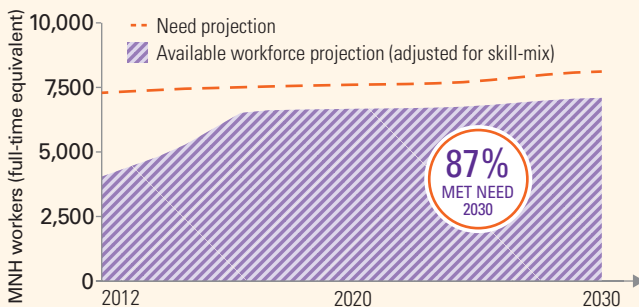
CURRENT → SCENARIO

17% MET NEED 2030 → 24% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak — CURRENT → 2% leak — SCENARIO

17% MET NEED 2030 → 20% MET NEED 2030
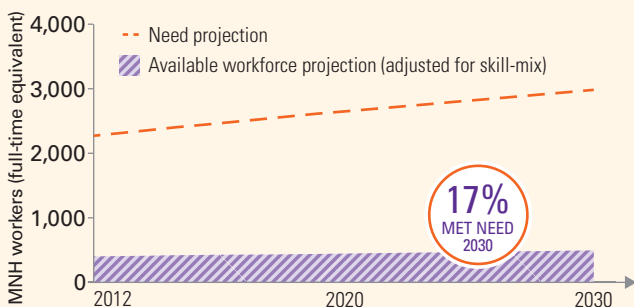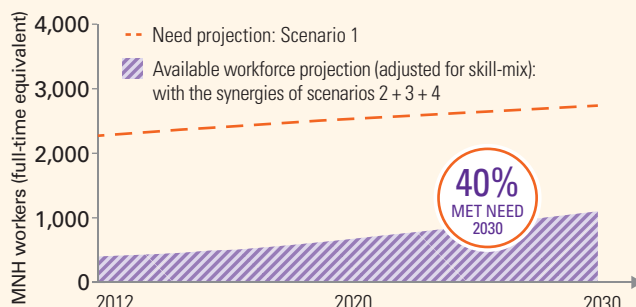
CURRENT TRAJECTORY

Need projection
Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent): 4,000 / 3,000 / 2,000 / 1,000 / 0
Years: 2012 2020 2030

17% MET NEED 2030

WHAT IF... TRAJECTORY

Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent): 4,000 / 3,000 / 2,000 / 1,000 / 0
Years: 2012 2020 2030

40% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes sages-femmes; Auxiliary midwives: includes assistantes accoucheuses; Nurses: includes infirmières; Auxiliary nurse-midwives: includes assistants de santé; Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes médecins obs.gyn. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
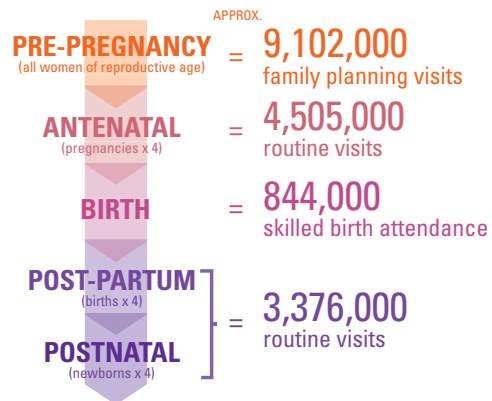
CHAD

In 2012, of an estimated total population of 12.4 million, 9.7 million (78%) were living in rural areas and 2.7 million (22%) were women of reproductive age; the total fertility rate was 6.3. By 2030, the population is projected to increase by 68% to 20.9 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1 million pregnancies per annum by 2030, 73% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 68.5 million antenatal visits, 13.2 million births and 52.9 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

774,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**5,155,000**	family planning visits
ANTENATAL (pregnancies x 4)	=	**3,094,000**	routine visits
BIRTH	=	**598,000**	skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**2,391,000**	routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	416	–
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	400	25
Nurses or nurse-midwives, auxiliary	245	–
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	527	–
Obstetricians & gynaecologists	23	100
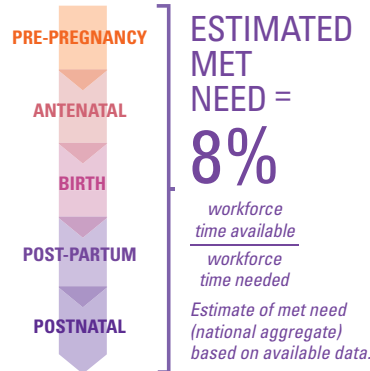
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 8%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

17% (n=8)
83% (n=38)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (600,000 / 400,000 / 200,000 / 0)

Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	15
Number of 2012 graduates/as % of all practising midwives	265/64
% of graduates employed in MNH within one year	25%

MIDWIFERY REGULATION

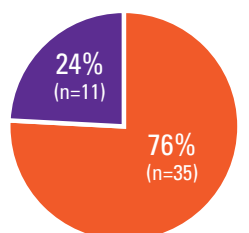|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	No
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

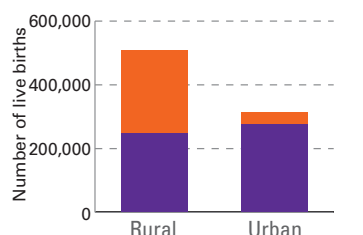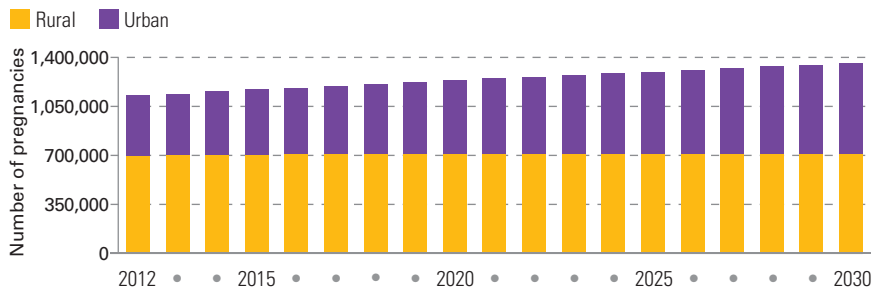|	
Year of creation of professional associations	1987, 1994
Roles performed by professional associations:	
Continuing professional development	No
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030
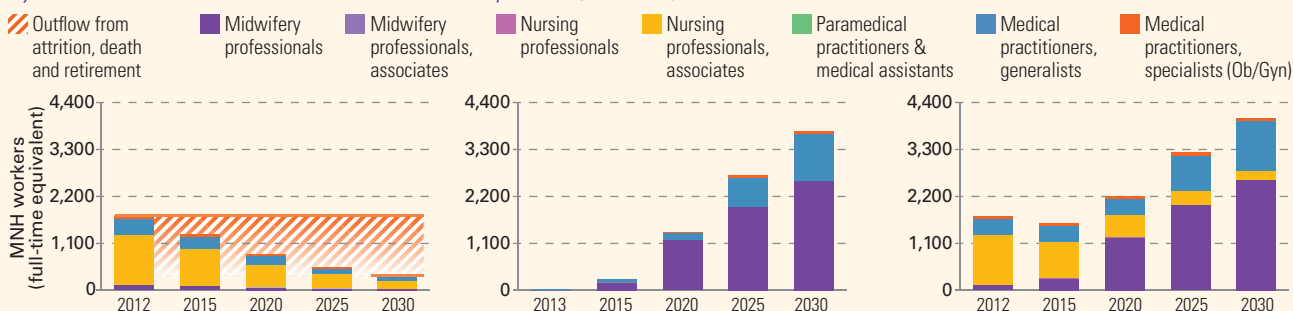

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS
PROJECTED INFLOWS
PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.0 million CURRENT → 0.8 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

15% MET NEED 2030 → 20% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
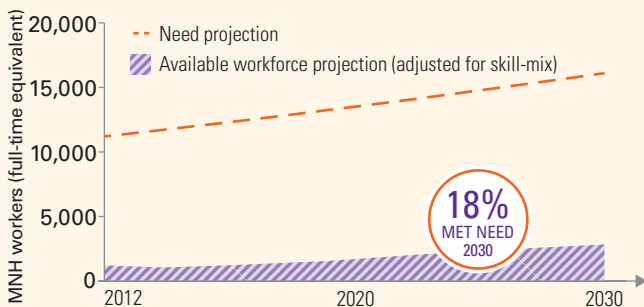
CURRENT → SCENARIO

15% MET NEED 2030 → 21% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

3% leak CURRENT → 1.5% leak SCENARIO

15% MET NEED 2030 → 17% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

15% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

35% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurses: includes infirmiers diplômés d'état; Auxiliary nurse-midwives: includes auxiliary nurse-midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes gynécologues obstetriciens. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
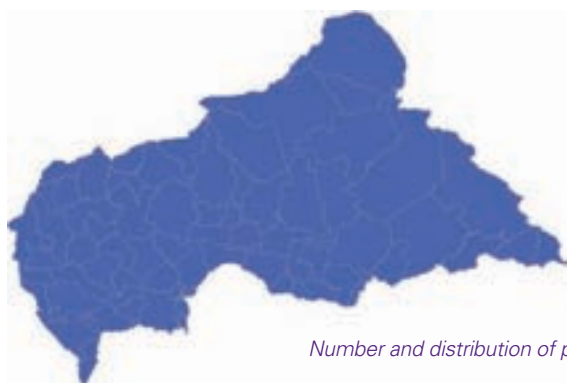4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
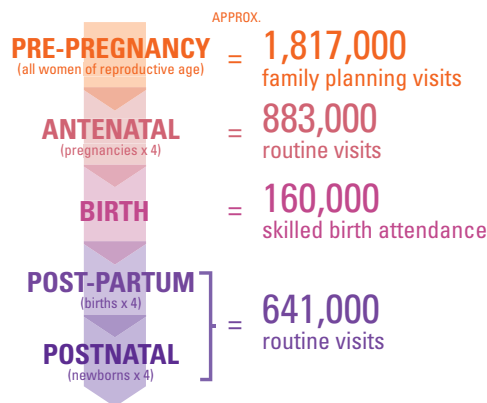
CHINA

In 2012, of an estimated total population of 1,377.1 million, 660 million (48%) were living in rural areas and 375.4 million (27%) were women of reproductive age; the total fertility rate was 1.7. By 2030, the population is projected to increase by 6% to 1,453.3 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 24.8 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 2,154.8 million antenatal visits, 308.5 million births and 1,234.0 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

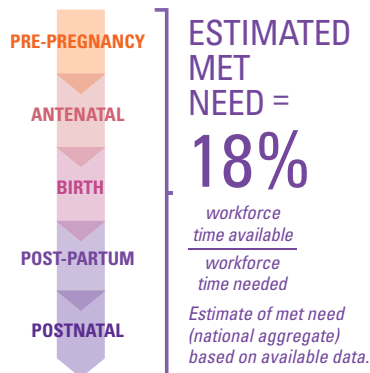### 32,464,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
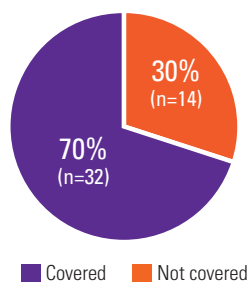

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age)	APPROX. =	**728,311,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**129,856,000** routine visits
BIRTH	=	**18,591,000** skilled birth attendance
POST-PARTUM (births x 4) / POSTNATAL (newborns x 4)	=	**74,363,000** routine visits

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	*na*	*na*
Midwives, auxiliary	*na*	*na*
Nurse-midwives	217,670	100
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	—	100
Obstetricians & gynaecologists	245,698	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 59%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

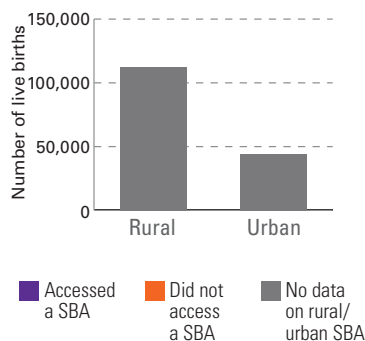## FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

0% (n=0)

100% (n=46)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

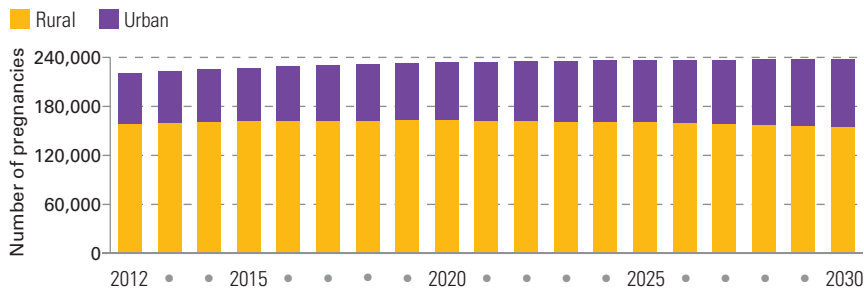|	
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	—
Number of 2012 graduates/as % of all practising midwives	–/–
% of graduates employed in MNH within one year	—

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	No
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	0
Midwives allowed to provide injectable contraceptives/intrauterine devices	No/No

PROFESSIONAL ASSOCIATIONS[4]
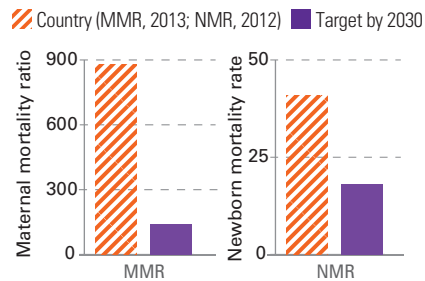
Year of creation of professional associations	1909
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ■ Urban

Number of pregnancies
36,000,000 · 27,000,000 · 18,000,000 · 9,000,000 · 0
2012 · 2015 · 2020 · 2025 · 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio: 36 · 24 · 12 · 0 — MMR

Newborn mortality rate: 14 · 7 · 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)
480,000 · 360,000 · 240,000 · 120,000 · 0
2012 · 2015 · 2020 · 2025 · 2030

480,000 · 360,000 · 240,000 · 120,000 · 0
2013 · 2015 · 2020 · 2025 · 2030

480,000 · 360,000 · 240,000 · 120,000 · 0
2012 · 2015 · 2020 · 2025 · 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

24.8 million — CURRENT
19.8 million — SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO
64% MET NEED 2030 → 100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO
64% MET NEED 2030 → 91% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak — CURRENT
2% leak — SCENARIO
64% MET NEED 2030 → 77% MET NEED 2030
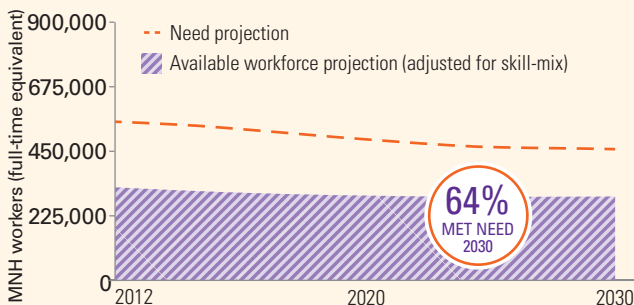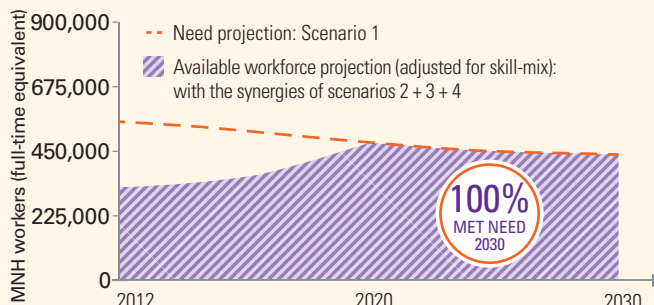
CURRENT TRAJECTORY

MNH workers (full-time equivalent)
900,000 · 675,000 · 450,000 · 225,000 · 0
2012 · 2020 · 2030

--- Need projection
▨ Available workforce projection (adjusted for skill-mix)

64% MET NEED 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)
900,000 · 675,000 · 450,000 · 225,000 · 0
2012 · 2020 · 2030

--- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

1. These health worker categories include the following country titles - Nurse-midwives: includes nurses (ob/gyn); Generalist physicians: includes MCH service providers; Obstetricians & gynaecologists: includes ob/gyn doctors. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the nurse-midwife cadre category: nurse (ob/gyn).
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
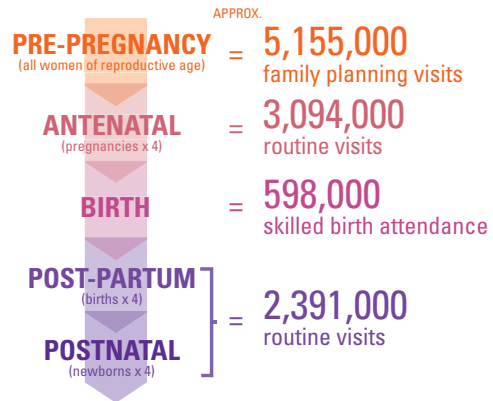
COMOROS

In 2012, of an estimated total population of 0.7 million, 0.4 million (54%) were living in rural areas and 0.2 million (24%) were women of reproductive age; the total fertility rate was 4.7. By 2030, the population is projected to increase by 47% to 1.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.05 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 3.3 million antenatal visits, 0.6 million births and 2.4 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

39,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
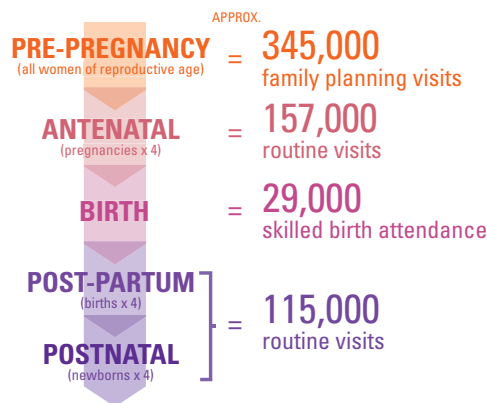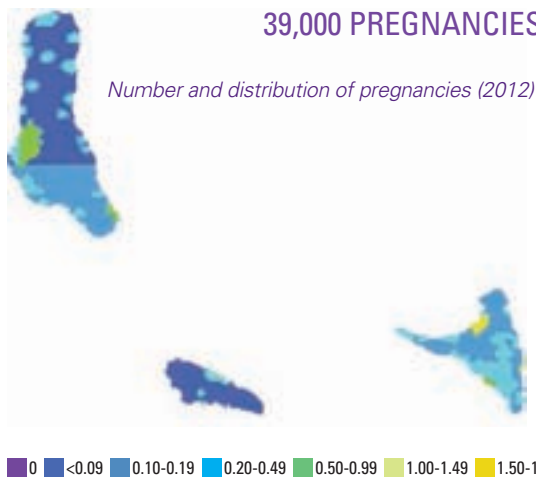
Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	345,000	family planning visits
ANTENATAL (pregnancies x 4)	=	157,000	routine visits
BIRTH	=	29,000	skilled birth attendance
POST-PARTUM (births x 4)	=	115,000	routine visits
POSTNATAL (newborns x 4)			

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	284	100
Midwives, auxiliary	11	100
Nurse-midwives	na	na
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	197	20
Obstetricians & gynaecologists	6	100
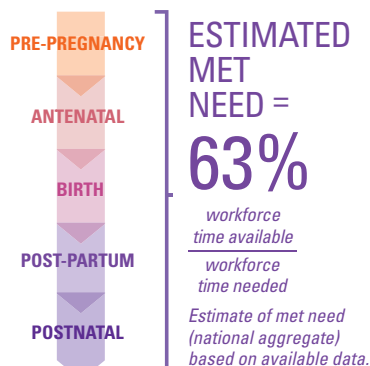
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
63%
workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2003
Minimum number of supervised births in curriculum	39
Number of 2012 graduates/as % of all practising midwives	17/6
% of graduates employed in MNH within one year	10%

MIDWIFERY REGULATION

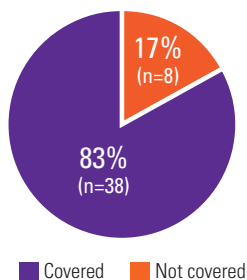|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

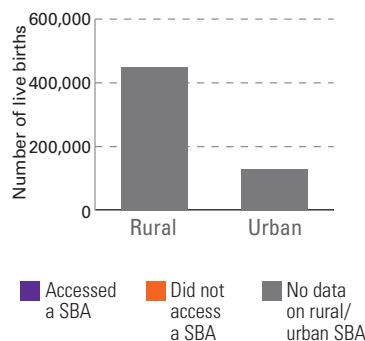|	
Year of creation of professional associations	2012
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

4% (n=2)
96% (n=44)
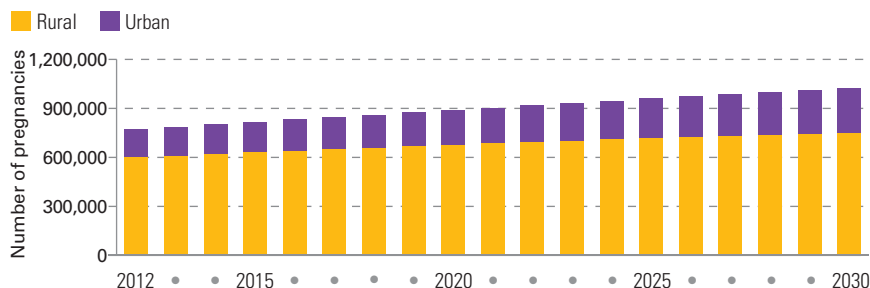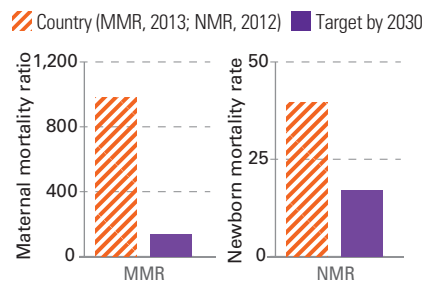
Covered | Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

Accessed a SBA | Did not access a SBA | No data on rural/urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ▮ Urban ▮

Number of pregnancies (y-axis: 0 – 60,000)
Years: 2012, 2015, 2020, 2025, 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) — Target by 2030

Maternal mortality ratio (0–450) — MMR
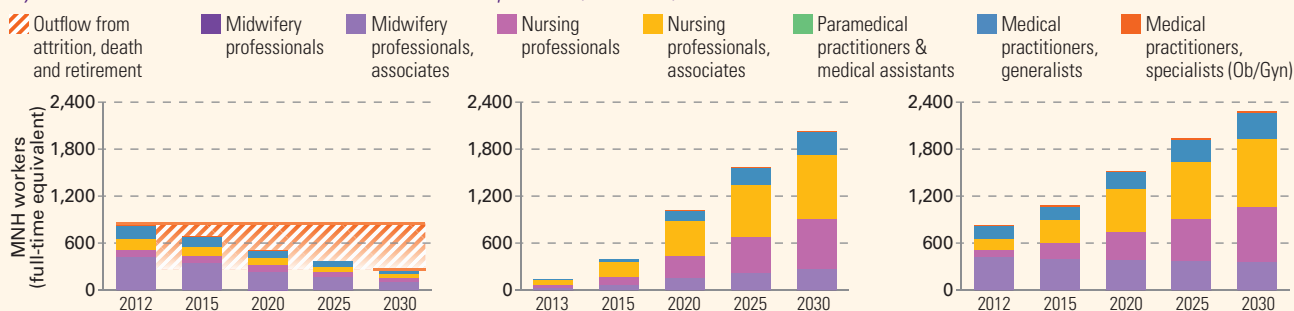Newborn mortality rate (0–50) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement | Midwifery professionals | Midwifery professionals, associates | Nursing professionals | Nursing professionals, associates | Paramedical practitioners & medical assistants | Medical practitioners, generalists | Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent), 0–480

WHAT IF... Estimates of met need based on available data.

1 The number of pregnancies was reduced by 20% by 2030?
0.05 million CURRENT → 0.04 million SCENARIO
Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?
CURRENT → SCENARIO
60% MET NEED 2030 → 86% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
CURRENT → SCENARIO
60% MET NEED 2030 → 85% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?
0.1% leak CURRENT → 0.05% leak SCENARIO
60% MET NEED 2030 → 60% MET NEED 2030

CURRENT TRAJECTORY
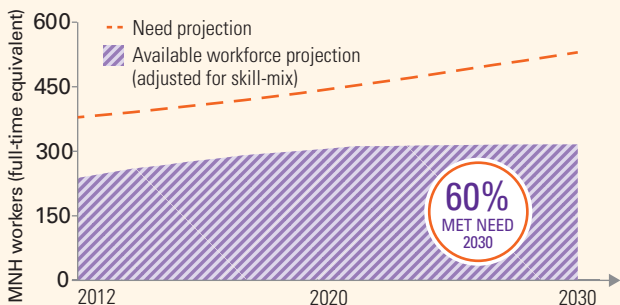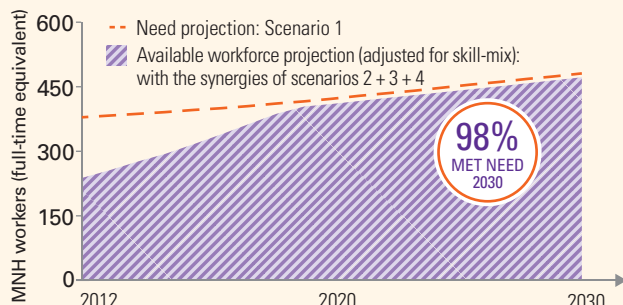
-- Need projection
▨ Available workforce projection (adjusted for skill-mix)
60% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4
98% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes sages-femmes; Auxiliary midwives: includes infimiers d'assistance médicale; Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes gynécologues/obstétriciens. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
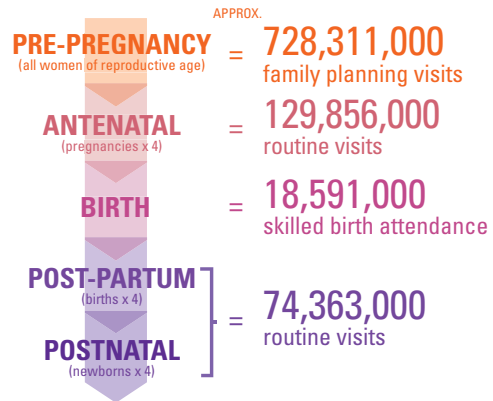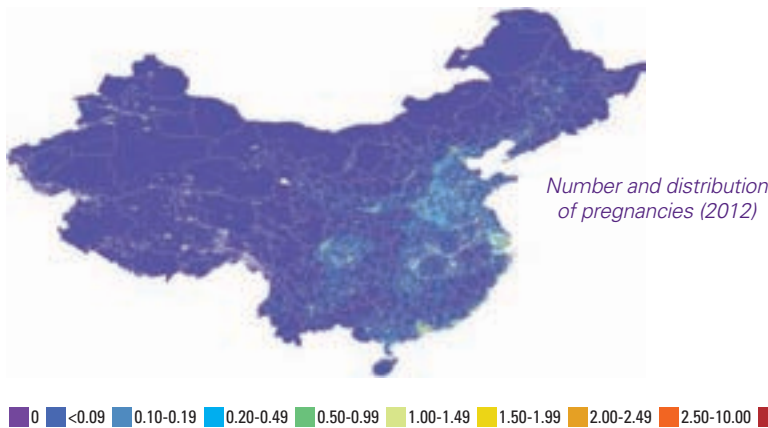4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of Ending Preventable Maternal Mortality by 2030 and the Every Newborn Action Plan.

CONGO

In 2012, of an estimated total population of 4.3 million, 1.7 million (39%) were living in rural areas and 1 million (24%) were women of reproductive age; the total fertility rate was 5. By 2030, the population is projected to increase by 56% to 6.8 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.3 million pregnancies per annum by 2030, 36% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 20.7 million antenatal visits, 3.6 million births and 14.6 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

240,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**2,109,000**	family planning visits
ANTENATAL (pregnancies x 4)	=	**962,000**	routine visits
BIRTH	=	**169,000**	skilled birth attendance
POST-PARTUM (births x 4)	=	**676,000**	routine visits
POSTNATAL (newborns x 4)			

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	1,215	90
Midwives, auxiliary	67	—
Nurse-midwives	28	90
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	323	—
Obstetricians & gynaecologists	41	90

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
40%
workforce time available
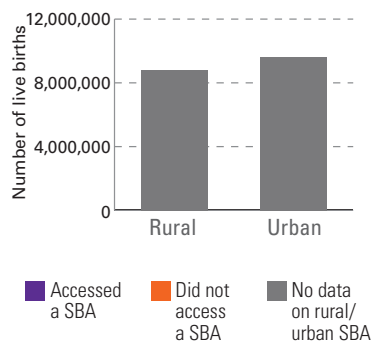workforce time needed
Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

7% (n=3)
93% (n=43)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (0 – 120,000)

Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

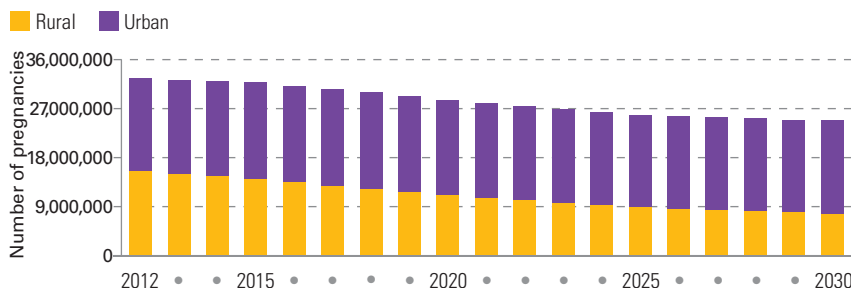|	
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 1999
Minimum number of supervised births in curriculum	10
Number of 2012 graduates/as % of all practising midwives	88/7
% of graduates employed in MNH within one year	—

MIDWIFERY REGULATION

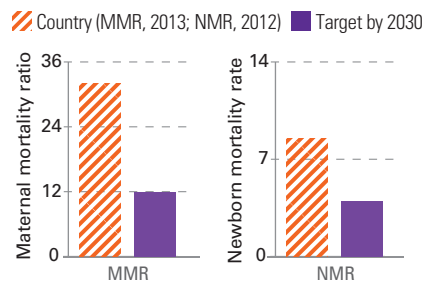|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2010
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural   Urban

Number of pregnancies
320,000
240,000
160,000
80,000
0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012)   Target by 2030

Maternal mortality ratio
450
300
150
0
MMR

Newborn mortality rate
50
25
0
NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS
PROJECTED INFLOWS
PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement
Midwifery professionals
Midwifery professionals, associates
Nursing professionals
Nursing professionals, associates
Paramedical practitioners & medical assistants
Medical practitioners, generalists
Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)
1,600
1,200
800
400
0
2012 2015 2020 2025 2030

1,600
1,200
800
400
0
2013 2015 2020 2025 2030

1,600
1,200
800
400
0
2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.32 million
CURRENT
→
0.25 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

21% MET NEED 2030
32% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

21% MET NEED 2030
30% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak
CURRENT
→
2% leak
SCENARIO

21% MET NEED 2030
26% MET NEED 2030

CURRENT TRAJECTORY
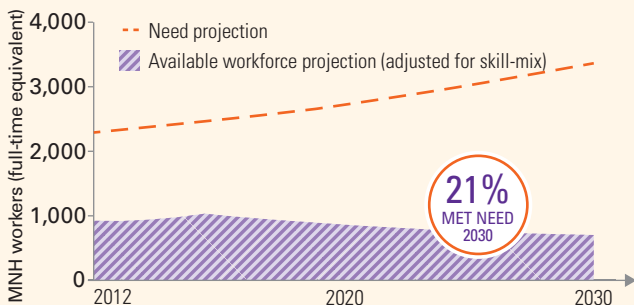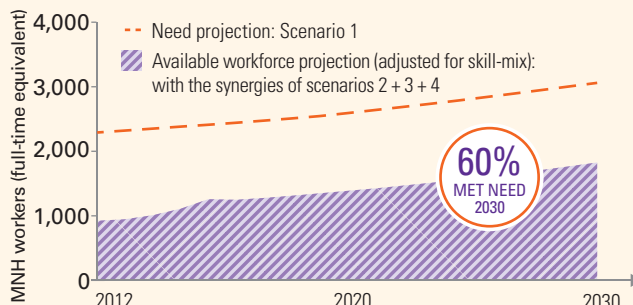
MNH workers (full-time equivalent)
4,000
3,000
2,000
1,000
0

- - Need projection
Available workforce projection (adjusted for skill-mix)

21% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)
4,000
3,000
2,000
1,000
0

- - Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

60% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Auxiliary midwives: includes matrones accoucheuses; Nurse-midwives: includes accoucheurs; Generalist physicians: includes generalist physicians; Obstetricians: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

CONGO, DEMOCRATIC REPUBLIC OF THE

In 2012, of an estimated total population of 65.7 million, 49.4 million (75%) were living in rural areas and 15 million (23%) were women of reproductive age; the total fertility rate was 6. By 2030, the population is projected to increase by 58% to 103.7 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 5.2 million pregnancies per annum by 2030, 71% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 352.7 million antenatal visits, 63.6 million births and 254.5 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

4,048,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0	<0.09	0.10-0.19	0.20-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-10.00	>10.00

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **25,382,000** family planning visits

ANTENATAL (pregnancies x 4) = **16,194,000** routine visits

BIRTH = **2,922,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **11,687,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	0	95
Midwives, auxiliary	1,555	95
Nurse-midwives	555	85
Nurses	57,703	40
Nurses or nurse-midwives, auxiliary	–	85
Clinical officers & medical assistants	na	na
Physicians, generalists	5,832	25
Obstetricians & gynaecologists	200	95

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

53%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

13% (n=6)
87% (n=40)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	0/na
% of graduates employed in MNH within one year	na

MIDWIFERY REGULATION

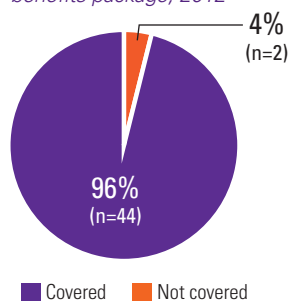|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	No
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

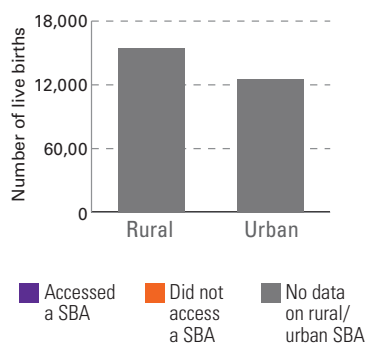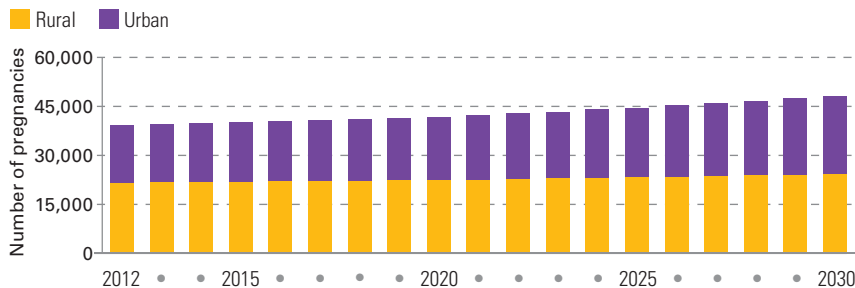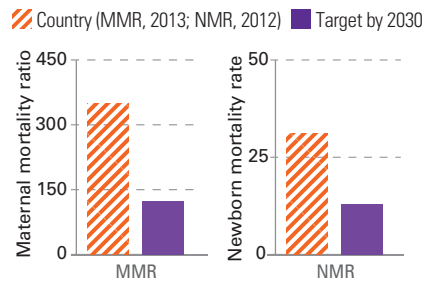|	
Year of creation of professional associations	1992, 2000, 2012
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

MORTALITY REDUCTION[5]

⊘ Country (MMR, 2013; NMR, 2012) ■ Target by 2030
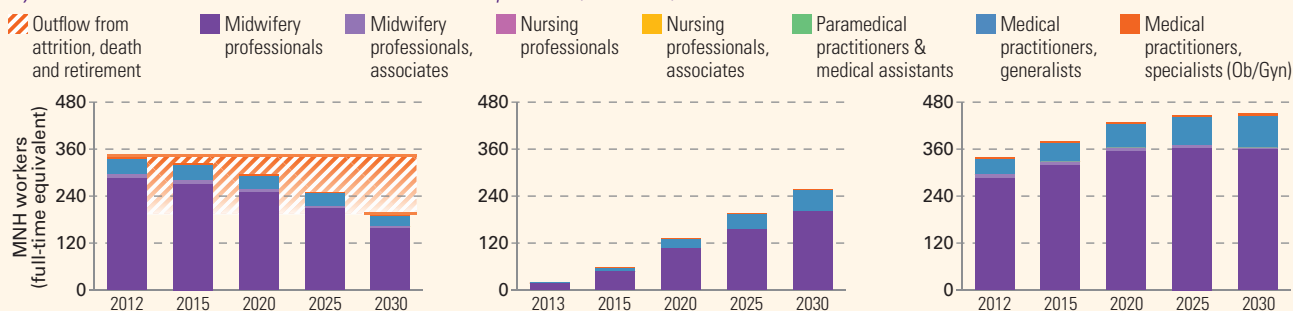

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

⊘ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

5.2 million
CURRENT ➜ SCENARIO
4.1 million

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT ➜ SCENARIO

14% MET NEED 2030   28% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT ➜ SCENARIO

14% MET NEED 2030   20% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

20% leak
CURRENT ➜ SCENARIO
10% leak

14% MET NEED 2030   24% MET NEED 2030

CURRENT TRAJECTORY
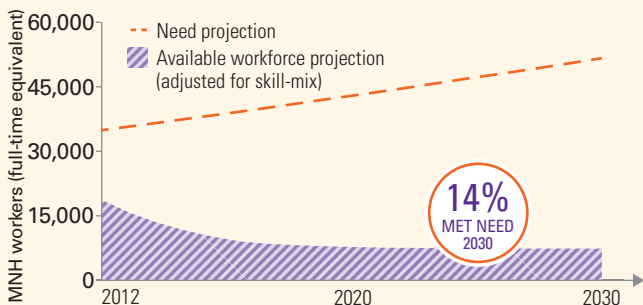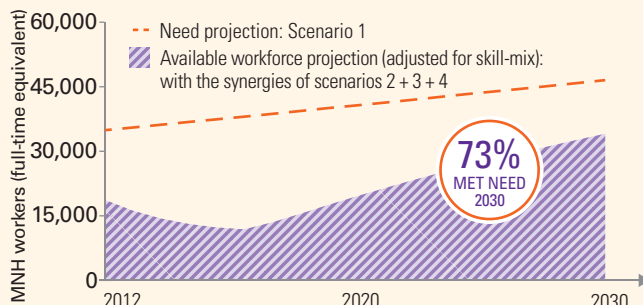
-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

14% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

73% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes sages-femmes (new cadre); Auxiliary midwives: includes aide accoucheuses; Nurse-midwives: includes accoucheuses du niveau supérieur; Nurses: includes infirmières polyvalentes; Auxiliary nurse-midwives: includes accoucheuses brevetée ou diplômée; Generalist physicians: includes médecins généralists; Obstetricians & gynaecologists: includes médecins spécialistes (gyneco obst). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
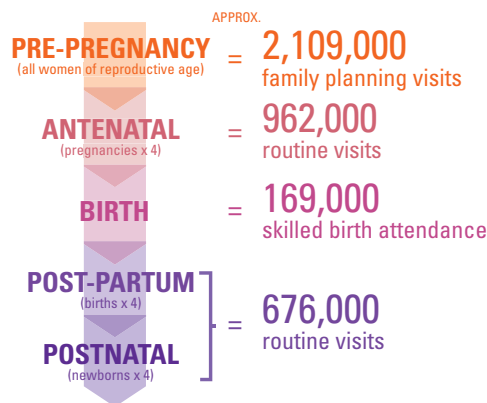
CÔTE D'IVOIRE

In 2012, of an estimated total population of 19.8 million, 12.4 million (63%) were living in rural areas and 4.7 million (24%) were women of reproductive age; the total fertility rate was 4.9. By 2030, the population is projected to increase by 47% to 29.2 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.3 million pregnancies per annum by 2030, 61% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 90.1 million antenatal visits, 15.9 million births and 63.4 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

1,067,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0	<0.09	0.10-0.19	0.20-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-10.00	>10.00

PRE-PREGNANCY (all women of reproductive age) = APPROX. **7,897,000** family planning visits

ANTENATAL (pregnancies x 4) = **4,269,000** routine visits

BIRTH = **752,000** skilled birth attendance

POST-PARTUM (births x 4) / **POSTNATAL** (newborns x 4) = **3,007,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	2,627	100
Midwives, auxiliary	1,224	100
Nurse-midwives	na	na
Nurses	2,961	–
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	114	100
Obstetricians & gynaecologists	444	100
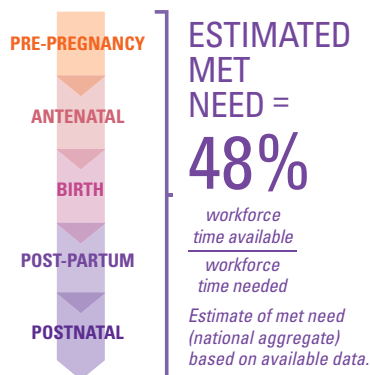
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 48%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

26% (n=12)
74% (n=34)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural / Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	15
Number of 2012 graduates/as % of all practising midwives	501/19
% of graduates employed in MNH within one year	0%

MIDWIFERY REGULATION

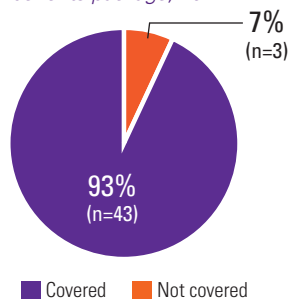|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

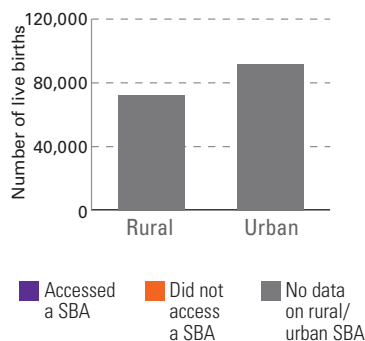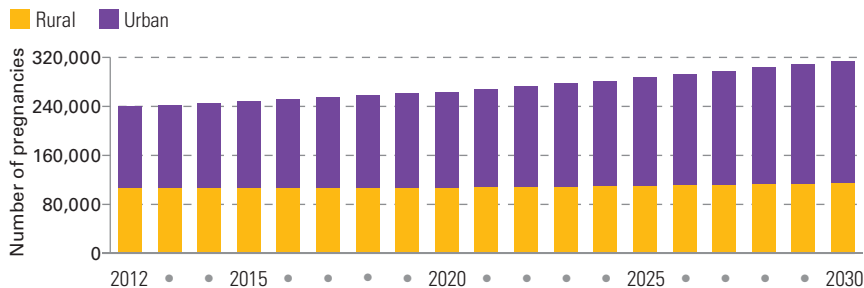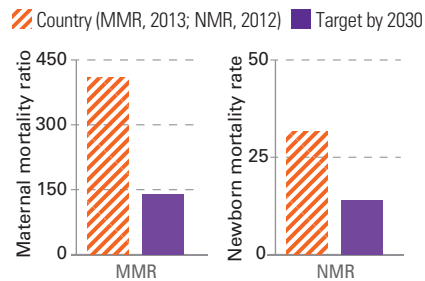|	
Year of creation of professional associations	1971, 1997, 2011
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

- Rural
- Urban

Number of pregnancies

1,400,000 / 1,050,000 / 700,000 / 350,000 / 0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

- Country (MMR, 2013; NMR, 2012)
- Target by 2030

Maternal mortality ratio: 900 / 600 / 300 / 0 — MMR

Newborn mortality rate: 50 / 25 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

- Outflow from attrition, death and retirement
- Midwifery professionals
- Midwifery professionals, associates
- Nursing professionals
- Nursing professionals, associates
- Paramedical practitioners & medical assistants
- Medical practitioners, generalists
- Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent): 16,000 / 12,000 / 8,000 / 4,000 / 0

2012 / 2015 / 2020 / 2025 / 2030

16,000 / 12,000 / 8,000 / 4,000 / 0

2013 / 2015 / 2020 / 2025 / 2030

16,000 / 12,000 / 8,000 / 4,000 / 0

2012 / 2015 / 2020 / 2025 / 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.3 million — CURRENT
0.8 million — SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

70% MET NEED 2030 → 99% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

70% MET NEED 2030 → 98% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak — CURRENT
2% leak — SCENARIO

70% MET NEED 2030 → 83% MET NEED 2030
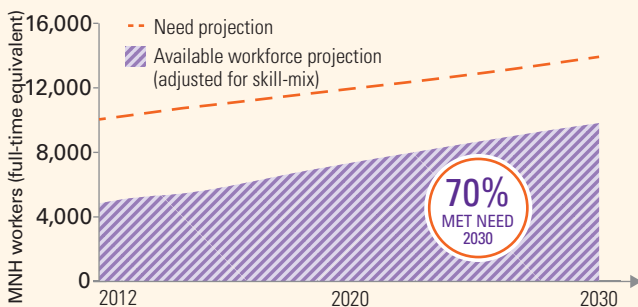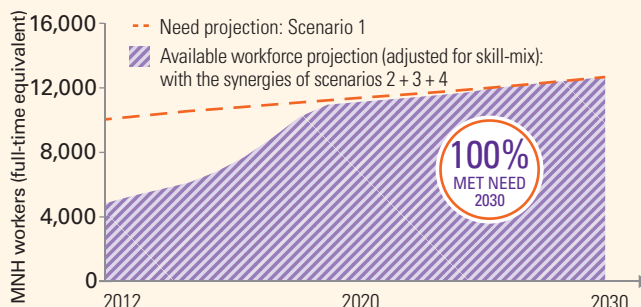
CURRENT TRAJECTORY

- - - Need projection
- Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent): 16,000 / 12,000 / 8,000 / 4,000 / 0

2012 / 2020 / 2030

70% MET NEED 2030

WHAT IF... TRAJECTORY

- - - Need projection: Scenario 1
- Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent): 16,000 / 12,000 / 8,000 / 4,000 / 0

2012 / 2020 / 2030

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Auxiliary midwives: includes aides soignantes; Nurses: includes techniciens supérieurs de santé (infirmiers); Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists.
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
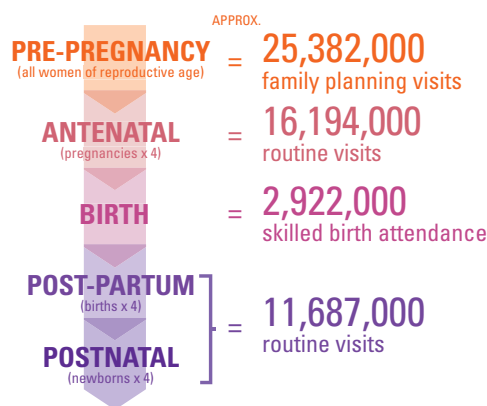
DJIBOUTI

In 2012, of an estimated total population of 0.9 million, 0.3 million (38%) were living in rural areas and 0.2 million (27%) were women of reproductive age; the total fertility rate was 3.4. By 2030, the population is projected to increase by 25% to 1.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.03 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 2.5 million antenatal visits, 0.5 million births and 1.8 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

34,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0	<0.09	0.10-0.19	0.20-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-10.00	>10.00

PRE-PREGNANCY (all women of reproductive age) = APPROX. **420,000** family planning visits

ANTENATAL (pregnancies x 4) = **136,000** routine visits

BIRTH = **25,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **100,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	167	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	185	50
Obstetricians & gynaecologists	—	100
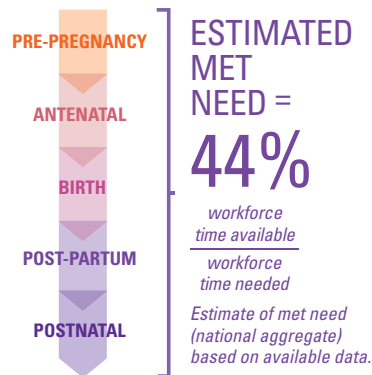
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = **44%**

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	100
Number of 2012 graduates/as % of all practising midwives	45/27
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

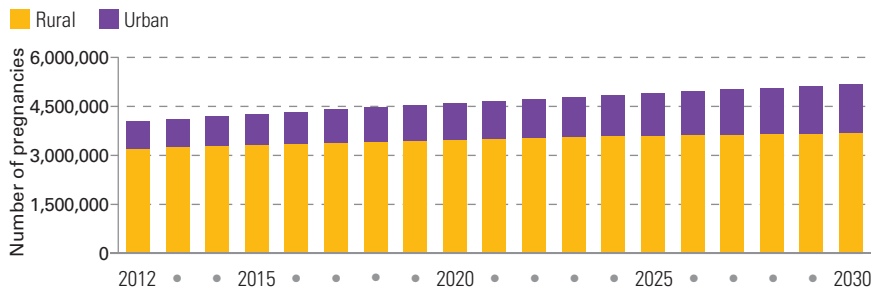|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	No
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

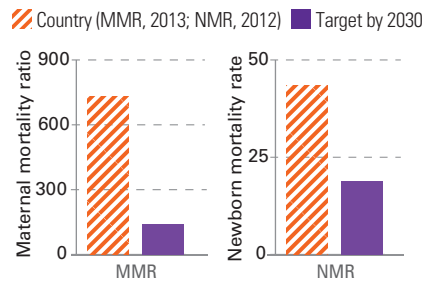### PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2012
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	No

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies

2012 2015 2020 2025 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

Maternal mortality ratio — MMR

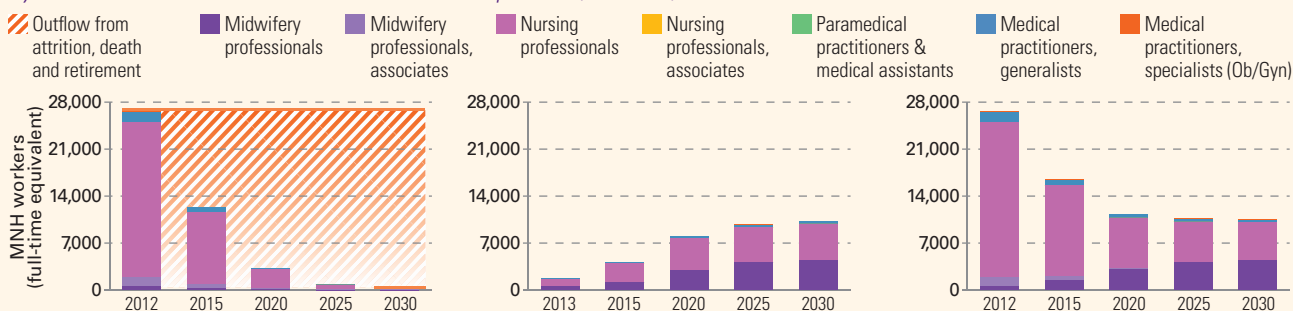Newborn mortality rate — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement Midwifery professionals Midwifery professionals, associates Nursing professionals Nursing professionals, associates Paramedical practitioners & medical assistants Medical practitioners, generalists Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

2012 2015 2020 2025 2030

2013 2015 2020 2025 2030

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.03 million
CURRENT
0.02 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT SCENARIO

96% MET NEED 2030 96% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT SCENARIO

96% MET NEED 2030 96% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak 2% leak
CURRENT SCENARIO

96% MET NEED 2030 96% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)

96% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)

96% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes sages femmes; Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes obstétriciens/gynécologues. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
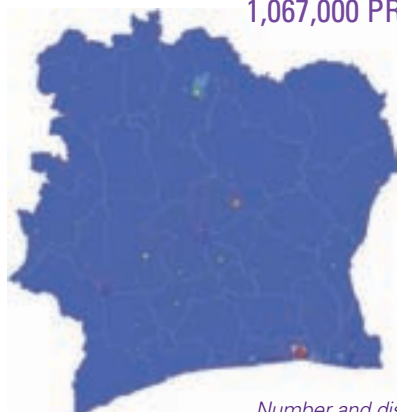4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
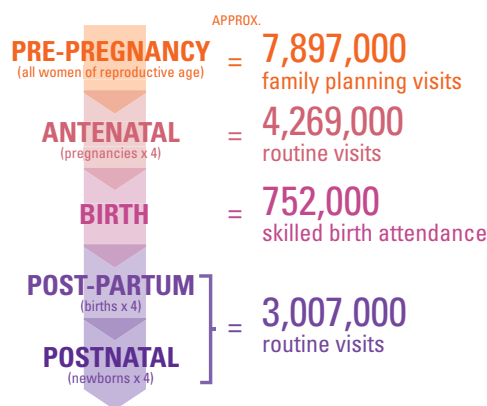
EGYPT

In 2012, of an estimated total population of 80.7 million, 19.2 million (24%) were living in rural areas and 20.7 million (26%) were women of reproductive age; the total fertility rate was 2.8. By 2030, the population is projected to increase by 27% to 102.6 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 2.5 million pregnancies per annum by 2030, 20% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 191.7 million antenatal visits, 35.3 million births and 141.2 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

2,588,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

er and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

PRE-PREGNANCY (all women of reproductive age) = APPROX. **38,393,000** family planning visits

ANTENATAL (pregnancies x 4) = **10,351,000** routine visits

BIRTH = **1,907,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **7,628,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	na	na
Midwives, auxiliary	na	na
Nurse-midwives	2,800	100
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	30,000	30
Obstetricians & gynaecologists	5,042	100
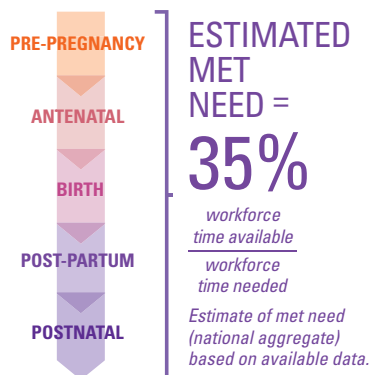
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

35%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.
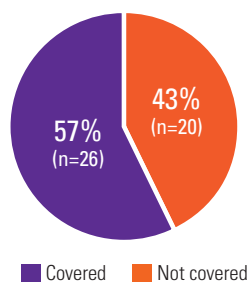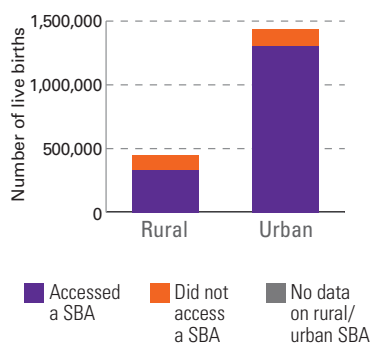
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2000
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	125/4
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

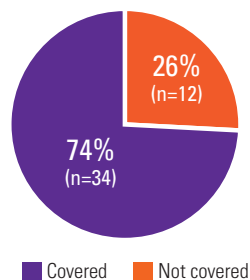|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	1
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/No

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

57% (n=26) Covered
43% (n=20) Not covered

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (0 – 1,500,000)

Rural / Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

PROFESSIONAL ASSOCIATIONS[4]

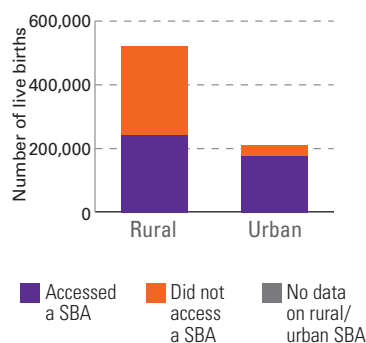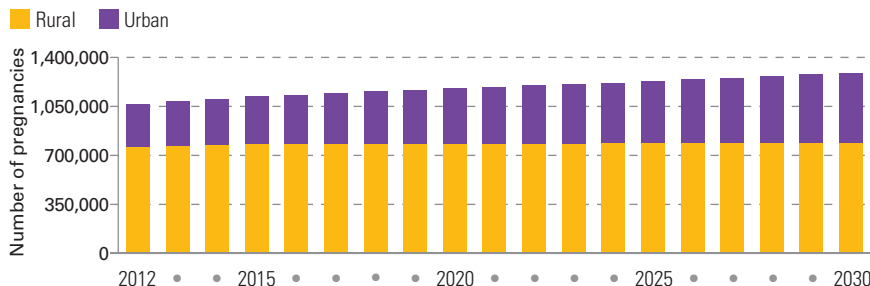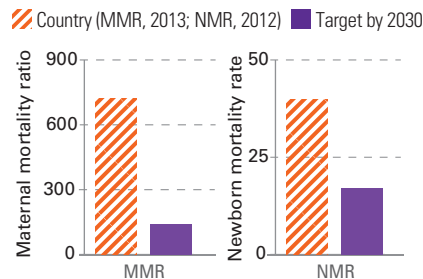|	
Year of creation of professional associations	1990
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies

3,000,000
2,250,000
1,500,000
750,000

2012　2015　2020　2025　2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio
60
40
20
0
MMR

Newborn mortality rate
20
10
0
NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)
32,000
24,000
16,000
8,000
0
2012　2015　2020　2025　2030

MNH workers (full-time equivalent)
32,000
24,000
16,000
8,000
0
2013　2015　2020　2025　2030

MNH workers (full-time equivalent)
32,000
24,000
16,000
8,000
0
2012　2015　2020　2025　2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

2.5 million CURRENT → 2.0 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

54% MET NEED 2030 → 100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

54% MET NEED 2030 → 77% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

15% leak CURRENT → 7.5% leak SCENARIO

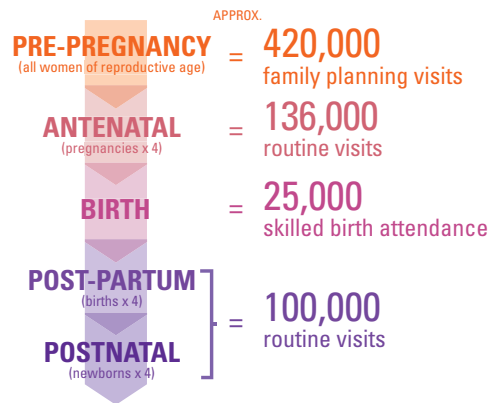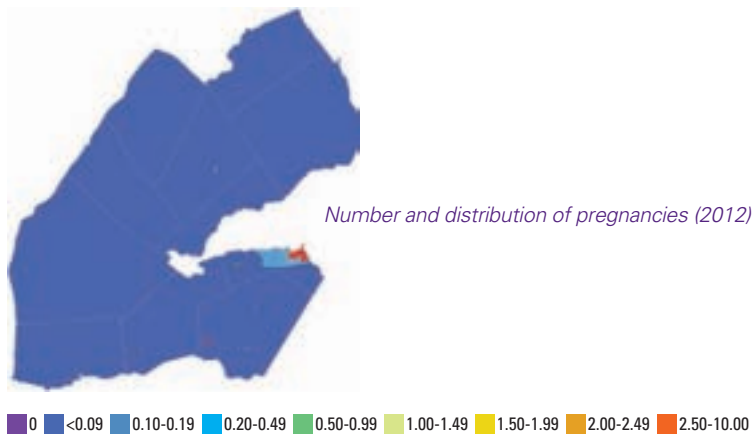54% MET NEED 2030 → 79% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent)
56,000
42,000
28,000
14,000
0

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

54% MET NEED 2030

2012　2020　2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)
56,000
42,000
28,000
14,000
0

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

2012　2020　2030

1. These health worker categories include the following country titles - Nurse midwives: includes nurse-midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the nurse-midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

ERITREA

In 2012, of an estimated total population of 6.1 million, 5.7 million (93%) were living in rural areas and 1.5 million (24%) were women of reproductive age; the total fertility rate was 4.7. By 2030, the population is projected to increase by 60% to 9.8 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.4 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 25.5 million antenatal visits, 4.7 million births and 19 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

315,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

	APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**2,872,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**1,259,000** routine visits
BIRTH	=	**235,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**939,000** routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	140	–
Midwives, auxiliary	*na*	*na*
Nurse-midwives	103	100
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	1,523	–
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	122	–
Obstetricians & gynaecologists	15	100
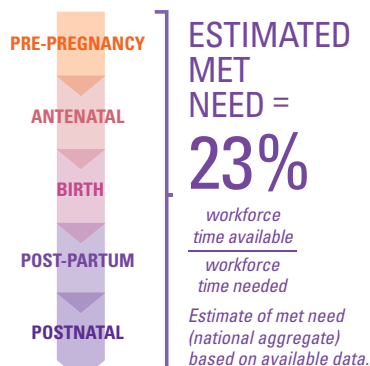
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

23%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

- 20% (n=9)
- 80% (n=37)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (0 – 240,000)
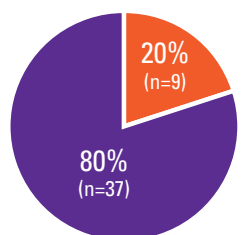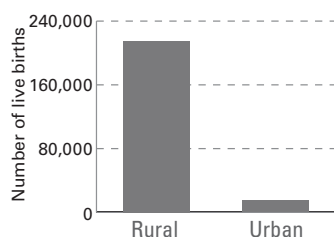
Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	–
Years of study required to qualify (rounded)	–
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	0/*na*
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	–
A live registry of licensed midwives exists	–
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

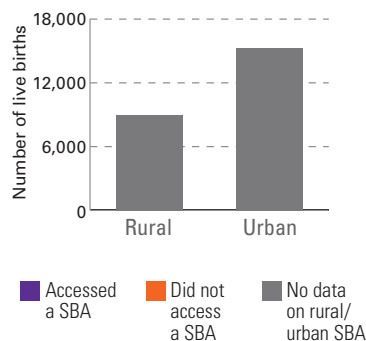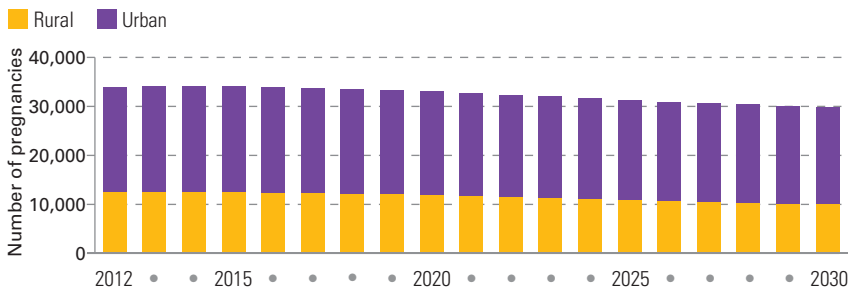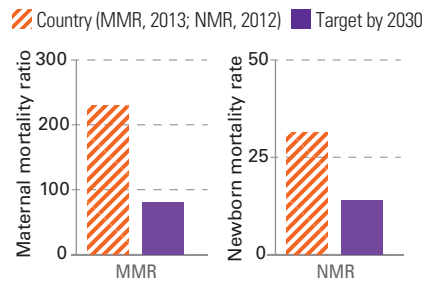|	
Year of creation of professional associations	1992
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Legend: Rural | Urban

Y-axis: Number of pregnancies (0 – 400,000)
X-axis: 2012, 2015, 2020, 2025, 2030

MORTALITY REDUCTION[5]

Legend: Country (MMR, 2013; NMR, 2012) | Target by 2030

Maternal mortality ratio (0 – 450): MMR
Newborn mortality rate (0 – 20): NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS
PROJECTED INFLOWS
PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Legend:
- Outflow from attrition, death and retirement
- Midwifery professionals
- Midwifery professionals, associates
- Nursing professionals
- Nursing professionals, associates
- Paramedical practitioners & medical assistants
- Medical practitioners, generalists
- Medical practitioners, specialists (Ob/Gyn)

Y-axis (all three charts): MNH workers (full-time equivalent), 0 – 2,800
- PROJECTED OUTFLOWS: 2012, 2015, 2020, 2025, 2030
- PROJECTED INFLOWS: 2013, 2015, 2020, 2025, 2030
- PROJECTED WORKFORCE: 2012, 2015, 2020, 2025, 2030

WHAT IF... Estimates of met need based on available data.

1 The number of pregnancies was reduced by 20% by 2030?

0.36 million CURRENT → 0.29 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO
42% MET NEED 2030 → 58% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO
42% MET NEED 2030 → 51% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO
42% MET NEED 2030 → 46% MET NEED 2030

CURRENT TRAJECTORY

Legend:
- Need projection
- Available workforce projection (adjusted for skill-mix)

Y-axis: MNH workers (full-time equivalent), 0 – 6,000
X-axis: 2012, 2020, 2030

42% MET NEED 2030

WHAT IF... TRAJECTORY

Legend:
- Need projection: Scenario 1
- Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

Y-axis: MNH workers (full-time equivalent), 0 – 6,000
X-axis: 2012, 2020, 2030

89% MET NEED 2030
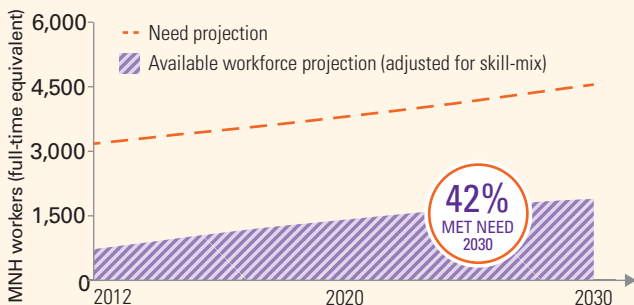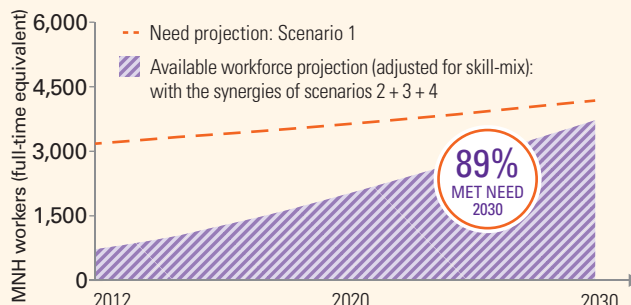
1. These health worker categories include the following country titles - Midwives: includes midwives; Nurse-midwives: includes nurse-midwives; Auxiliary nurse-midwives: includes associate nurses; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
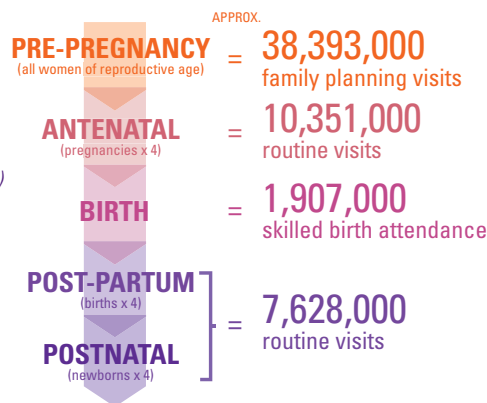
ETHIOPIA

In 2012, of an estimated total population of 91.7 million, 79.6 million (87%) were living in rural areas and 21.5 million (23%) were women of reproductive age; the total fertility rate was 4.6. By 2030, the population is projected to increase by 50% to 137.7 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 4.9 million pregnancies per annum by 2030, 84% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 360 million antenatal visits, 63.8 million births and 255.2 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

4,465,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

PRE-PREGNANCY (all women of reproductive age) = APPROX. **40,881,000** family planning visits

ANTENATAL (pregnancies x 4) = **17,861,000** routine visits

BIRTH = **3,165,000** skilled birth attendance

POST-PARTUM (births x 4) / **POSTNATAL** (newborns x 4) = **12,660,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	6,925	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	20,109	40
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	5,757	70
Physicians, generalists	2,935	50
Obstetricians & gynaecologists	147	100
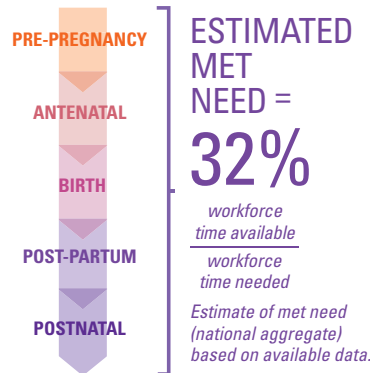
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 32%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (Rural, Urban) — scale 0 to 3,000,000

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	2,520/36
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

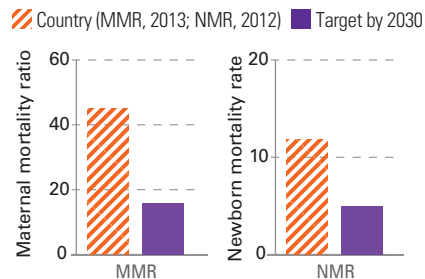## PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1992
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL
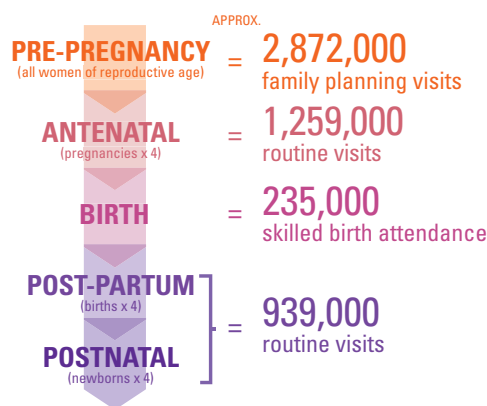
■ Rural ■ Urban

Number of pregnancies

6,000,000 / 4,500,000 / 3,000,000 / 1,500,000 / 0

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio: 450 / 300 / 150 / 0 — MMR

Newborn mortality rate: 50 / 25 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

Outflows: 36,000 / 27,000 / 18,000 / 9,000 / 0 — 2012 2015 2020 2025 2030

Inflows: 36,000 / 27,000 / 18,000 / 9,000 / 0 — 2013 2015 2020 2025 2030

Workforce: 36,000 / 27,000 / 18,000 / 9,000 / 0 — 2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

4.9 million CURRENT → 3.9 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

33% MET NEED 2030 → 50% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

33% MET NEED 2030 → 47% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

33% MET NEED 2030 → 41% MET NEED 2030

CURRENT TRAJECTORY
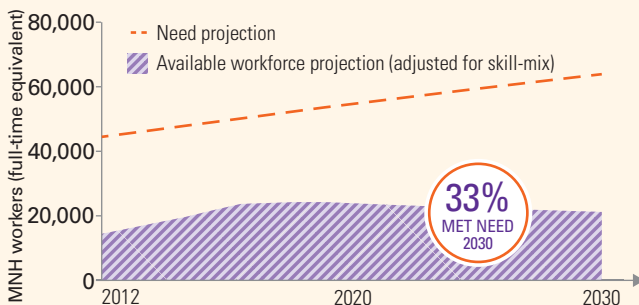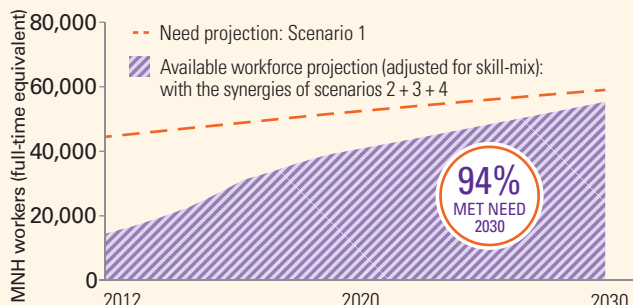
MNH workers (full-time equivalent)

80,000 / 60,000 / 40,000 / 20,000 / 0

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

33% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

80,000 / 60,000 / 40,000 / 20,000 / 0

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

94% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes degree midwives, diploma midwives; Nurses: includes nurses; Generalist physicians: includes general practitioners; Obstetricians & gynaecologists: includes obstetricians & gynaecologists; Clinical officers & medical assistants: includes integrated emergency surgical and obstetric officers, health officers. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the degree midwife cadre. Information for number of 2012 graduates/as % of all practising midwives refers to the degree midwife and diploma midwife cadres.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
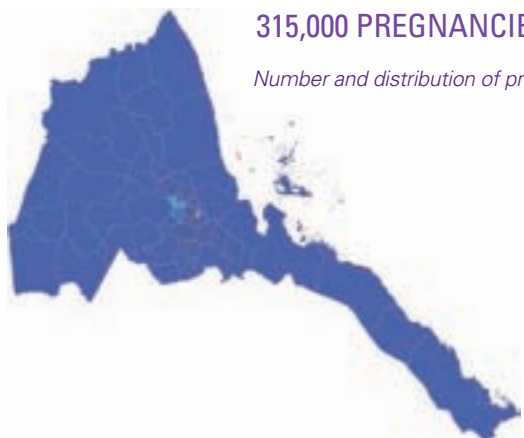
GABON

In 2012, of an estimated total population of 1.6 million, 0.5 million (29%) were living in rural areas and 0.4 million (24%) were women of reproductive age; the total fertility rate was 4.1. By 2030, the population is projected to increase by 46% to 2.4 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.08 million pregnancies per annum by 2030, 29% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 6.1 million antenatal visits, 1.1 million births and 4.4 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

75,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
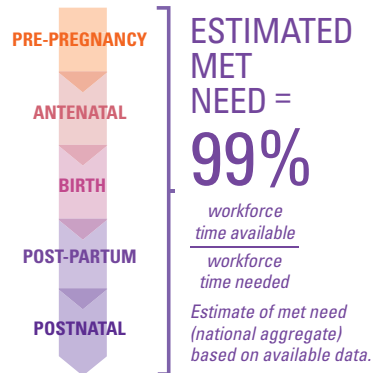
Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**740,000**	family planning visits
ANTENATAL (pregnancies x 4)	=	**298,000**	routine visits
BIRTH	=	**54,000**	skilled birth attendance
POST-PARTUM (births x 4)	=	**215,000**	routine visits
POSTNATAL (newborns x 4)			

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	437	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	17	100
Nurses	3,678	20
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	318	30
Obstetricians & gynaecologists	33	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 99%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

2% (n=1)
98% (n=45)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

	Rural	Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	–
Number of 2012 graduates/as % of all practising midwives	6/1
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	5
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1995
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

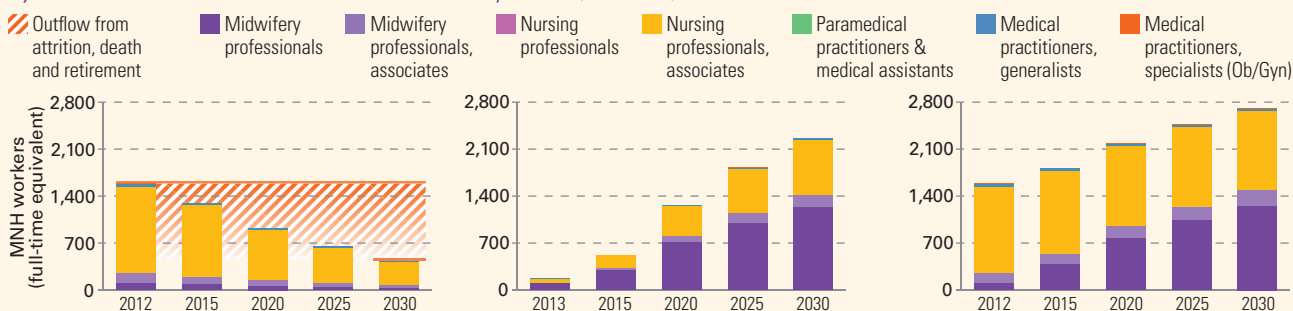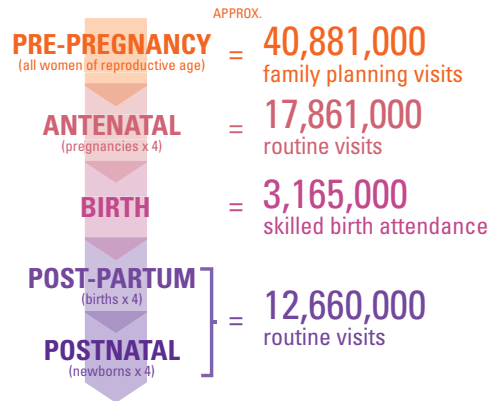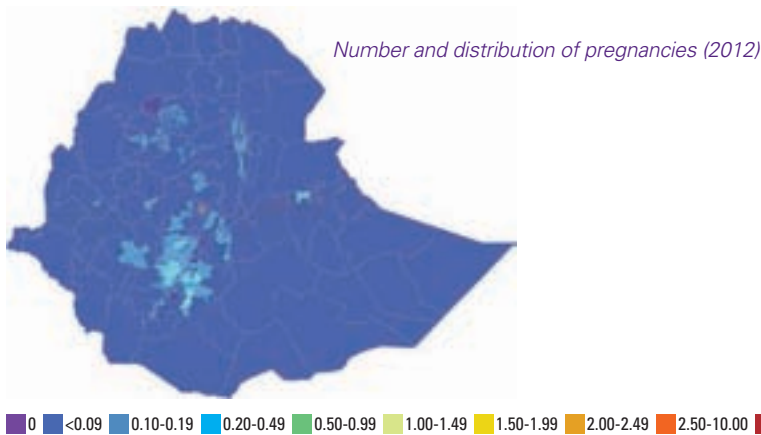
ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.08 million
CURRENT → 0.07 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

67% MET NEED 2030 → 100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

67% MET NEED 2030 → 96% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

67% MET NEED 2030 → 81% MET NEED 2030
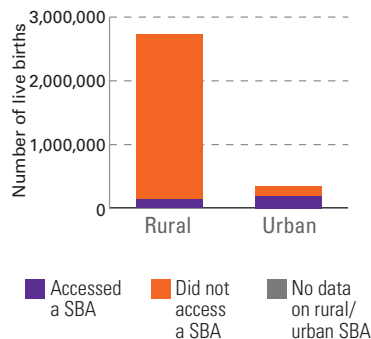
CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

67% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030
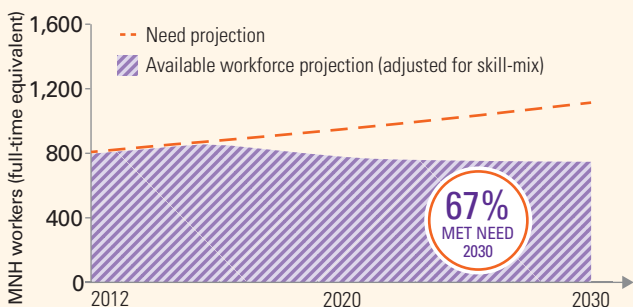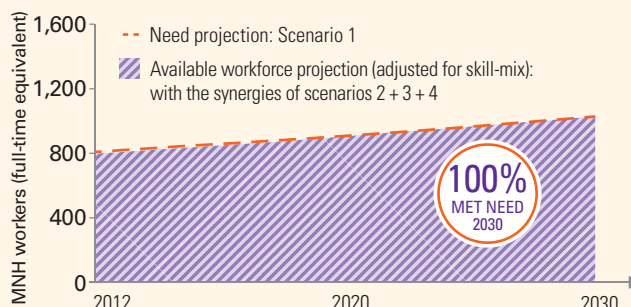
1. These health worker categories include the following country titles - Midwives: includes midwives; Nurse-midwives: includes infirmières accoucheuses; Nurses: includes infirmiers d'état (IDE), infirmiers assistants (IA); Generalist physicians: includes: generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

GAMBIA

In 2012, of an estimated total population of 1.8 million, 0.6 million (34%) were living in rural areas and 0.4 million (24%) were women of reproductive age; the total fertility rate was 5.8. By 2030, the population is projected to increase by 71% to 3.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.2 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 11.2 million antenatal visits, 1.8 million births and 7.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

121,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0	<0.09	0.10-0.19	0.20-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-10.00	>10.00

APPROX.

PRE-PREGNANCY (all women of reproductive age) = 766,000 family planning visits

ANTENATAL (pregnancies x 4) = 485,000 routine visits

BIRTH = 79,000 skilled birth attendance

POST-PARTUM (births x 4)

POSTNATAL (newborns x 4) = 317,000 routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1] ▼	Time spent on MNH % ▼
Midwives	79	100
Midwives, auxiliary	180	50
Nurse-midwives	97	100
Nurses	200	15
Nurses or nurse-midwives, auxiliary	132	50
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	29	20
Obstetricians & gynaecologists	11	–

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 27%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	–
Number of 2012 graduates/as % of all practising midwives	0/*na*
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1963
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)

91% (n=42)

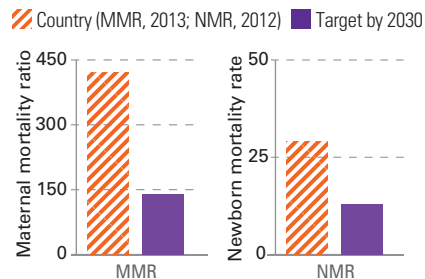■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/ urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies (y-axis: 0 to 200,000)

2012 · · 2015 · · · 2020 · · 2025 · · 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012)   ■ Target by 2030

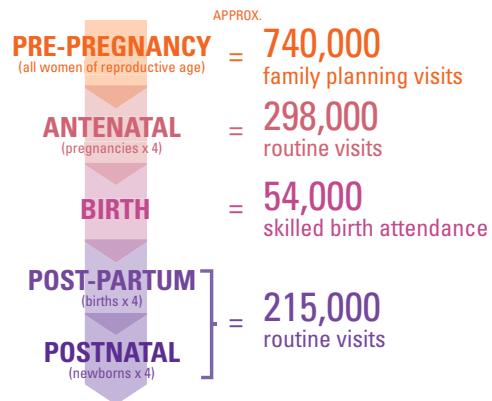Maternal mortality ratio (0 to 450) — MMR

Newborn mortality rate (0 to 50) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS   ## PROJECTED INFLOWS   ## PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement   ■ Midwifery professionals   ■ Midwifery professionals, associates   ■ Nursing professionals   ■ Nursing professionals, associates   ■ Paramedical practitioners & medical assistants   ■ Medical practitioners, generalists   ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) 0 to 1,000

Outflows: 2012 2015 2020 2025 2030
Inflows: 2013 2015 2020 2025 2030
Workforce: 2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.17 million CURRENT → 0.14 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

41% MET NEED 2030 → 62% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

41% MET NEED 2030 → 52% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

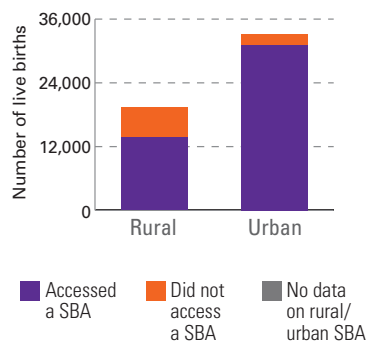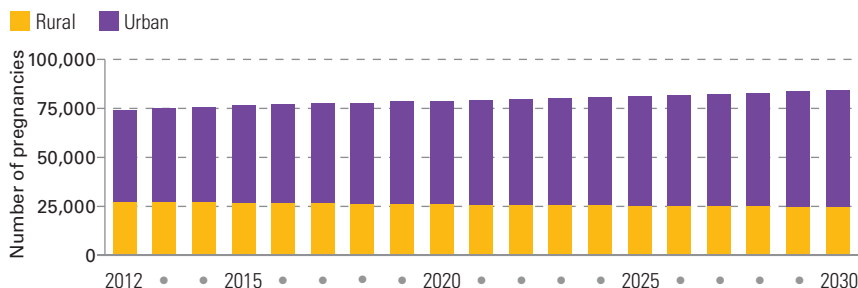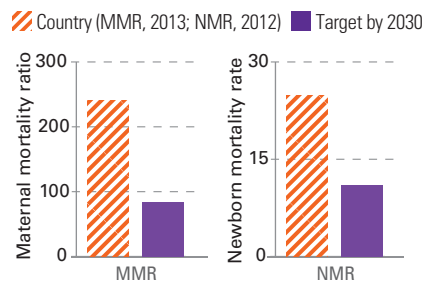6% leak CURRENT → 3% leak SCENARIO

41% MET NEED 2030 → 50% MET NEED 2030

CURRENT TRAJECTORY
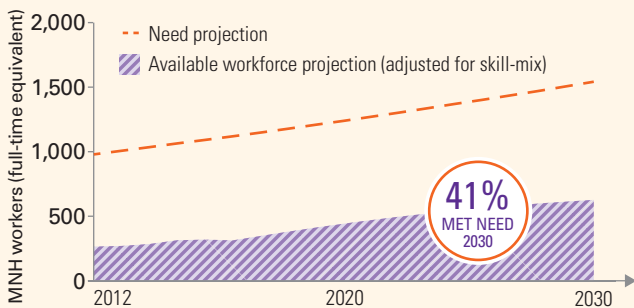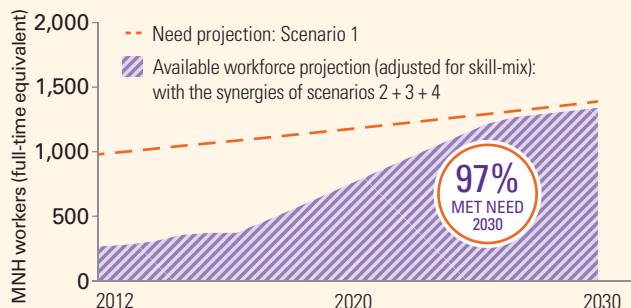
- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent) 0 to 2,000

2012 2020 2030

41% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent) 0 to 2,000

2012 2020 2030

97% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes state enrolled nurse midwives; Auxiliary midwives: includes community nurse attendant midwives; Nurse-midwives: includes registered nurse midwives; Nurses: includes community health nurses; Auxiliary nurse-midwives: includes community health nurse midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

GHANA

In 2012, of an estimated total population of 25.4 million, 15.1 million (59%) were living in rural areas and 6.5 million (26%) were women of reproductive age; the total fertility rate was 3.9. By 2030, the population is projected to increase by 39% to 35.3 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.1 million pregnancies per annum by 2030, 59% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 83.8 million antenatal visits, 16 million births and 64.1 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

1,063,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age) = APPROX. **12,869,000** family planning visits

ANTENATAL (pregnancies x 4) = **4,253,000** routine visits

BIRTH = **814,000** skilled birth attendance

POST-PARTUM (births x 4)

POSTNATAL (newborns x 4) = **3,257,000** routine visits

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	4,185	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	273	80
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	1,123	–
Obstetricians & gynaecologists	549	–
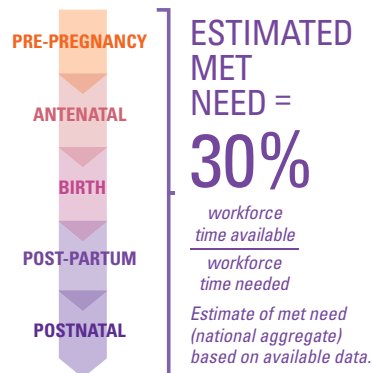
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 30%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

7% (n=3)

93% (n=43)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

600,000
400,000
200,000
0

Rural — Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	40
Number of 2012 graduates/as % of all practising midwives	1,146/27
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1935, 1960, 2009
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio — MMR

Newborn mortality rate — NMR

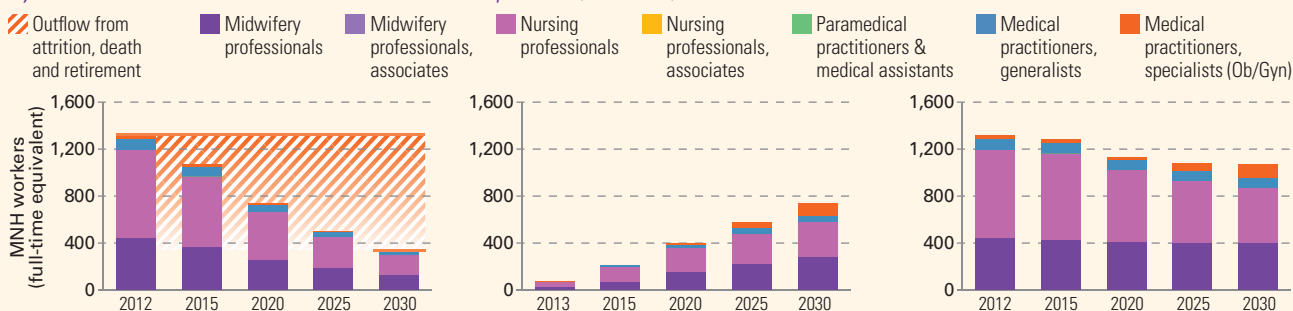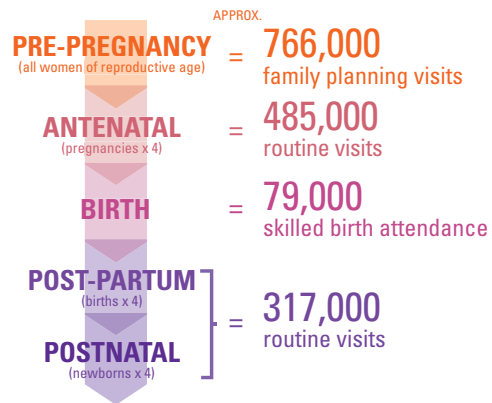# ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.1 million — **CURRENT**
0.9 million — **SCENARIO**

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.
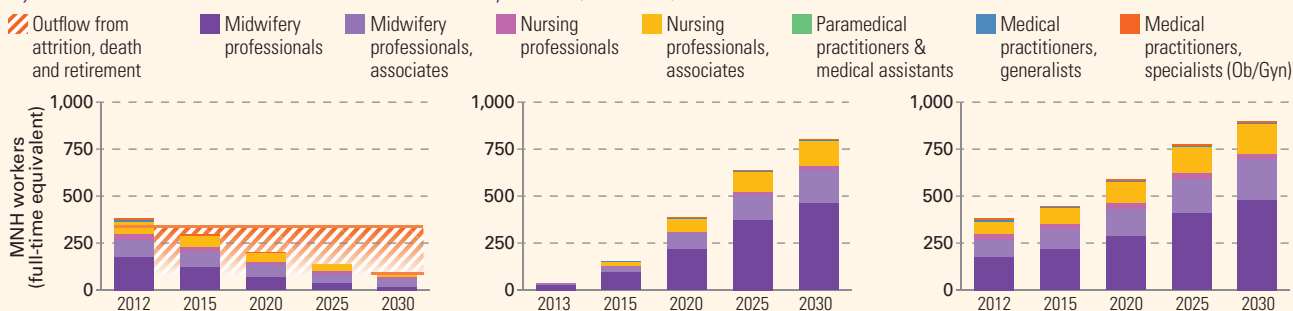
2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → **SCENARIO**

81% MET NEED 2030 → 99% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → **SCENARIO**

81% MET NEED 2030 → 99% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak **CURRENT** → 2% leak **SCENARIO**

81% MET NEED 2030 → 94% MET NEED 2030
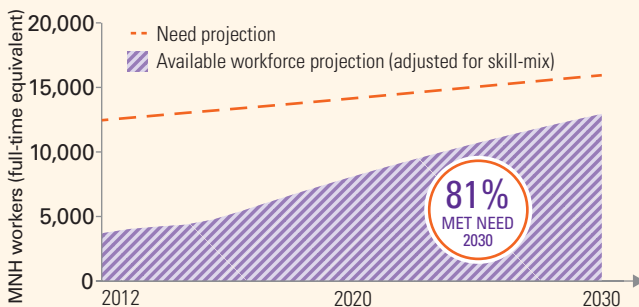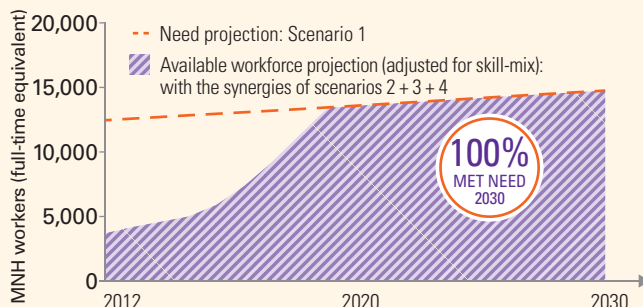
CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

81% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives, community health nurse midwives; Nurses: includes district public health nurses; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre. Information for number of 2012 graduates/as % of all practising midwives refers to the midwife and community health nurse midwife cadres.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

GUATEMALA

In 2012, of an estimated total population of 15.1 million, 9.5 million (63%) were living in rural areas and 3.8 million (25%) were women of reproductive age; the total fertility rate was 3.8. By 2030, the population is projected to increase by 50% to 22.6 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.9 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 63.1 million antenatal visits, 9.9 million births and 39.8 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

762,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| | 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

PRE-PREGNANCY (all women of reproductive age) = APPROX. **9,103,000** family planning visits

ANTENATAL (pregnancies x 4) = **3,048,000** routine visits

BIRTH = **480,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **1,922,000** routine visits

WORKFORCE AVAILABILITY (2012)

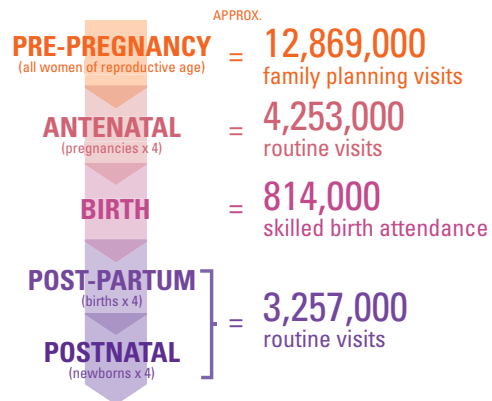|	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	0	na
Midwives, auxiliary	na	na
Nurse-midwives	na	na
Nurses	3,500	50
Nurses or nurse-midwives, auxiliary	–	65
Clinical officers & medical assistants	na	na
Physicians, generalists	12,703	70
Obstetricians & gynaecologists	720	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = **91%**

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births — Rural, Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA
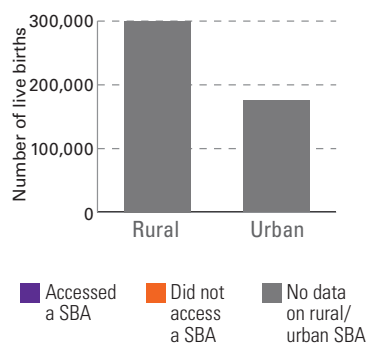
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	na
Years of study required to qualify (rounded)	na
Standardized curriculum? Year of last update	Yes, 2014
Minimum number of supervised births in curriculum	0
Number of 2012 graduates/as % of all practising midwives	na/na
% of graduates employed in MNH within one year	na

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	No
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1947
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	No
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio — MMR

Newborn mortality rate — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS   PROJECTED INFLOWS   PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

2012 2015 2020 2025 2030   2013 2015 2020 2025 2030   2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?
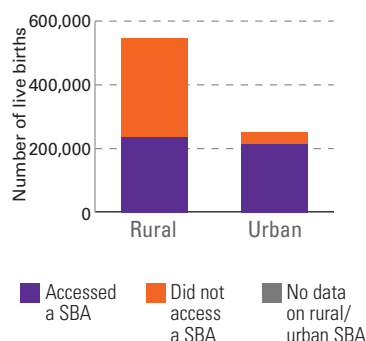
0.88 million — CURRENT → 0.71 million — SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

71% MET NEED 2030 → 90% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

71% MET NEED 2030 → 89% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak — CURRENT → 2% leak — SCENARIO

71% MET NEED 2030 → 83% MET NEED 2030

CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)

71% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)

94% MET NEED 2030

2012 2020 2030
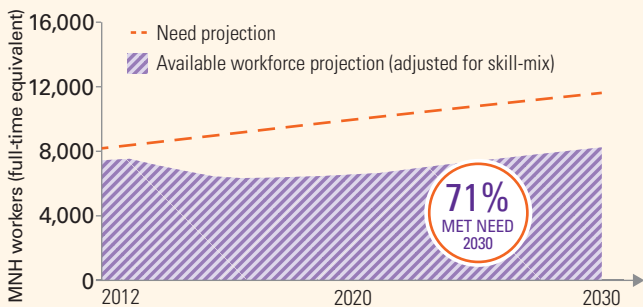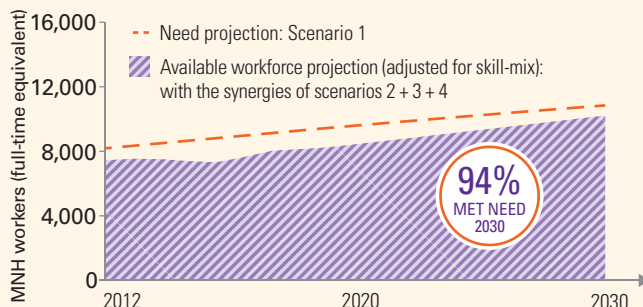
1. These health worker categories include the following country titles - Midwives: includes midwives (new cadre); Nurses: includes enfermeras profesionales; Auxili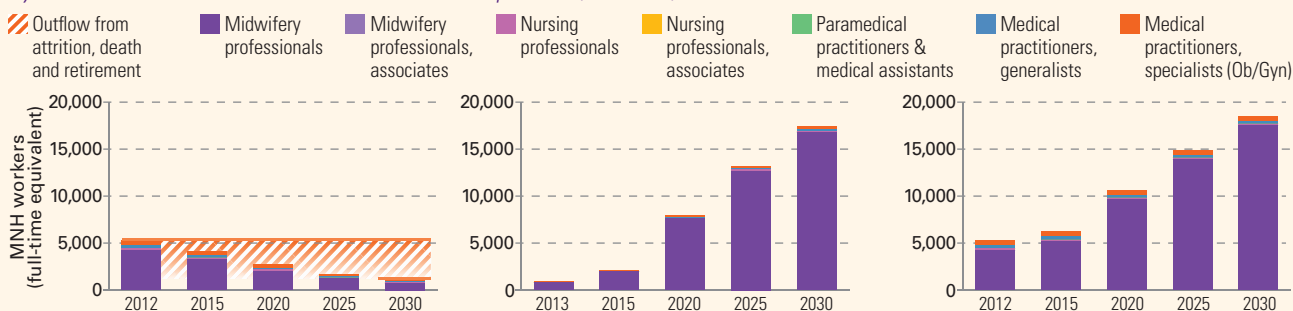ary nurse-midwives: includes auxiliares de enfermería; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

GUINEA

In 2012, of an estimated total population of 11.5 million, 7.8 million (68%) were living in rural areas and 2.7 million (23%) were women of reproductive age; the total fertility rate was 5. By 2030, the population is projected to increase by 51% to 17.3 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.9 million pregnancies per annum by 2030, 63% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 61.7 million antenatal visits, 9.2 million births and 36.9 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

734,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age)	=	APPROX. **4,022,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**2,934,000** routine visits
BIRTH	=	**438,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**1,753,000** routine visits

0	<0.09	0.10-0.19	0.20-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-10.00	>10.00

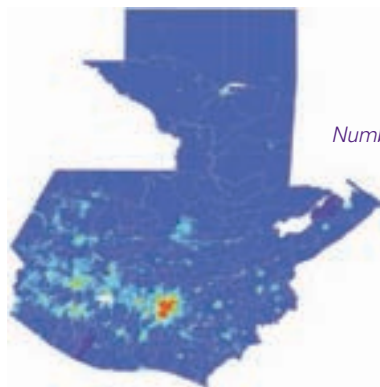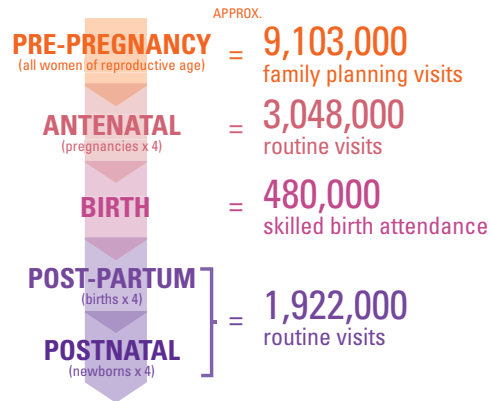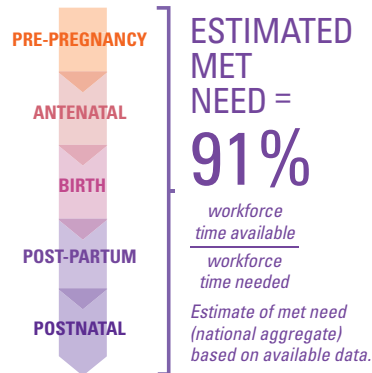## WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	500	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	1,494	25
Nurses or nurse-midwives, auxiliary	4,275	90
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	476	40
Obstetricians & gynaecologists	45	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 30%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

4% (n=2)

96% (n=44)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

450,000
300,000
150,000
0

Rural / Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	25
Number of 2012 graduates/as % of all practising midwives	119/24
% of graduates employed in MNH within one year	75%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1988
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio — MMR
Newborn mortality rate — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

2012 2015 2020 2025 2030 | 2013 2015 2020 2025 2030 | 2012 2015 2020 2025 2030

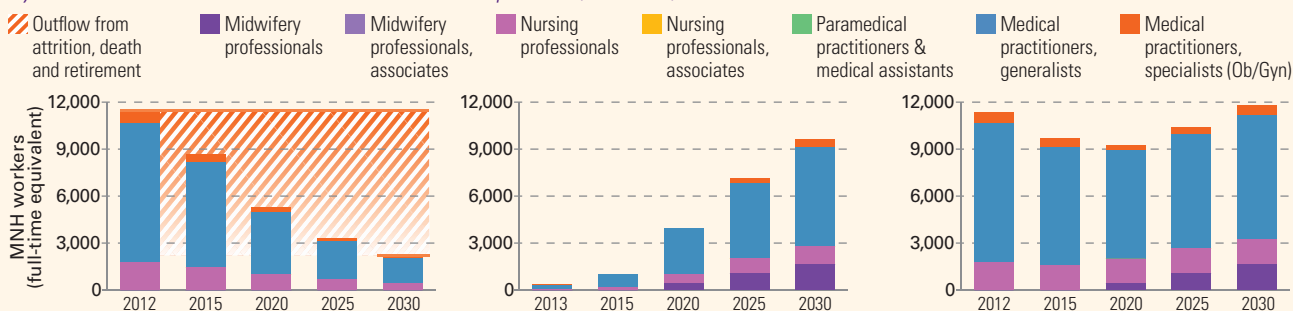## WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.88 million — CURRENT → 0.70 million — SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

45% MET NEED 2030 → 63% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

45% MET NEED 2030 → 56% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

0% leak CURRENT → 0% leak SCENARIO

45% MET NEED 2030 → 45% MET NEED 2030
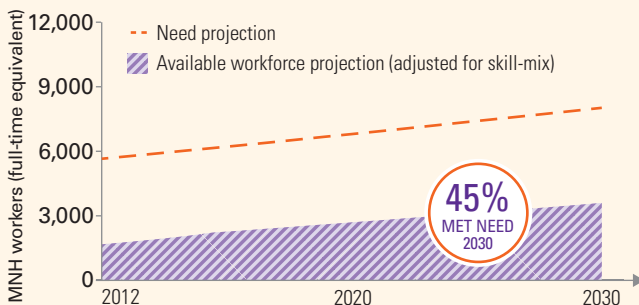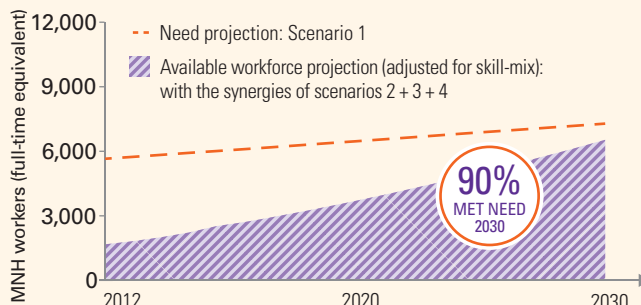
CURRENT TRAJECTORY

MNH workers (full-time equivalent)

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

45% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

90% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurses: includes infirmiers diplômés d'etat (IDE); Auxiliary nurse-midwives: includes agents techniques de santé (ATS); Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

GUINEA-BISSAU

In 2012, of an estimated total population of 1.7 million, 1.1 million (65%) were living in rural areas and 0.4 million (24%) were women of reproductive age; the total fertility rate was 5. By 2030, the population is projected to increase by 49% to 2.5 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.1 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 9.2 million antenatal visits, 1.4 million births and 5.5 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

109,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

	APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**527,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**436,000** routine visits
BIRTH	=	**66,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**262,000** routine visits

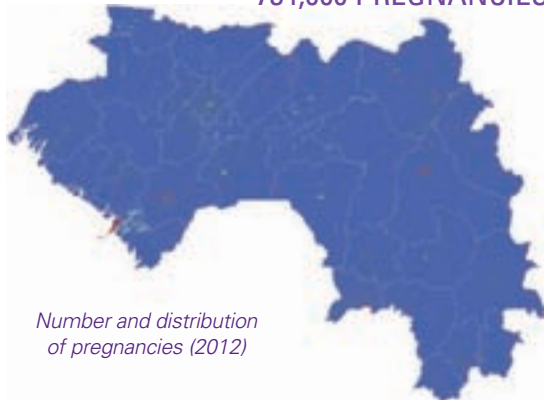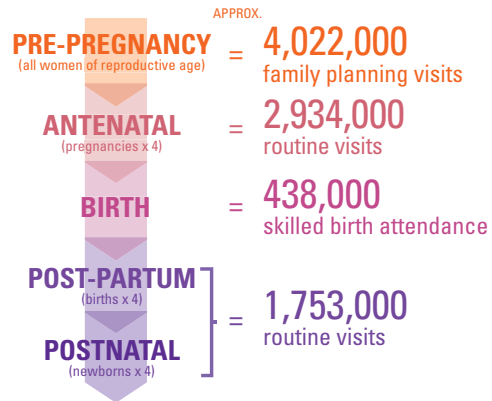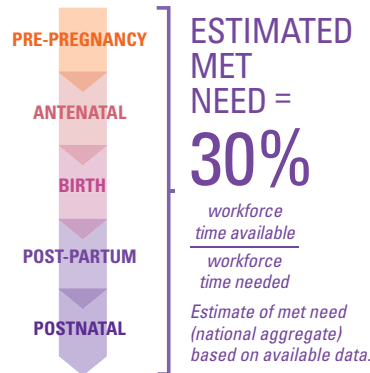Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	148	–
Midwives, auxiliary	5	–
Nurse-midwives	29	–
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	214	–
Obstetricians & gynaecologists	5	–

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 21%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

- 28% (n=13)
- 72% (n=33)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (Rural, Urban)
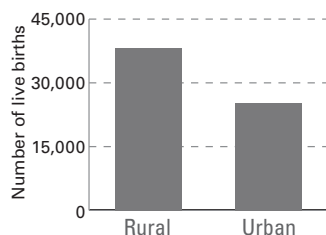
■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	0
Number of 2012 graduates/as % of all practising midwives	37/25
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	5
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1992, 1995, 2002
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement Midwifery professionals Midwifery professionals, associates Nursing professionals Nursing professionals, associates Paramedical practitioners & medical assistants Medical practitioners, generalists Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

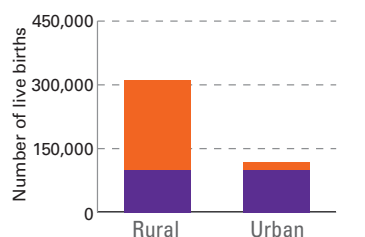**1** The number of pregnancies was reduced by 20% by 2030?

0.13 million CURRENT → 0.11 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

21% MET NEED 2030 → 35% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

21% MET NEED 2030 → 30% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

13% leak CURRENT → 6.5% leak SCENARIO

21% MET NEED 2030 → 32% MET NEED 2030

CURRENT TRAJECTORY

-- Need projection
Available workforce projection (adjusted for skill-mix)

21% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

85% MET NEED 2030
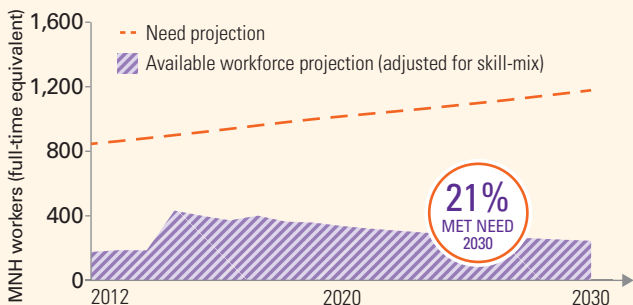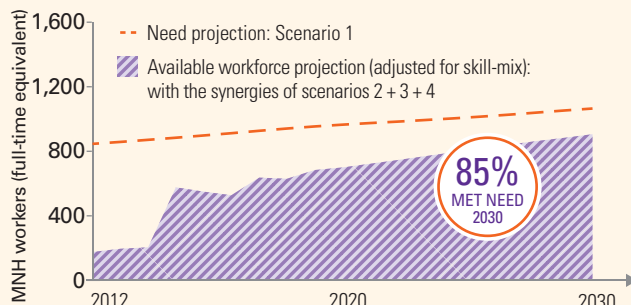
1. These health worker categories include the following country titles - Midwives: includes parteiras; Auxiliary midwives: includes parteiras-auxiliares; Nurse-midwives: includes enfermeiras parteiras; Generalist physicians: includes médicos generalistas; Obstetricians & gynaecologists: includes médicos especialistas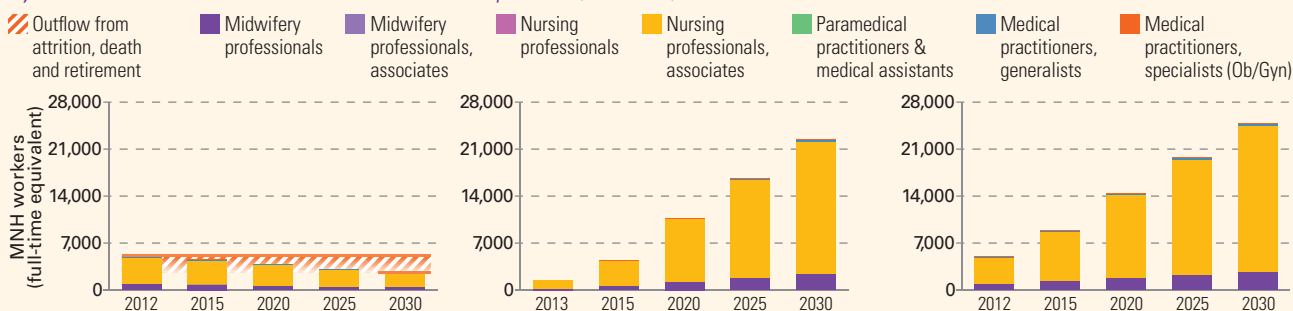 obstétricos/ginecologistas. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

HAITI

In 2012, of an estimated total population of 10.2 million, 7.3 million (72%) were living in rural areas and 2.7 million (26%) were women of reproductive age; the total fertility rate was 3.2. By 2030, the population is projected to increase by 23% to 12.5 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.5 million pregnancies per annum by 2030, 90% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 35.8 million antenatal visits, 5.2 million births and 20.8 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

483,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

PRE-PREGNANCY (all women of reproductive age) = APPROX. **5,255,000** family planning visits

ANTENATAL (pregnancies x 4) = **1,932,000** routine visits

BIRTH = **280,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **1,120,000** routine visits

WORKFORCE AVAILABILITY (2012)

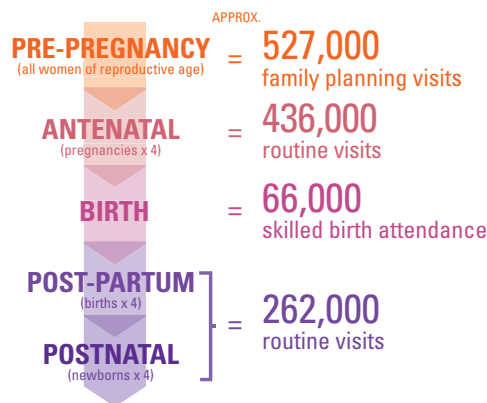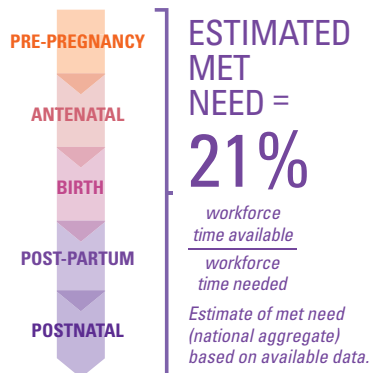|	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	0	100
Midwives, auxiliary	na	na
Nurse-midwives	201	100
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	374	35
Obstetricians & gynaecologists	400	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 10%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (y-axis: 0 to 300,000)

Rural | Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	–/na
% of graduates employed in MNH within one year	na

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1930, 2001
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies

500,000
375,000
250,000
125,000
0

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

Maternal mortality ratio

450
300
150
0

MMR

Newborn mortality rate

30
15
0

NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement Midwifery professionals Midwifery professionals, associates Nursing professionals Nursing professionals, associates Paramedical practitioners & medical assistants Medical practitioners, generalists Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

800
600
400
200
0

2012 2015 2020 2025 2030

800
600
400
200
0

2013 2015 2020 2025 2030

800
600
400
200
0

2012 2015 2020 2025 2030

WHAT IF… *Estimates of met need based on available data.*
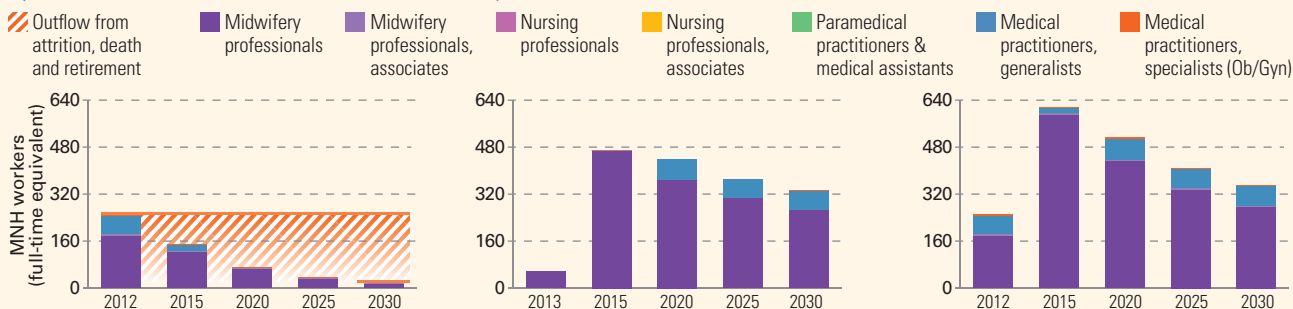
1 The number of pregnancies was reduced by 20% by 2030?

0.45 million
CURRENT

0.36 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT SCENARIO

9% MET NEED 2030

16% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT SCENARIO

9% MET NEED 2030

13% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

13% leak
CURRENT

6.5% leak
SCENARIO

9% MET NEED 2030

14% MET NEED 2030

CURRENT TRAJECTORY
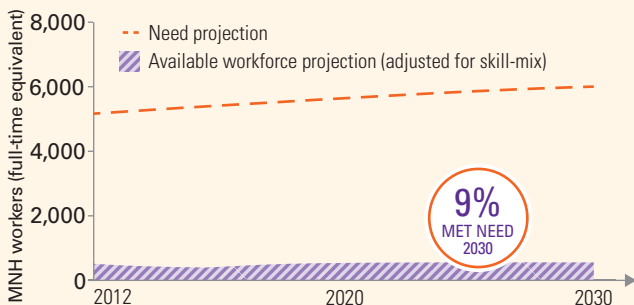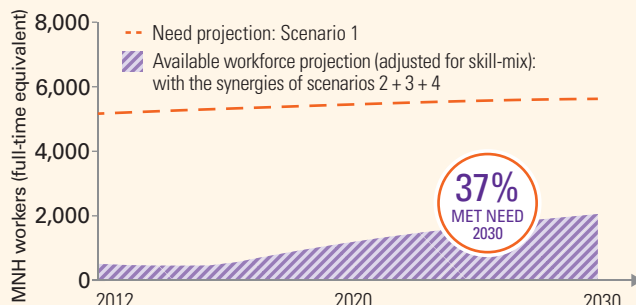
MNH workers (full-time equivalent)

8,000
6,000
4,000
2,000
0

- - - Need projection
Available workforce projection (adjusted for skill-mix)

2012 2020 2030

9% MET NEED 2030

WHAT IF… TRAJECTORY

MNH workers (full-time equivalent)

8,000
6,000
4,000
2,000
0

- - - Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

2012 2020 2030

37% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes sages femmes (new cadre); Nurse-midwives: includes nurse-midwives; Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes médecins specialistes (obs/gyn). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

INDIA

In 2012, of an estimated total population of 1,236.7 million, 892.4 million (72%) were living in rural areas and 319.5 million (26%) were women of reproductive age; the total fertility rate was 2.5. By 2030, the population is projected to increase by 19% to 1,476.4 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 34.6 million pregnancies per annum by 2030, 73% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 2,764.5 million antenatal visits, 473.9 million births and 1,895.5 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

37,806,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

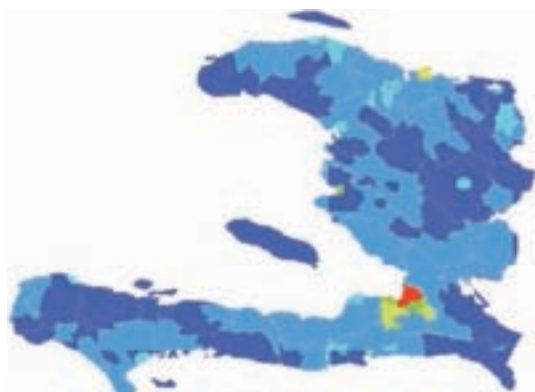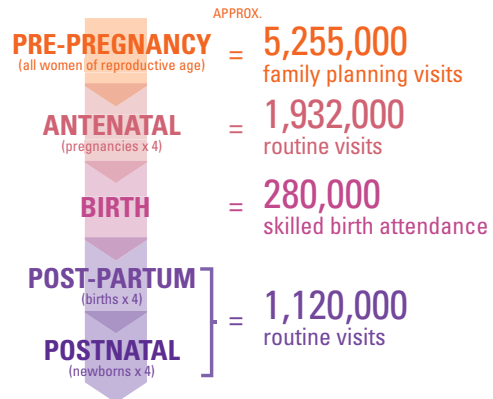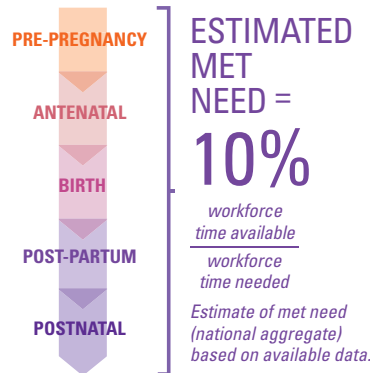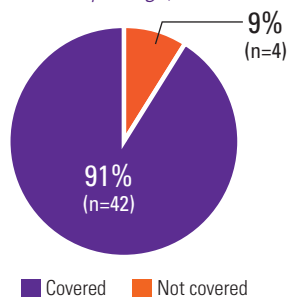|		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**579,782,000**	family planning visits
ANTENATAL (pregnancies x 4)	=	**151,226,000**	routine visits
BIRTH	=	**25,923,000**	skilled birth attendance
POST-PARTUM (births x 4)		**103,693,000**	routine visits
POSTNATAL (newborns x 4)	=		

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	*na*	*na*
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	1,406,006	–
Nurses or nurse-midwives, auxiliary	718,661	60
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	883,812	–
Obstetricians & gynaecologists	–	66

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 86%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

- 61% (n=28) Covered
- 39% (n=18) Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (Rural, Urban): 21,000,000 / 14,000,000 / 7,000,000 / 0

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2004
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	156,180/11
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	4
Midwives allowed to provide injectable contraceptives/intrauterine devices	No/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1905, 2000
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies — 40,000,000 / 30,000,000 / 20,000,000 / 10,000,000 / 0

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio — 210 / 140 / 70 / 0 — MMR

Newborn mortality rate — 40 / 20 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

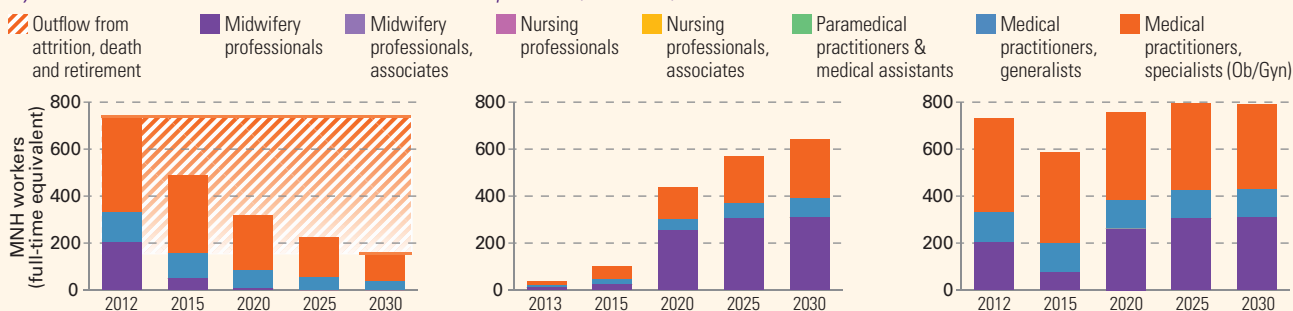▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) — 3,600,000 / 2,700,000 / 1,800,000 / 900,000 / 0

2012 2015 2020 2025 2030 (Outflows)

3,600,000 / 2,700,000 / 1,800,000 / 900,000 / 0

2013 2015 2020 2025 2030 (Inflows)

3,600,000 / 2,700,000 / 1,800,000 / 900,000 / 0

2012 2015 2020 2025 2030 (Workforce)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

34.6 million — CURRENT → 27.7 million — SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

85% MET NEED 2030 → 85% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

85% MET NEED 2030 → 85% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak — CURRENT → 2% leak — SCENARIO

85% MET NEED 2030 → 85% MET NEED 2030
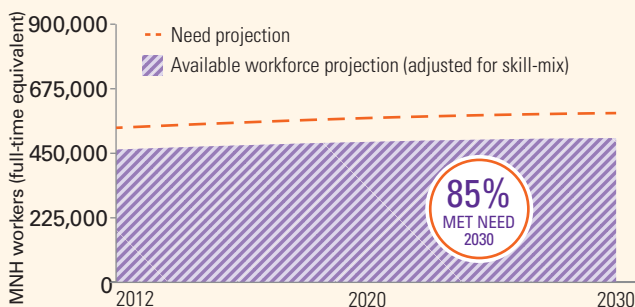
CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent) — 900,000 / 675,000 / 450,000 / 225,000 / 0

2012 2020 2030

85% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent) — 900,000 / 675,000 / 450,000 / 225,000 / 0

2012 2020 2030

85% MET NEED 2030
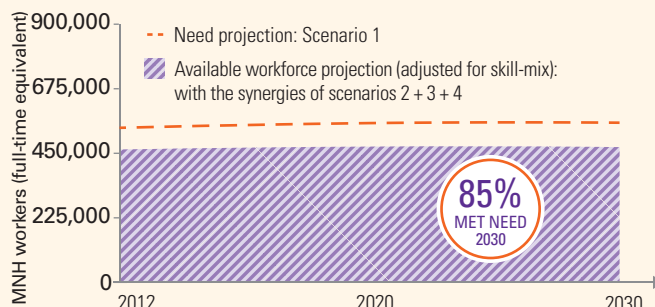
1. These health worker categories include the following country titles - Nurses: includes staff nurses; Auxiliary nurse-midwives: includes auxiliary nurse midwives (ANM), lady health visitors; Generalist physicians: includes medical officers; Obstetricians & gynaecologists: includes specialists (ob-gyn). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the nurse cadre category: staff nurse.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

INDONESIA

In 2012, of an estimated total population of 246.9 million, 153.2 million (62%) were living in rural areas and 66.1 million (27%) were women of reproductive age; the total fertility rate was 2.3. By 2030, the population is projected to increase by 19% to 293.5 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 6.7 million pregnancies per annum by 2030, 52% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 518.3 million antenatal visits, 86.2 million births and 344.6 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

7,141,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

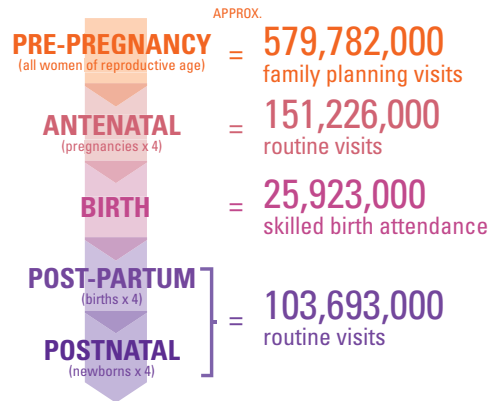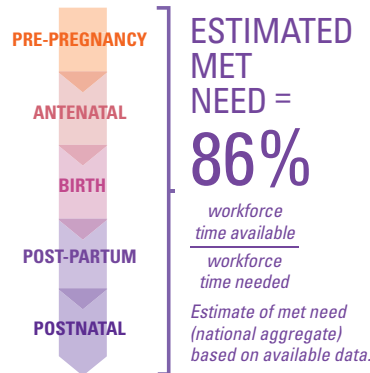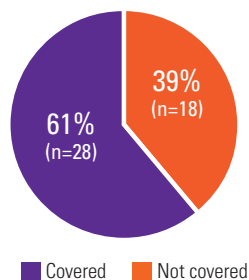|		
0	<0.09	0.10-0.19	0.20-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-10.00	>10.00

APPROX.

PRE-PREGNANCY
(all women of reproductive age) = **118,227,000**
family planning visits

ANTENATAL
(pregnancies x 4) = **28,562,000**
routine visits

BIRTH = **4,748,000**
skilled birth attendance

POST-PARTUM
(births x 4)
POSTNATAL
(newborns x 4) = **18,992,000**
routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	207,761	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	94,660	50
Obstetricians & gynaecologists	2,170	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
87%
workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

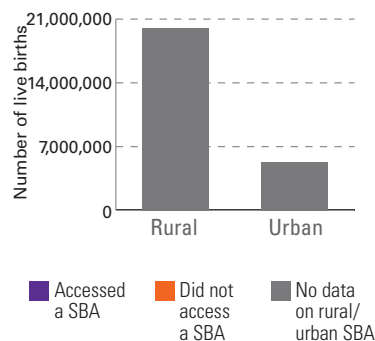## FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

15% (n=7)
85% (n=39)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	–/–
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	5
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1951, 2001, 2003
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ■ Urban

Number of pregnancies
8,000,000 / 6,000,000 / 4,000,000 / 2,000,000 / 0

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio: 210 / 140 / 70 / 0 — MMR

Newborn mortality rate: 28 / 14 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, ro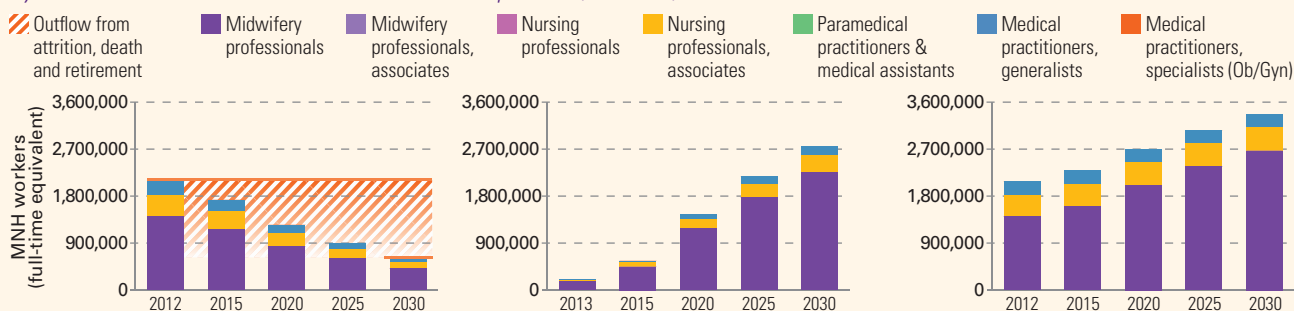les and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)
1,600,000 / 1,200,000 / 800,000 / 400,000 / 0

2012 2015 2020 2025 2030

2013 2015 2020 2025 2030

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

6.7 million CURRENT → 5.3 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

87% MET NEED 2030 → 88% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

87% MET NEED 2030 → 88% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

3% leak CURRENT → 1.5% leak SCENARIO

87% MET NEED 2030 → 87% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)
180,000 / 135,000 / 90,000 / 45,000 / 0

2012 2020 2030

87% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)
180,000 / 135,000 / 90,000 / 45,000 / 0

2012 2020 2030

89% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Generalist physicians: includes doctors; Obstetricians & gynaecologists: includes doctors (ob/gyn). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

IRAQ

In 2012, of an estimated total population of 32.8 million, 23 million (70%) were living in rural areas and 8 million (25%) were women of reproductive age; the total fertility rate was 4.1. By 2030, the population is projected to increase by 55% to 51 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifer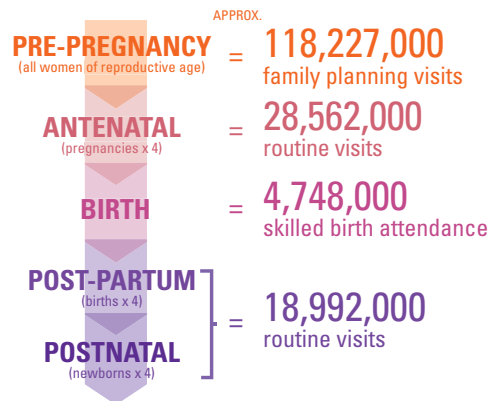y services must respond to 1.9 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 131.7 million antenatal visits, 22.4 million births and 89.7 million post-partum/postnatal visits between 2012 and 2030.
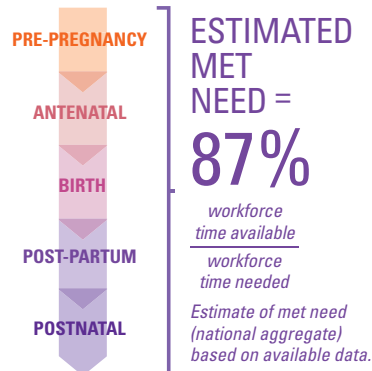
WHAT WOMEN AND NEWBORNS NEED (2012)

1,541,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
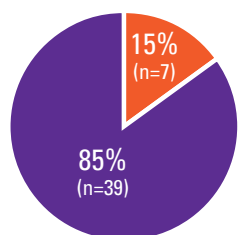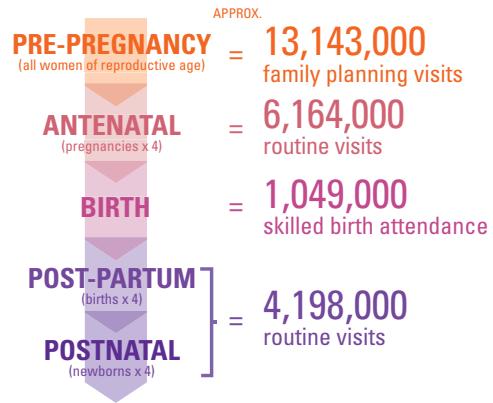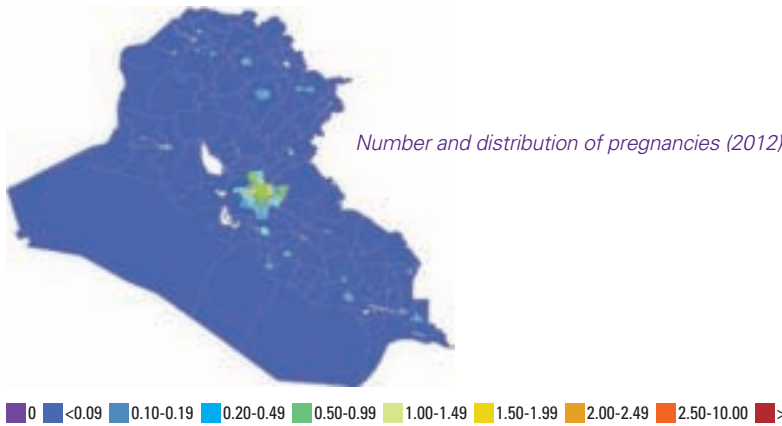
Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**13,143,000**	family planning visits
ANTENATAL (pregnancies x 4)	=	**6,164,000**	routine visits
BIRTH	=	**1,049,000**	skilled birth attendance
POST-PARTUM (births x 4)	=	**4,198,000**	routine visits
POSTNATAL (newborns x 4)			

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	1,269	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	–	100
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	6,934	60
Obstetricians & gynaecologists	1,020	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

31%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

13% (n=6)
87% (n=40)

■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births — 900,000 / 300,000 / 0

Rural | Urban

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	No, *na*
Minimum number of supervised births in curriculum	*na*
Number of 2012 graduates/as % of all practising midwives	584/46
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	4
Midwives allowed to provide injectable contraceptives/intrauterine devices	No/No

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1959, 1971, 2012
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % t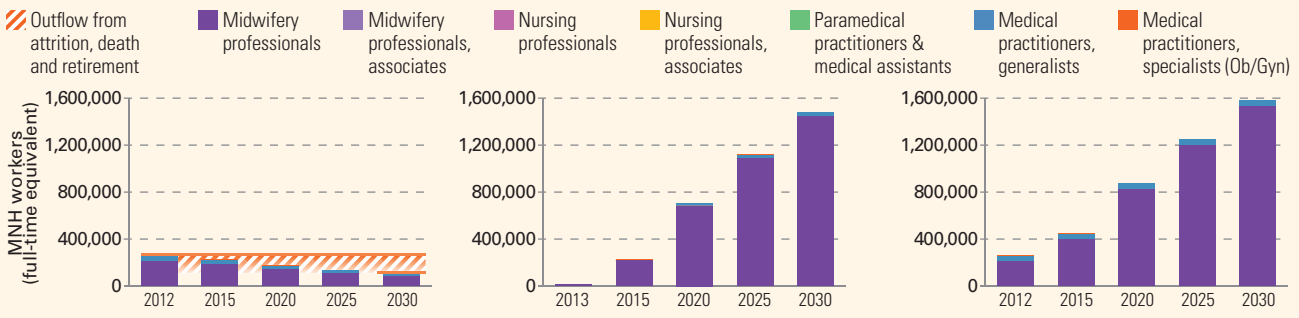ime spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement Midwifery professionals Midwifery professionals, associates Nursing professionals Nursing professionals, associates Paramedical practitioners & medical assistants Medical practitioners, generalists Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.9 million CURRENT → 1.5 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

32% MET NEED 2030 → 39% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

32% MET NEED 2030 → 37% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

32% MET NEED 2030 → 35% MET NEED 2030

CURRENT TRAJECTORY

Need projection Available workforce projection (adjusted for skill-mix)

32% MET NEED 2030

WHAT IF... TRAJECTORY

Need projection: Scenario 1 Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

55% MET NEED 2030
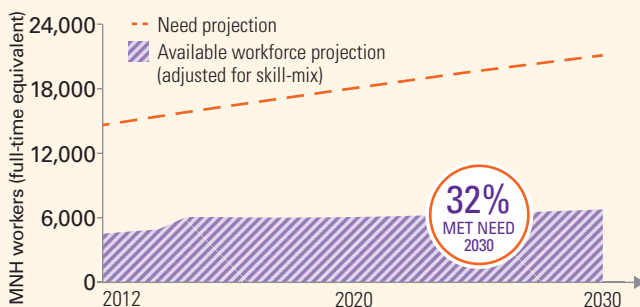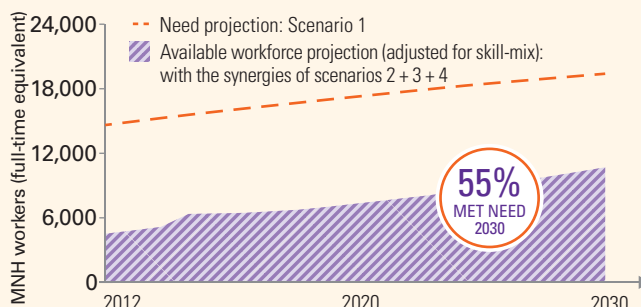
1. These health worker categories include the following country titles - Midwives: includes midwives; Nurse-midwives: includes nurse-midwives; Generalist physicians: includes generalist physicians, family physicians and paediatricians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

KENYA

In 2012, of an estimated total population of 43.2 million, 32.7 million (76%) were living in rural areas and 10.5 million (24%) were women of reproductive age; the total fertility rate was 4.4. By 2030, the population is projected to increase by 54% to 66.3 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 2.8 million pregnancies per annum by 2030, 73% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 194.4 million antenatal visits, 32.8 million births and 131.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

2,323,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
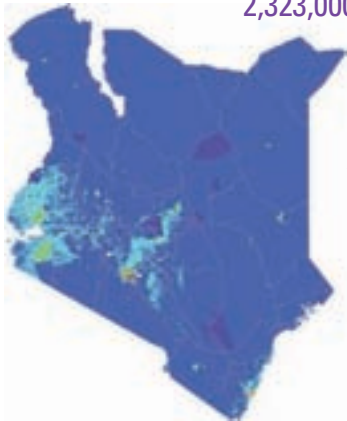
Number and distribution of pregnancies (2012)

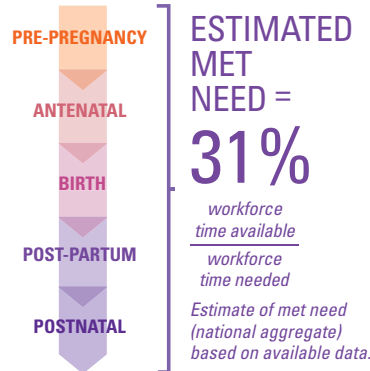|		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**22,740,000**	family planning visits
ANTENATAL (pregnancies x 4)	=	**9,292,000**	routine visits
BIRTH	=	**1,569,000**	skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**6,278,000**	routine visits

0   <0.09   0.10-0.19   0.20-0.49   0.50-0.99   1.00-1.49   1.50-1.99   2.00-2.49   2.50-10.00   >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	71	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	12,000	100
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	7,549	30
Obstetricians & gynaecologists	600	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

45%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

11% (n=5)

89% (n=41)

● Covered   ● Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

1,500,000
1,000,000
500,000
0

Rural   Urban

● Accessed a SBA   ● Did not access a SBA   ● No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	2
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	28
Number of 2012 graduates/as % of all practising midwives	50/70
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1994
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

🟨 Rural 🟪 Urban

Number of pregnancies (y-axis: 0 to 3,000,000)
x-axis: 2012, 2015, 2020, 2025, 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) 🟪 Target by 2030
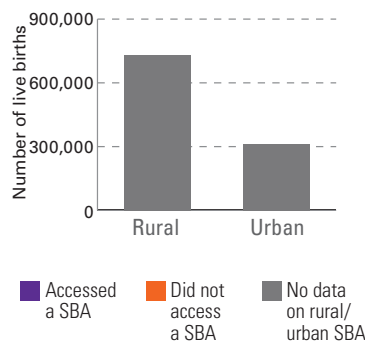

Maternal mortality ratio (0 to 450) — MMR
Newborn mortality rate (0 to 50) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
🟪 Midwifery professionals
🟪 Midwifery professionals, associates
🟪 Nursing professionals
🟨 Nursing professionals, associates
🟩 Paramedical practitioners & medical assistants
🟦 Medical practitioners, generalists
🟧 Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) (0 to 32,000)
2012, 2015, 2020, 2025, 2030
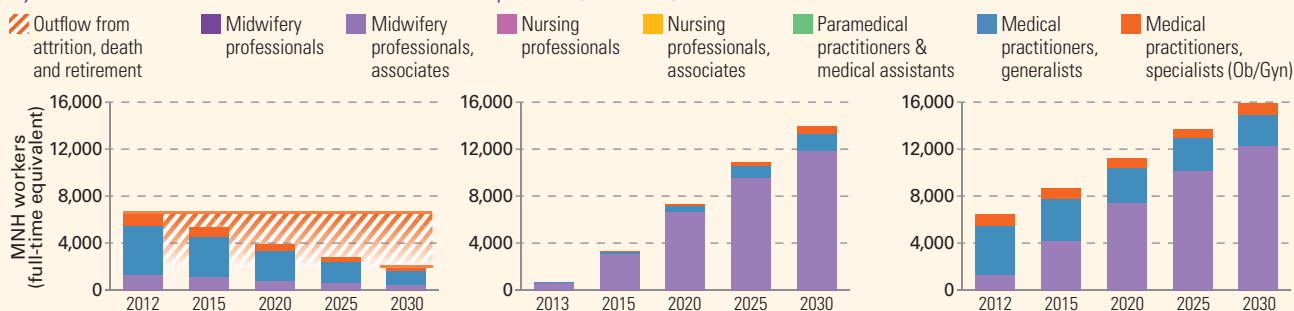

2013, 2015, 2020, 2025, 2030

2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

2.8 million CURRENT → 2.3 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

61% MET NEED 2030 → 97% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

61% MET NEED 2030 → 88% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

9% leak CURRENT → 4.5% leak SCENARIO

61% MET NEED 2030 → 85% MET NEED 2030

CURRENT TRAJECTORY

- - - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent) (0 to 40,000)
2012, 2020, 2030

61% MET NEED 2030

WHAT IF... TRAJECTORY

- - - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent) (0 to 40,000)
2012, 2020, 2030

98% MET NEED 2030
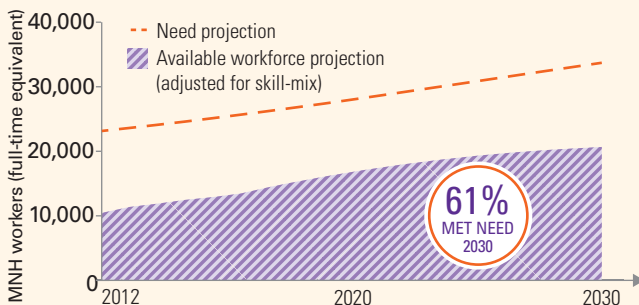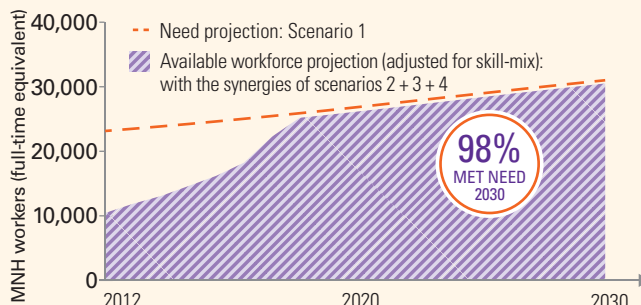
1. These health worker categories include the following country titles - Midwives: includes enrolled midwives, registered midwives; Nurses: includes registered community health nurses; Generalist physicians: includes medical officers; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF

In 2012, of an estimated total population of 24.8 million, 19.6 million (79%) were living in rural areas and 6.6 million (27%) were women of reproductive age; the total fertility rate was 2. By 2030, the population is projected to increase by 8% to 26.7 million. To achieve universal acc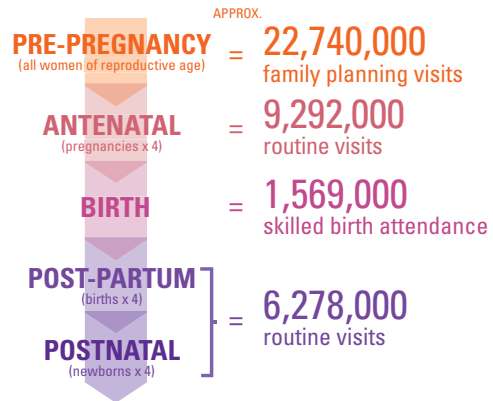ess to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.9 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 73.6 million antenatal visits, 6.9 million births and 27.5 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
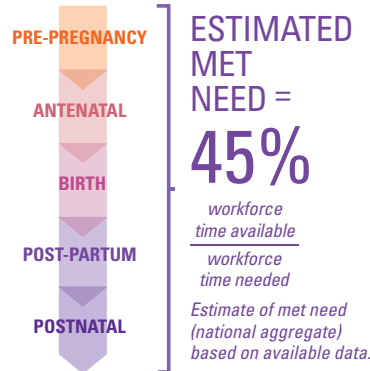
967,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

PRE-PREGNANCY (all women of reproductive age) = APPROX. **12,243,000** family planning visits

ANTENATAL (pregnancies x 4) = **3,870,000** routine visits

BIRTH = **361,000** skilled birth attendance

POST-PARTUM (births x 4) / **POSTNATAL** (newborns x 4) = **1,446,000** routine visits

WORKFORCE AVAILABILITY (2012)

Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	7,368	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	500	30
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	46,588	10
Obstetricians & gynaecologists	8,440	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 100%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

11% (n=5)

89% (n=41)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10+
Years of study required to qualify (rounded)	2
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	235/3
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	2
Midwives allowed to provide injectable contraceptives/intrauterine devices	No/No

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1991
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

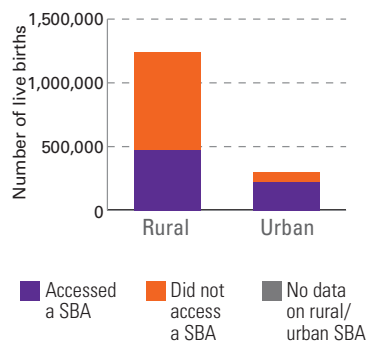■ Rural ■ Urban

Number of pregnancies

1,000,000 / 750,000 / 500,000 / 250,000 / 0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio: 90 / 60 / 30 / 0 — MMR

Newborn mortality rate: 20 / 10 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professio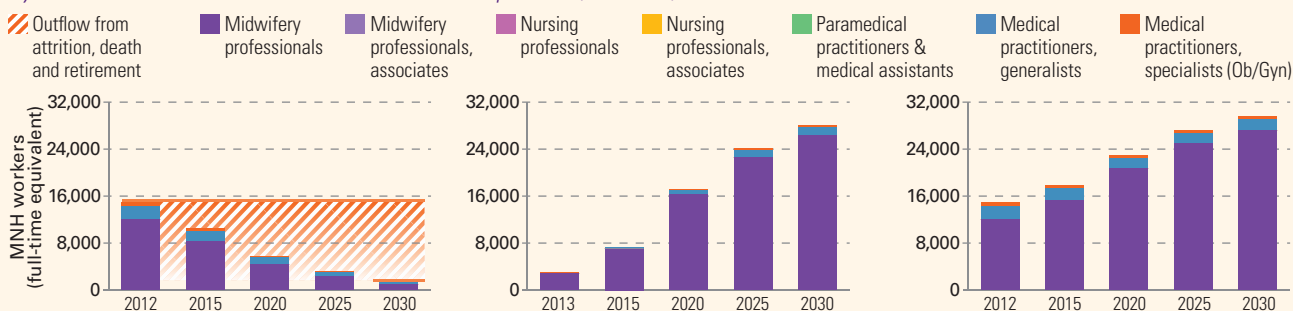nals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

28,000 / 21,000 / 14,000 / 7,000 / 0

2012 2015 2020 2025 2030

28,000 / 21,000 / 14,000 / 7,000 / 0

2013 2015 2020 2025 2030

28,000 / 21,000 / 14,000 / 7,000 / 0

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.92 million — CURRENT → 0.74 million — SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

100% MET NEED 2030 → 100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

100% MET NEED 2030 → 100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

2% leak — CURRENT → 1% leak — SCENARIO

100% MET NEED 2030 → 100% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)

16,000 / 12,000 / 8,000 / 4,000 / 0

2012 2020 2030

100% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)

16,000 / 12,000 / 8,000 / 4,000 / 0

2012 2020 2030

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurse-midwives: includes nurse-midwives; Generalist physicians: includes household doctors; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
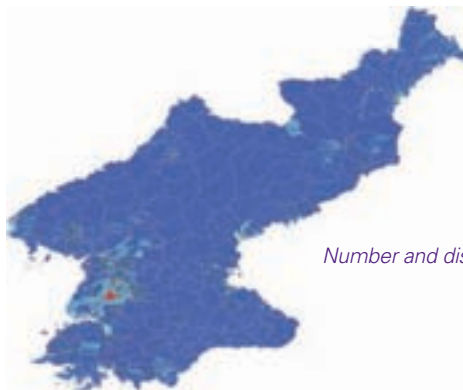4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
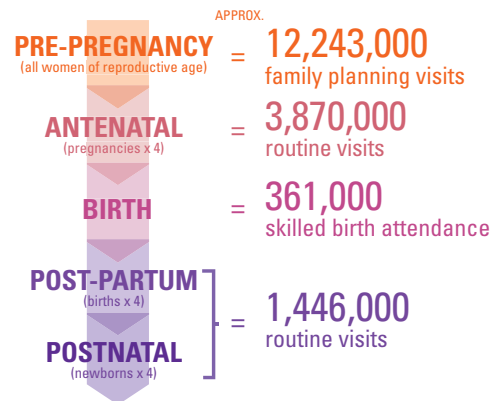
KYRGYZSTAN

In 2012, of an estimated total population of 5.5 million, 2.5 million (45%) were living in rural areas and 1.5 million (28%) were women of reproductive age; the total fertility rate was 3.1. By 2030, the population is projected to increase by 26% to 6.9 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.2 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 14.6 million antenatal visits, 2.7 million births and 10.8 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
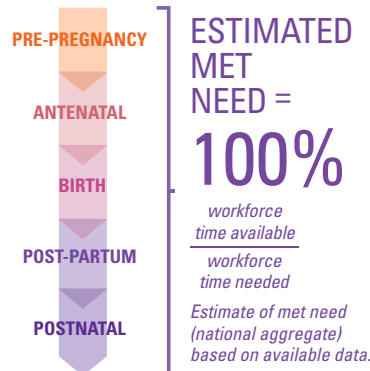
204,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0	<0.09	0.10-0.19	0.20-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-10.00	>10.00

PRE-PREGNANCY (all women of reproductive age) = APPROX. **2,598,000** family planning visits

ANTENATAL (pregnancies x 4) = **817,000** routine visits

BIRTH = **150,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **600,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	2,277	100
Midwives, auxiliary	na	na
Nurse-midwives	na	na
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	1,729	30
Obstetricians & gynaecologists	1,002	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 64%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

24% (n=11)
76% (n=35)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]
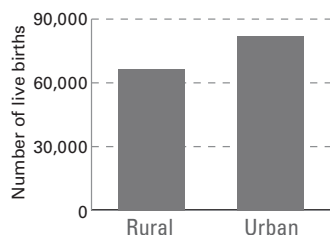
■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10-
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	5
Number of 2012 graduates/as % of all practising midwives	3,878/170
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

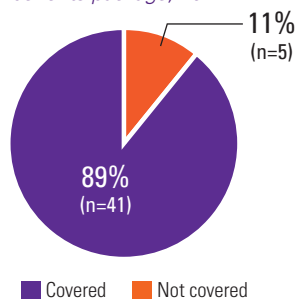|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

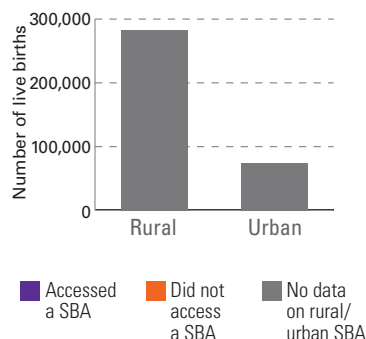|	
Year of creation of professional associations	2011
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

🟨 Rural   🟪 Urban

Number of pregnancies

240,000 / 180,000 / 120,000 / 60,000 / 0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

◫ Country (MMR, 2013; NMR, 2012)   🟪 Target by 2030

Maternal mortality ratio: 90 / 60 / 30 / 0 — MMR

Newborn mortality rate: 20 / 10 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.
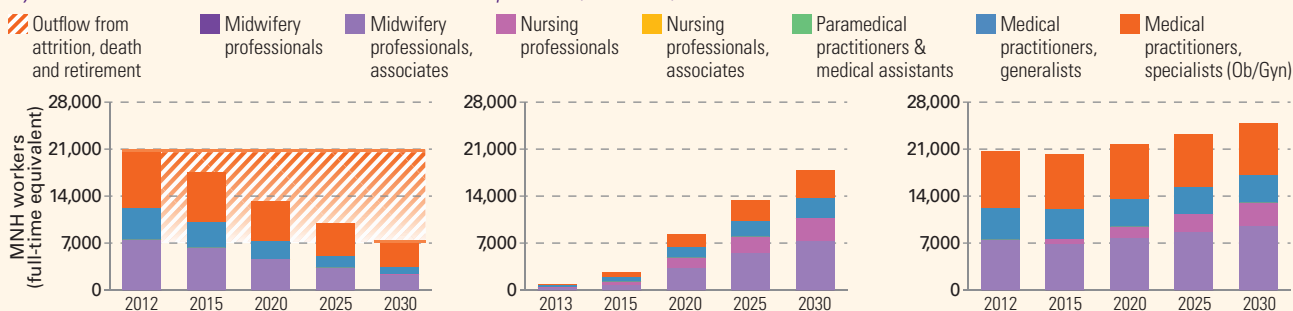
PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

◫ Outflow from attrition, death and retirement   🟪 Midwifery professionals   🟪 Midwifery professionals, associates   🟪 Nursing professionals   🟨 Nursing professionals, associates   🟩 Paramedical practitioners & medical assistants   🟦 Medical practitioners, generalists   🟧 Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

12,000 / 9,000 / 6,000 / 3,000 / 0

2012   2015   2020   2025   2030

2013   2015   2020   2025   2030

2012   2015   2020   2025   2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.17 million CURRENT → 0.14 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

100% MET NEED 2030 → 100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

100% MET NEED 2030 → 100% MET NEED 2030
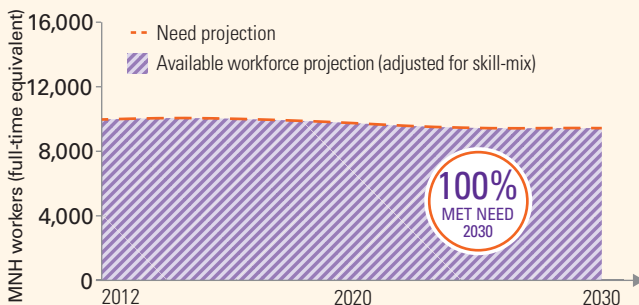
4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

100% MET NEED 2030 → 100% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent)

4,000 / 3,000 / 2,000 / 1,000 / 0

-- Need projection

▨ Available workforce projection (adjusted for skill-mix)

100% MET NEED 2030

2012   2020   2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

4,000 / 3,000 / 2,000 / 1,000 / 0

-- Need projection: Scenario 1

▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

2012   2020   2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Generalist physicians: includes family practice physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
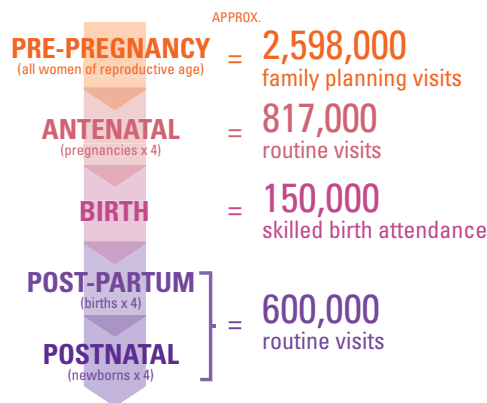
LAO PEOPLE'S DEMOCRATIC REPUBLIC

In 2012, of an estimated total population of 6.6 million, 5.9 million (89%) were living in rural areas and 1.8 million (26%) were women of reproductive age; the total fertility rate was 3. By 2030, the population is projected to increase by 33% to 8.8 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.3 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 22.6 million antenatal visits, 3.4 million births and 13.7 million post-partum/postnatal visits between 2012 and 2030.
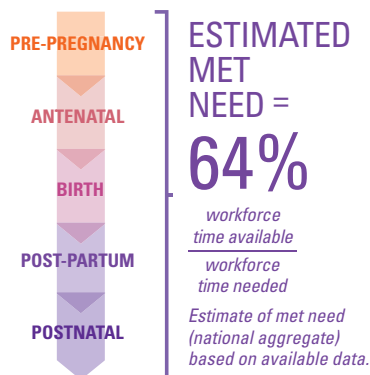
WHAT WOMEN AND NEWBORNS NEED (2012)

308,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

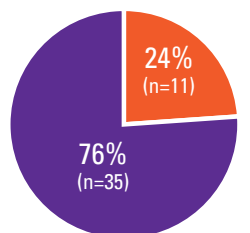*Number and distribution of pregnancies (2012)*

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **3,010,000** family planning visits

ANTENATAL (pregnancies x 4) = **1,232,000** routine visits

BIRTH = **186,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **745,000** routine visits

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	673	90
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	495	30
Obstetricians & gynaecologists	105	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

19%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

43% (n=20)
57% (n=26)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

180,000 — 120,000 — 60,000 — 0

Rural | Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10-
Years of study required to qualify (rounded)	1.5
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	189/28
% of graduates employed in MNH within one year	100%

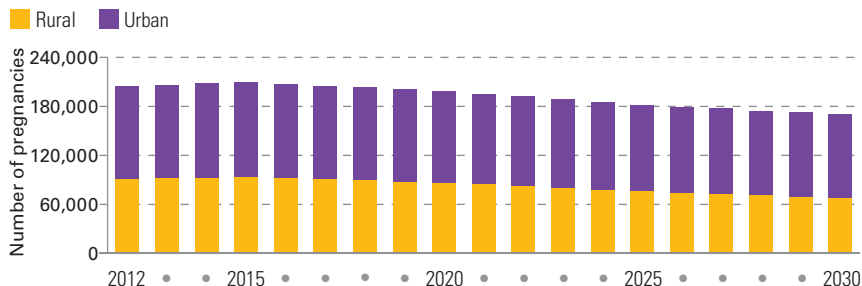## MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	—
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2007
Roles performed by professional associations:	
Continuing professional development	No
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	No
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies (y-axis: 0, 90,000, 180,000, 270,000, 360,000)
x-axis: 2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio (y-axis: 0, 100, 200, 300) — MMR
Newborn mortality rate (y-axis: 0, 25, 50) — NMR
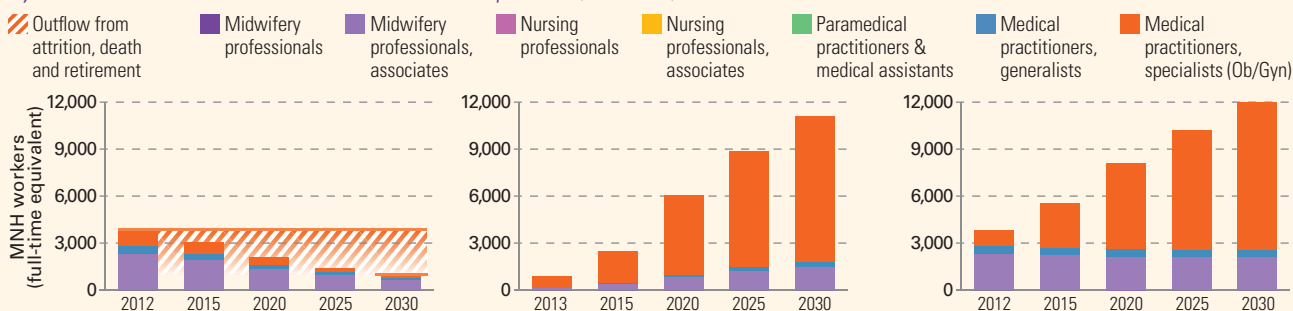
ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) (y-axis: 0, 900, 1,800, 2,700, 3,600)
Outflows x-axis: 2012, 2015, 2020, 2025, 2030
Inflows x-axis: 2013, 2015, 2020, 2025, 2030
Workforce x-axis: 2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.28 million CURRENT → 0.22 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO
60% MET NEED 2030 → 91% MET NEED 2030

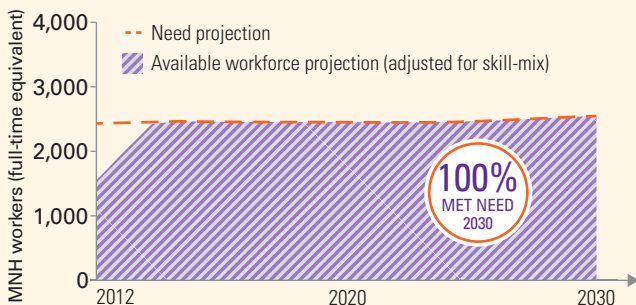**3** Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO
60% MET NEED 2030 → 85% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO
60% MET NEED 2030 → 70% MET NEED 2030

CURRENT TRAJECTORY
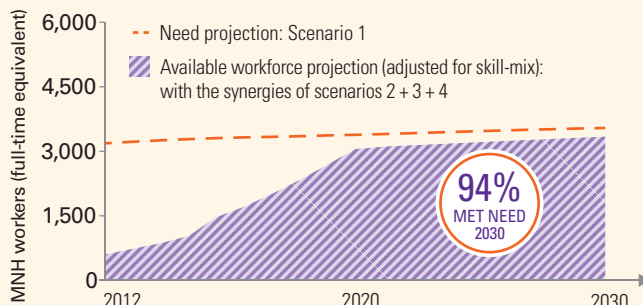
MNH workers (full-time equivalent) (y-axis: 0, 1,500, 3,000, 4,500, 6,000)
-- Need projection
▨ Available workforce projection (adjusted for skill-mix)
60% MET NEED 2030
x-axis: 2012, 2020, 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent) (y-axis: 0, 1,500, 3,000, 4,500, 6,000)
-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4
94% MET NEED 2030
x-axis: 2012, 2020, 2030

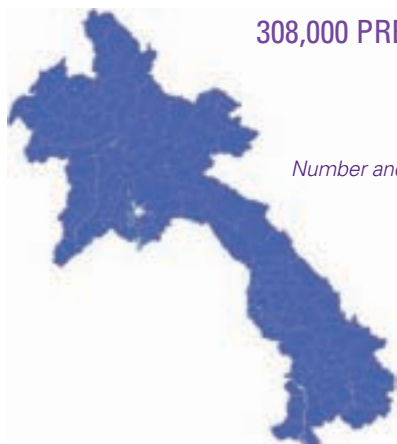1. These health worker categories include the following country titles - Midwives: includes community midwives; Generalist physicians: includes generalist physicians, family medicine; Obstetricians & gynaecologists includes: obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
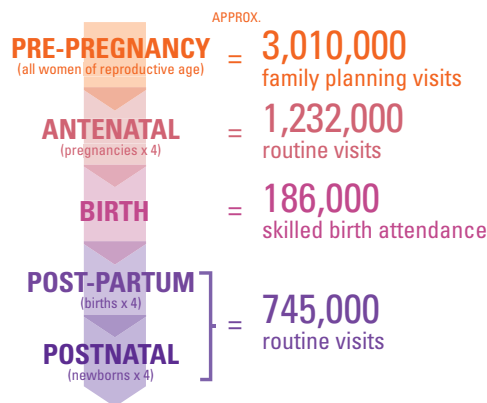
LESOTHO

In 2012, of an estimated total population of 2.1 million, 1.6 million (77%) were living in rural areas and 0.5 million (26%) were women of reproductive age; the total fertility rate was 3.1. By 2030, the population is projected to increase by 18% to 2.4 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.07 million pregnancies per annum by 2030, 77% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 6 million antenatal visits, 1.1 million births and 4.3 million post-partum/postnatal visits between 2012 and 2030.
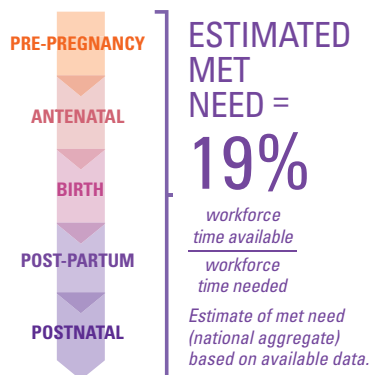
WHAT WOMEN AND NEWBORNS NEED (2012)

80,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

PRE-PREGNANCY (all women of reproductive age) = APPROX. **1,130,000** family planning visits

ANTENATAL (pregnancies x 4) = **321,000** routine visits

BIRTH = **58,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **234,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	na	na
Midwives, auxiliary	na	na
Nurse-midwives	184	80
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	180	45
Obstetricians & gynaecologists	2	90

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

14%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.
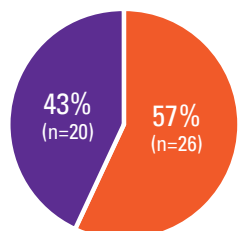
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2009
Minimum number of supervised births in curriculum	35
Number of 2012 graduates/as % of all practising midwives	180/98
% of graduates employed in MNH within one year	70%

MIDWIFERY REGULATION

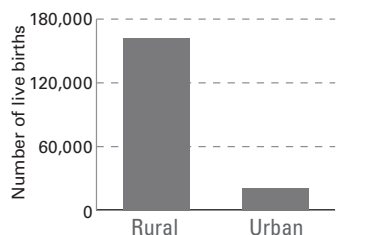|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	4
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1980, 2010
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

4% (n=2)
96% (n=44)

- Covered
- Not covered

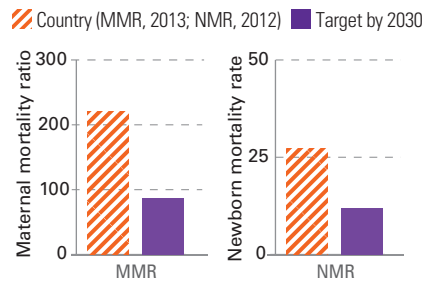## GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural   ■ Urban

Number of pregnancies

100,000 / 75,000 / 50,000 / 25,000 / 0

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012)   ■ Target by 2030

Maternal mortality ratio: 600 / 400 / 200 / 0 — MMR

Newborn mortality rate: 50 / 25 / 0 — NMR
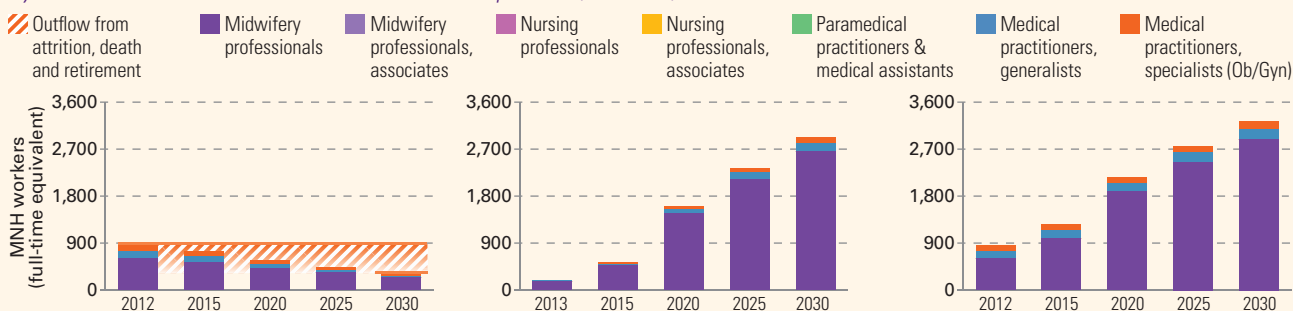
ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS   ## PROJECTED INFLOWS   ## PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement   ■ Midwifery professionals   ■ Midwifery professionals, associates   ■ Nursing professionals   ■ Nursing professionals, associates   ■ Paramedical practitioners & medical assistants   ■ Medical practitioners, generalists   ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

Outflows: 280 / 210 / 140 / 70 / 0 — 2012 2015 2020 2025 2030

Inflows: 280 / 210 / 140 / 70 / 0 — 2013 2015 2020 2025 2030

Workforce: 280 / 210 / 140 / 70 / 0 — 2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.07 million CURRENT → 0.06 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

5% MET NEED 2030 → 10% MET NEED 2030

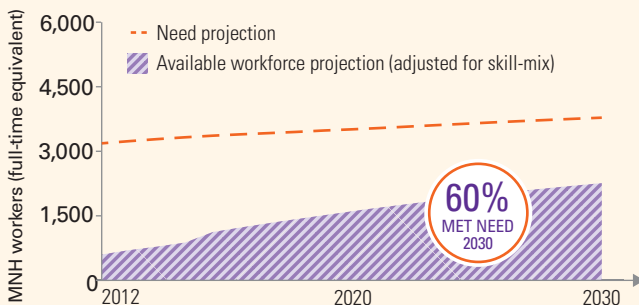**3** Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

5% MET NEED 2030 → 7% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

45% leak CURRENT → 22.5% leak SCENARIO

5% MET NEED 2030 → 9% MET NEED 2030

CURRENT TRAJECTORY
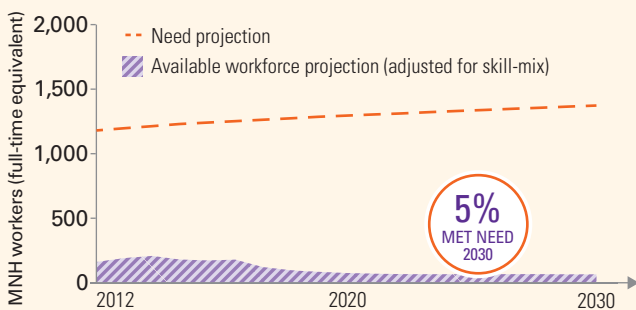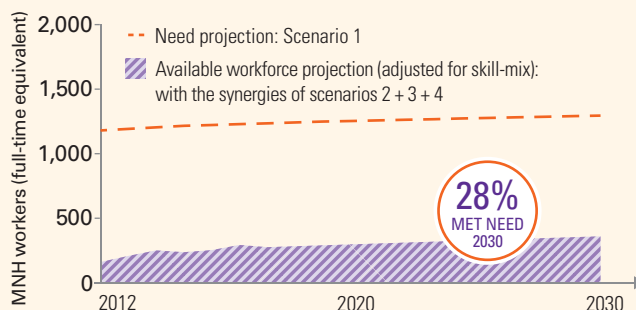
MNH workers (full-time equivalent): 2,000 / 1,500 / 1,000 / 500 / 0

-- Need projection

▨ Available workforce projection (adjusted for skill-mix)

2012 2020 2030

5% MET NEED 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent): 2,000 / 1,500 / 1,000 / 500 / 0

-- Need projection: Scenario 1

▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

2012 2020 2030

28% MET NEED 2030

1. These health worker categories include the following country titles - Nurse-midwives: includes nurse midwives; Generalist physicians: includes general practitioners (GP); Obstetricians & gynaecologists: includes obstetricians. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the nurse-midwife cadre category.
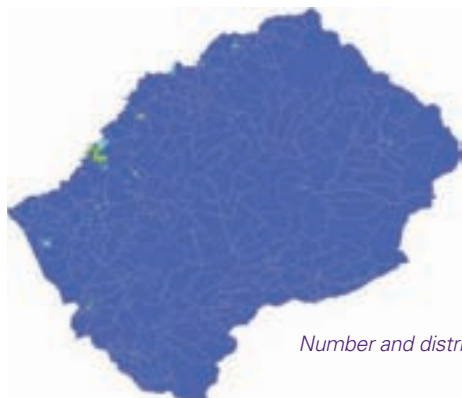4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
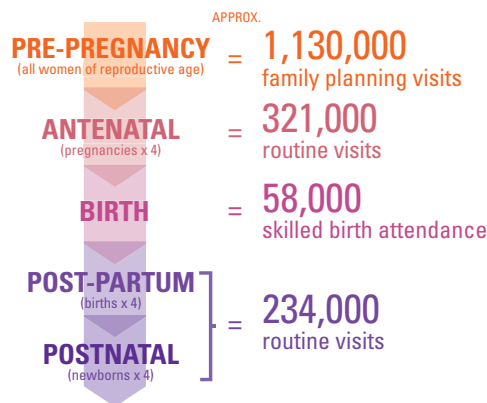
LIBERIA

In 2012, of an estimated total population of 4.2 million, 3.3 million (80%) were living in rural areas and 1 million (23%) were women of reproductive age; the total fertility rate was 4.8. By 2030, the population is projected to increase by 53% to 6.4 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.3 million pregnancies per annum by 2030, 76% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 18.8 million antenatal visits, 3.3 million births and 13.2 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
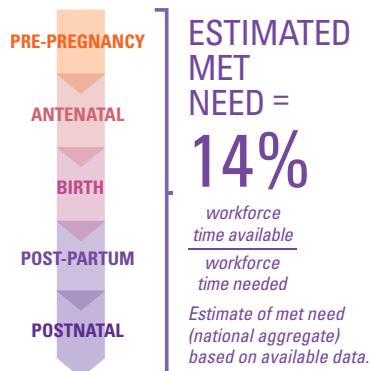
221,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**1,733,000**	family planning visits
ANTENATAL (pregnancies x 4)	=	**884,000**	routine visits
BIRTH	=	**155,000**	skilled birth attendance
POST-PARTUM (births x 4)	=	**620,000**	routine visits
POSTNATAL (newborns x 4)			

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00
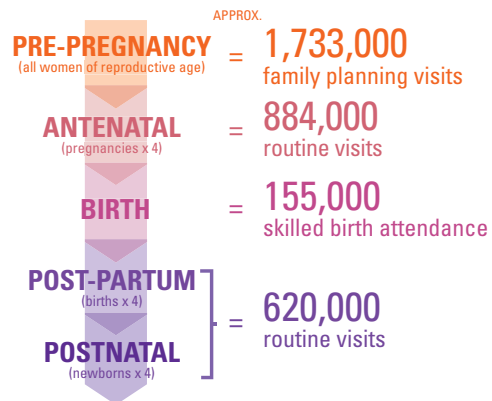
WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	806	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	57	75
Nurses	4,922	60
Nurses or nurse-midwives, auxiliary	65	80
Clinical officers & medical assistants	800	60
Physicians, generalists	289	40
Obstetricians & gynaecologists	9	90

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 97%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

- 20% (n=9)
- 80% (n=37)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	75
Number of 2012 graduates/as % of all practising midwives	72/9
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

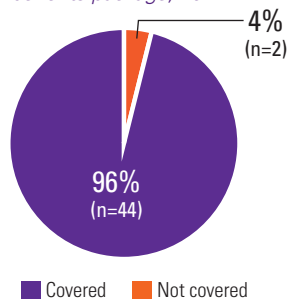|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

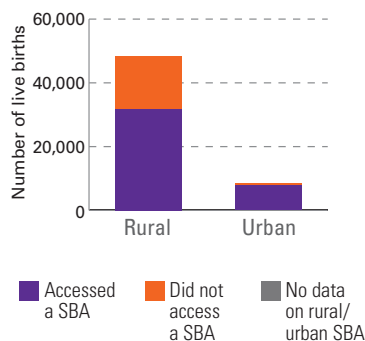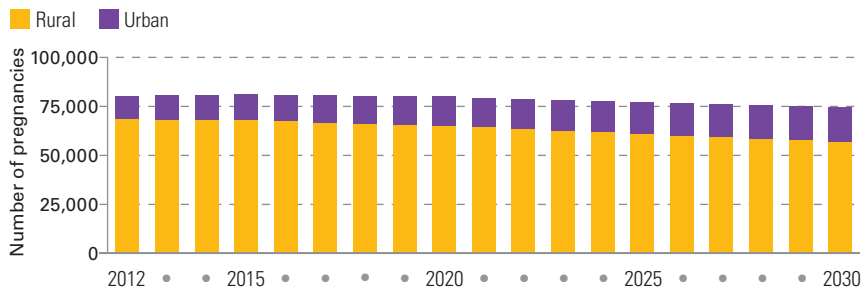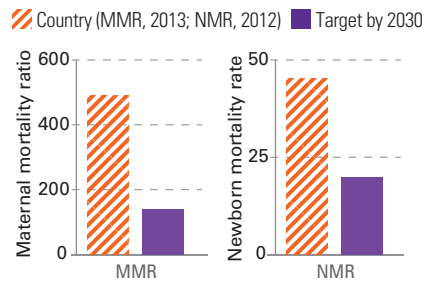|	
Year of creation of professional associations	1958, 1972
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ■ Urban

MORTALITY REDUCTION[5]

◫ Country (MMR, 2013; NMR, 2012) ■ Target by 2030
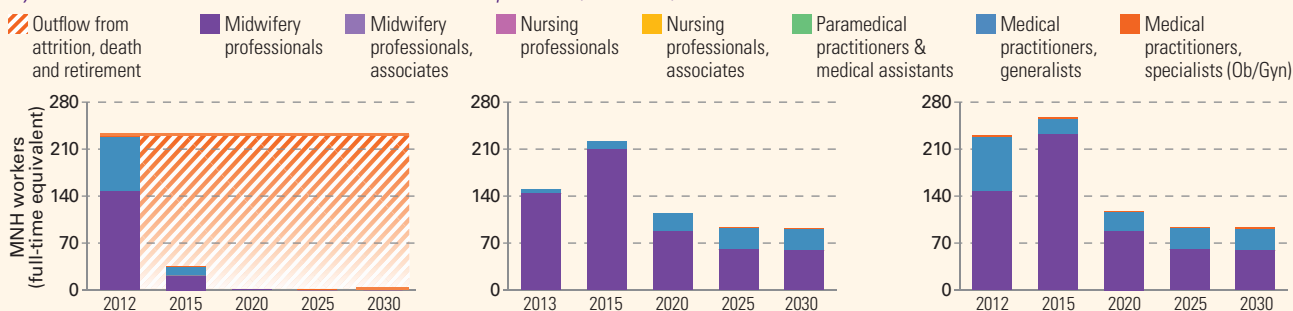

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

◫ Outflow from attrition, death and retirement   ■ Midwifery professionals   ■ Midwifery professionals, associates   ■ Nursing professionals   ■ Nursing professionals, associates   ■ Paramedical practitioners & medical assistants   ■ Medical practitioners, generalists   ■ Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.28 million — CURRENT
0.22 million — SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak — CURRENT
2% leak — SCENARIO

100% MET NEED 2030   100% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

100% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes certified midwives, registered midwives; Nurse-midwives: includes nurse-midwives; Nurses: includes registered nurses; Auxiliary nurse-midwives: includes licensed practical nurses (LPN); Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists; Clinical officers & Medical assistants: includes physician assistants. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

MADAGASCAR

In 2012, of an estimated total population of 22.3 million, 17.6 million (79%) were living in rural areas and 5.3 million (24%) were women of reproductive age; the total fertility rate was 4.5. By 2030, the population is projected to increase by 61% to 36 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.4 million pregnancies per annum by 2030, 79% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 92.1 million antenatal visits, 18 million births and 71.9 million post-partum/postnatal visits between 2012 and 2030.
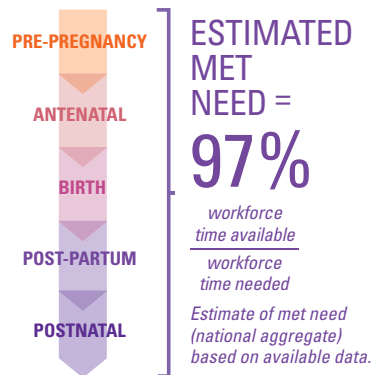
WHAT WOMEN AND NEWBORNS NEED (2012)
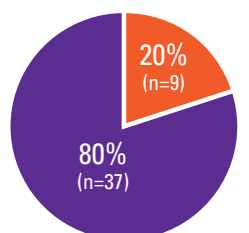
1,022,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age)	= APPROX.	**10,480,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**4,089,000** routine visits
BIRTH	=	**798,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**3,192,000** routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	3,400	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	6,000	50
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	2,109	50
Obstetricians & gynaecologists	24	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
48%
workforce time available
workforce time needed
Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

74% (n=34) Covered
26% (n=12) Not covered

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (0 – 750,000)

Rural / Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

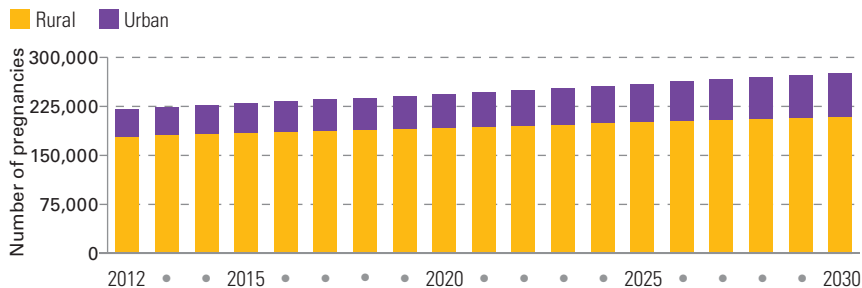|	
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2005
Minimum number of supervised births in curriculum	80
Number of 2012 graduates/as % of all practising midwives	146/4
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

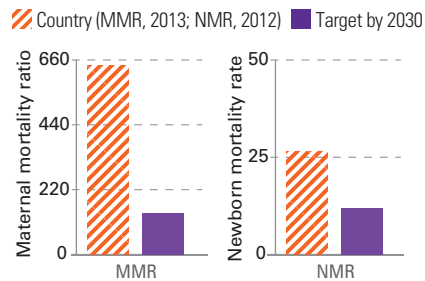|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1996
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies

1,400,000
1,050,000
700,000
350,000
0

2012 · · 2015 · · · 2020 · · · 2025 · · · 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

Maternal mortality ratio
480
320
160
0
MMR

Newborn mortality rate
30
15
0
NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement Midwifery professionals Midwifery professionals, associates Nursing professionals Nursing professionals, associates Paramedical practitioners & medical assistants Medical practitioners, generalists Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

8,000 / 6,000 / 4,000 / 2,000 / 0
2012 2015 2020 2025 2030

8,000 / 6,000 / 4,000 / 2,000 / 0
2013 2015 2020 2025 2030

8,000 / 6,000 / 4,000 / 2,000 / 0
2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.4 million
CURRENT
1.1 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

24% MET NEED 2030
37% MET NEED 2030

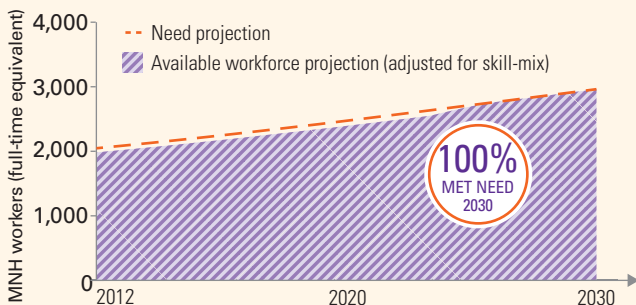**3** Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

24% MET NEED 2030
34% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

24% MET NEED 2030
29% MET NEED 2030

CURRENT TRAJECTORY
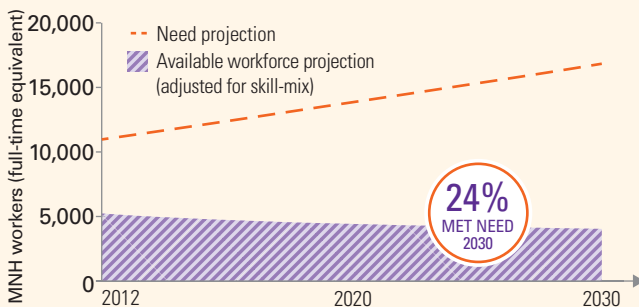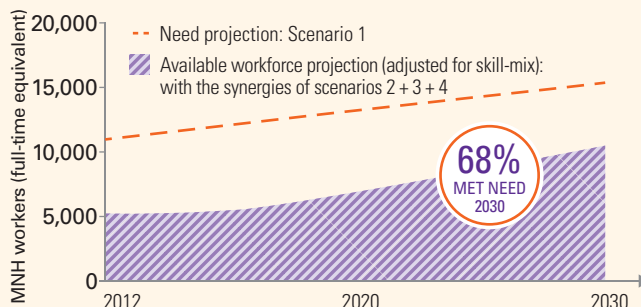
MNH workers (full-time equivalent)

20,000
15,000
10,000
5,000
0
2012 2020 2030

- - - Need projection
Available workforce projection (adjusted for skill-mix)

24% MET NEED 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

20,000
15,000
10,000
5,000
0
2012 2020 2030

- - - Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

68% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurses: includes infirmiers généralistes; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
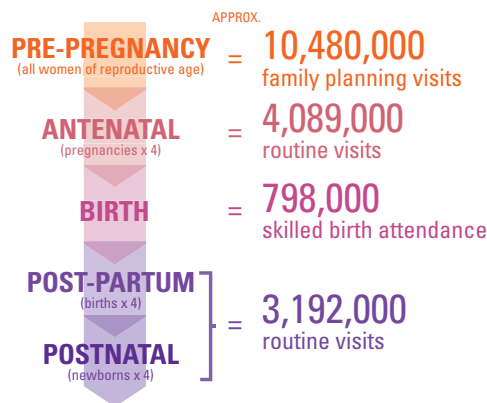
MALAWI

In 2012, of an estimated total population of 15.9 million, 13 million (82%) were living in rural areas and 3.5 million (22%) were women of reproductive age; the total fertility rate was 5.4. By 2030, the population is projected to increase by 63% to 26 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.3 million pregnancies per annum by 2030, 79% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 86 million antenatal visits, 14.8 million births and 59.3 million post-partum/postnatal visits between 2012 and 2030.
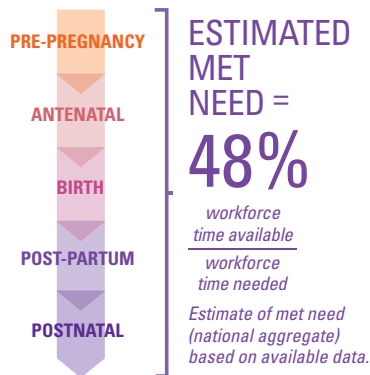
WHAT WOMEN AND NEWBORNS NEED (2012)

951,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age)	=	APPROX. **7,775,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**3,802,000** routine visits
BIRTH	=	**655,000** skilled birth attendance
POST-PARTUM (births x 4) / **POSTNATAL** (newborns x 4)	=	**2,619,000** routine visits

■ 0 ■ <0.09 ■ 0.10-0.19 ■ 0.20-0.49 ■ 0.50-0.99 ■ 1.00-1.49 ■ 1.50-1.99 ■ 2.00-2.49 ■ 2.50-10.00 ■ >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	na	na
Midwives, auxiliary	48	100
Nurse-midwives	3,037	75
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	1033	25
Physicians, generalists	125	35
Obstetricians & gynaecologists	25	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 20%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.
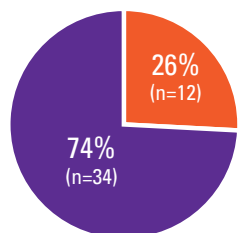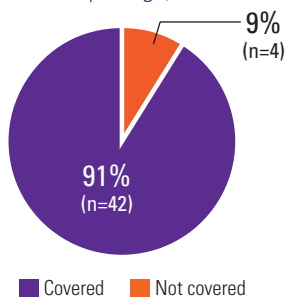
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	40
Number of 2012 graduates/as % of all practising midwives	496/16
% of graduates employed in MNH within one year	30%

MIDWIFERY REGULATION

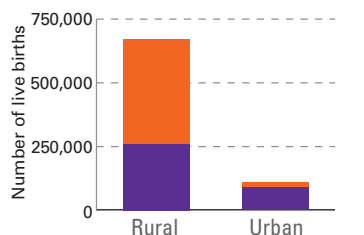|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1979, 1997
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

■ Covered ■ Not covered

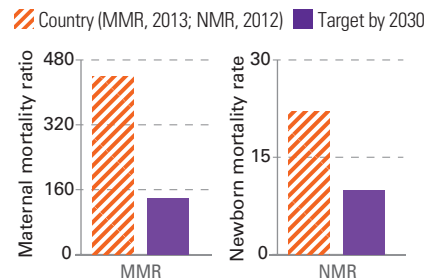## GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies

1,400,000
1,050,000
700,000
350,000
0

2012   2015   2020   2025   2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012)   Target by 2030

Maternal mortality ratio

510
340
170
0

MMR

Newborn mortality rate

30
15
0

NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement   Midwifery professionals   Midwifery professionals, associates   Nursing professionals   Nursing professionals, associates   Paramedical practitioners & medical assistants   Medical practitioners, generalists   Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

20,000
15,000
10,000
5,000
0

2012   2015   2020   2025   2030

20,000
15,000
10,000
5,000
0

2013   2015   2020   2025   2030

20,000
15,000
10,000
5,000
0

2012   2015   2020   2025   2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.3 million
CURRENT

1.1 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT   SCENARIO

89%
MET NEED 2030

93%
MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT   SCENARIO

89%
MET NEED 2030

92%
MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

2% leak
CURRENT

1% leak
SCENARIO

89%
MET NEED 2030

91%
MET NEED 2030

CURRENT TRAJECTORY
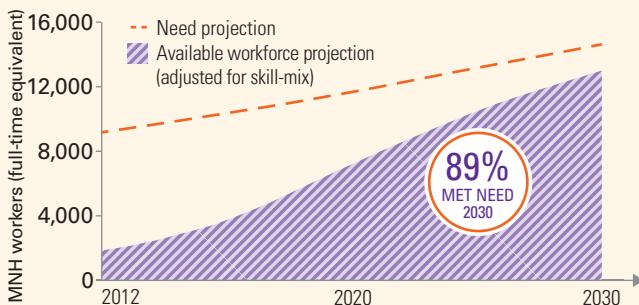
MNH workers (full-time equivalent)

16,000
12,000
8,000
4,000
0

Need projection
Available workforce projection (adjusted for skill-mix)

89%
MET NEED 2030

2012   2020   2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

16,000
12,000
8,000
4,000
0

Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

94%
MET NEED 2030

2012   2020   2030
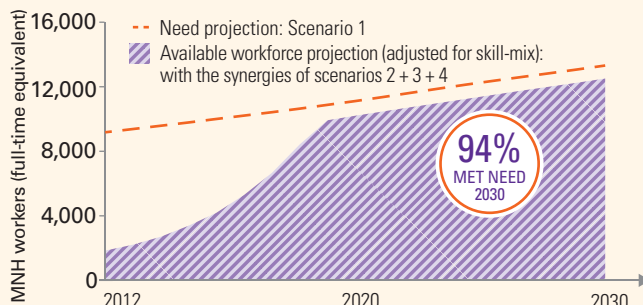
1. These health worker categories include the following country titles - Auxiliary midwives: includes community midwives assistants; Nurse-midwives: includes nurse midwives technicians (diploma), registered nurse midwives (degree); Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists; Clinical officers & Medical assistants: includes clinical officers, medical assistants. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the nurse-midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
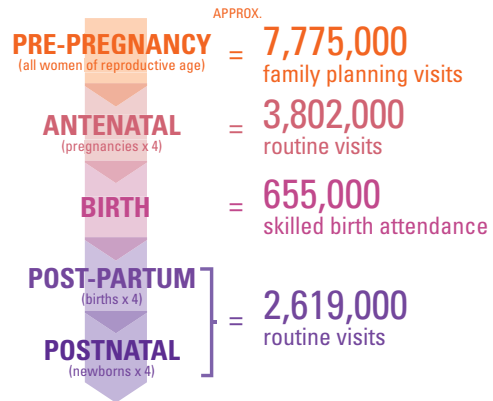
MALI

In 2012, of an estimated total population of 14.9 million, 9.9 million (67%) were living in rural areas and 3.3 million (22%) were women of reproductive age; the total fertility rate was 6.9. By 2030, the population is projected to increase by 75% to 26.0 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.4 million pregnancies per annum by 2030, 59% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 90 million antenatal visits, 17 million births and 68.2 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

953,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age)	=	APPROX. **5,170,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**3,813,000** routine visits
BIRTH	=	**722,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**2,889,000** routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	686	100
Midwives, auxiliary	1,275	100
Nurse-midwives	674	100
Nurses	na	na
Nurses or nurse-midwives, auxiliary	1,455	100
Clinical officers & medical assistants	na	na
Physicians, generalists	947	30
Obstetricians & gynaecologists	130	100
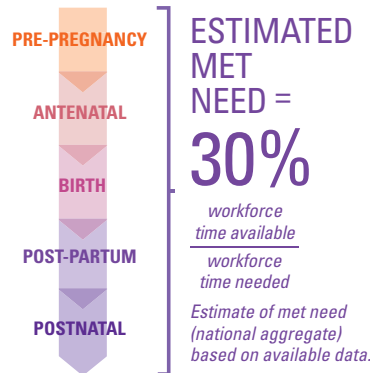
ESTIMATED MET NEED = 30%

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

workforce time available
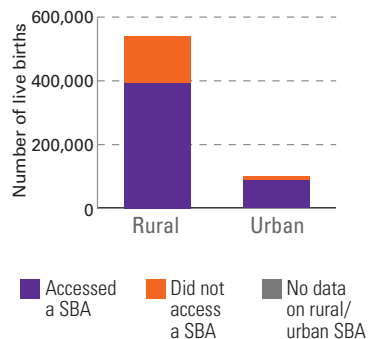workforce time needed
Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

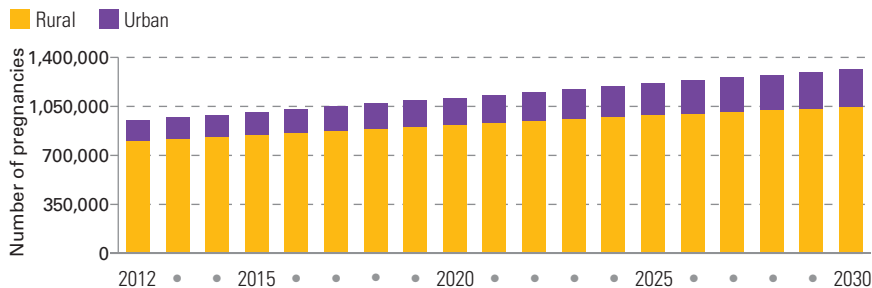|	
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	30
Number of 2012 graduates/as % of all practising midwives	67/10
% of graduates employed in MNH within one year	—

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

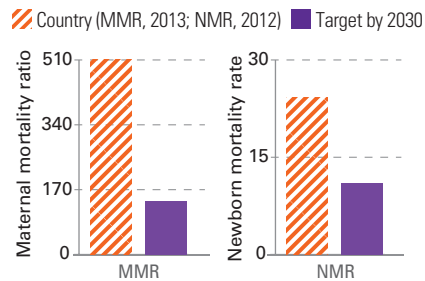## PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1997
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ■ Urban

Number of pregnancies

1,600,000
1,200,000
800,000
400,000
0

2012 2015 2020 2025 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio

600
400
200
0
MMR

Newborn mortality rate

50
25
0
NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS   ## PROJECTED INFLOWS   ## PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement   ■ Midwifery professionals   ■ Midwifery professionals, associates   ■ Nursing professionals   ■ Nursing professionals, associates   ■ Paramedical practitioners & medical assistants   ■ Medical practitioners, generalists   ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

6,000
4,500
3,000
1,500
0

2012 2015 2020 2025 2030

6,000
4,500
3,000
1,500
0

2013 2015 2020 2025 2030

6,000
4,500
3,000
1,500
0

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 **The number of pregnancies was reduced by 20% by 2030?**

1.4 million
CURRENT →
1.1 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 **The number of midwife, nurse and physician graduates doubled by 2020?**

CURRENT → SCENARIO

27% MET NEED 2030 → 37% MET NEED 2030

3 **Efficiency improved by 2% per year until 2030?**

CURRENT → SCENARIO

27% MET NEED 2030 → 35% MET NEED 2030

4 **Attrition was halved in the next 5 years (2012-2017)?**

7% leak
CURRENT →
3.5% leak
SCENARIO

27% MET NEED 2030 → 33% MET NEED 2030

CURRENT TRAJECTORY
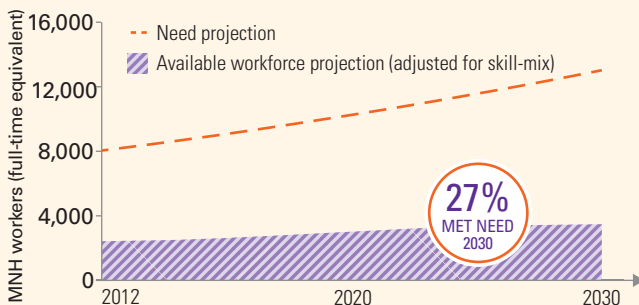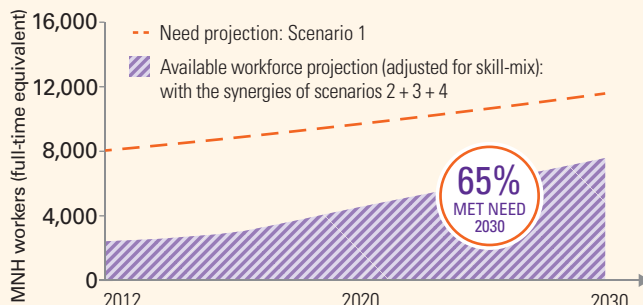
MNH workers (full-time equivalent)

16,000
12,000
8,000
4,000
0

2012 2020 2030

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

27% MET NEED 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

16,000
12,000
8,000
4,000
0

2012 2020 2030

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

65% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Auxiliary midwives: includes matrones; Nurse-midwives: includes infirmières obstétriciennes; Auxiliary nurse-midwives: includes aides soignantes; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
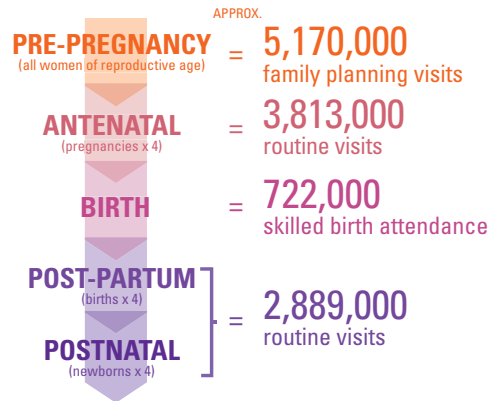
MAURITANIA

In 2012, of an estimated total population of 3.8 million, 3 million (78%) were living in rural areas and 0.9 million (24%) were women of reproductive age; the total fertility rate was 4.7. By 2030, the population is projected to increase by 49% to 5.6 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.2 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 16 million antenatal visits, 2.8 million births and 11.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

190,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	1,548,000	family planning visits
ANTENATAL (pregnancies x 4)	=	759,000	routine visits
BIRTH	=	135,000	skilled birth attendance
POST-PARTUM (births x 4) / POSTNATAL (newborns x 4)	=	538,000	routine visits

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	368	100
Midwives, auxiliary	na	na
Nurse-midwives	na	na
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	274	40
Obstetricians & gynaecologists	33	100
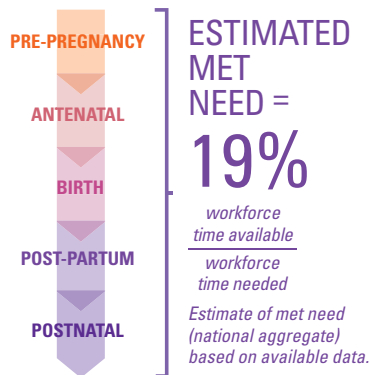
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 19%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	48/13
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

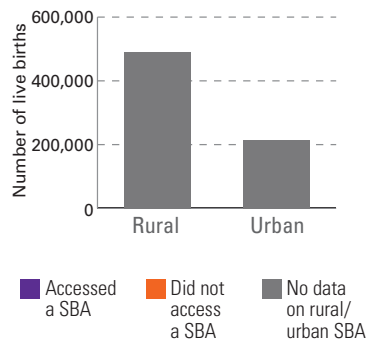| Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1986, 2010
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies (y-axis: 0 to 240,000)
Years: 2012, 2015, 2020, 2025, 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio (0 to 450) — MMR
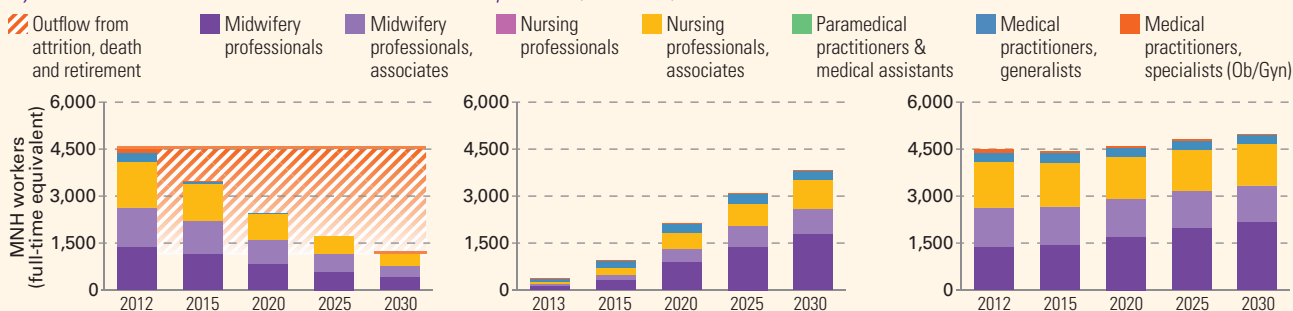Newborn mortality rate (0 to 50) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) (0 to 1,000)
Outflows years: 2012, 2015, 2020, 2025, 2030
Inflows years: 2013, 2015, 2020, 2025, 2030
Workforce years: 2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.23 million CURRENT → 0.19 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

26% MET NEED 2030 → 43% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

26% MET NEED 2030 → 37% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

2% leak CURRENT → 1% leak SCENARIO

26% MET NEED 2030 → 27% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent) (0 to 4,000)
- - - Need projection
▨ Available workforce projection (adjusted for skill-mix)
Years: 2012, 2020, 2030

26% MET NEED 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent) (0 to 4,000)
- - - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4
Years: 2012, 2020, 2030

71% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes: obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
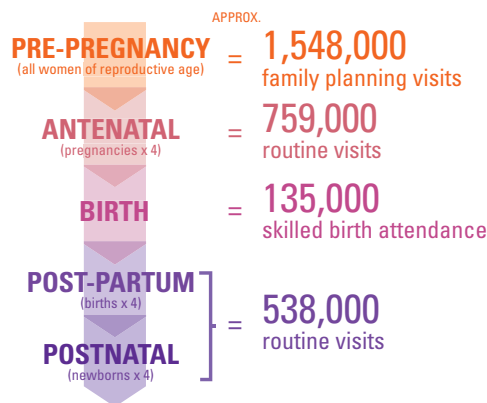
MEXICO

In 2012, of an estimated total population of 120.8 million, 54.4 million (45%) were living in rural areas and 33.6 million (28%) were women of reproductive age; the total fertility rate was 2.2. By 2030, the population is projected to increase by 19% to 143.7 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 3.1 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 251.4 million antenatal visits, 41 million births and 163.9 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

3,530,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **72,514,000** family planning visits

ANTENATAL (pregnancies x 4) = **14,119,000** routine visits

BIRTH = **2,301,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **9,204,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	78	100
Midwives, auxiliary	23,000	100
Nurse-midwives	16,200	20
Nurses	na	na
Nurses or nurse-midwives, auxiliary	–	10
Clinical officers & medical assistants	na	na
Physicians, generalists	56,433	40
Obstetricians & gynaecologists	8,668	75

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 61%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	80
Number of 2012 graduates/as % of all practising midwives	–/–
% of graduates employed in MNH within one year	90%

MIDWIFERY REGULATION

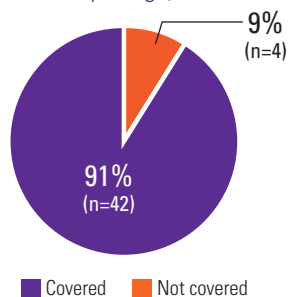|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

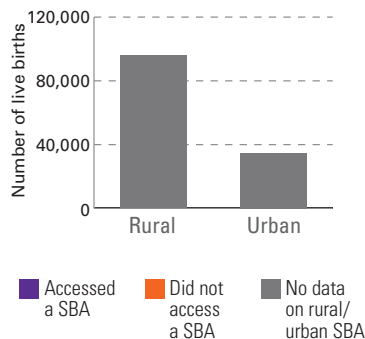|	
Year of creation of professional associations	2011
Roles performed by professional associations:	
Continuing professional development	No
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

4% (n=2)
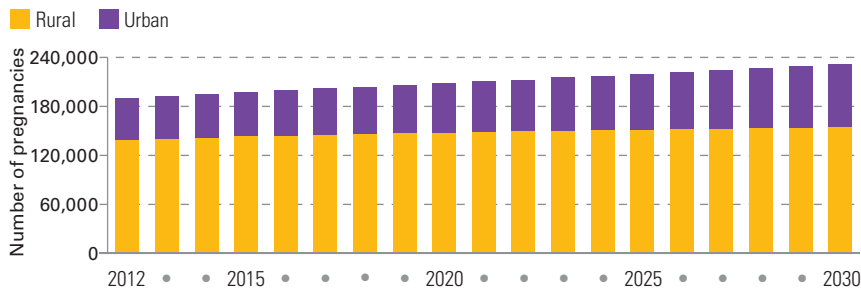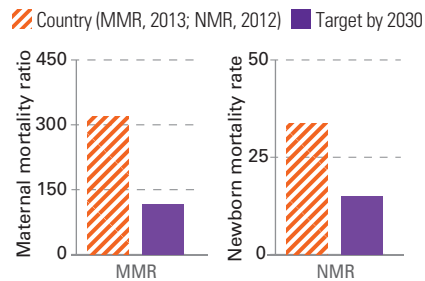96% (n=44)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies

4,000,000
3,000,000
2,000,000
1,000,000
0

2012 2015 2020 2025 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

Maternal mortality ratio

60
40
20
0
MMR

Newborn mortality rate

10
5
0
NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement | Midwifery professionals | Midwifery professionals, associates | Nursing professionals | Nursing professionals, associates | Paramedical practitioners & medical assistants | Medical practitioners, generalists | Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

140,000
105,000
70,000
35,000
0

2012 2015 2020 2025 2030

140,000
105,000
70,000
35,000
0

2013 2015 2020 2025 2030

140,000
105,000
70,000
35,000
0

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

3.1 million
CURRENT

2.5 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

93% MET NEED 2030 → 99% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

93% MET NEED 2030 → 97% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

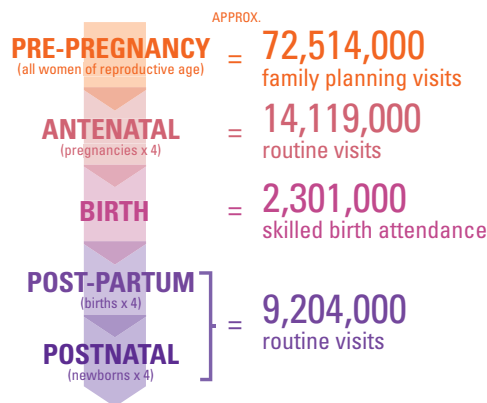93% MET NEED 2030 → 95% MET NEED 2030

CURRENT TRAJECTORY
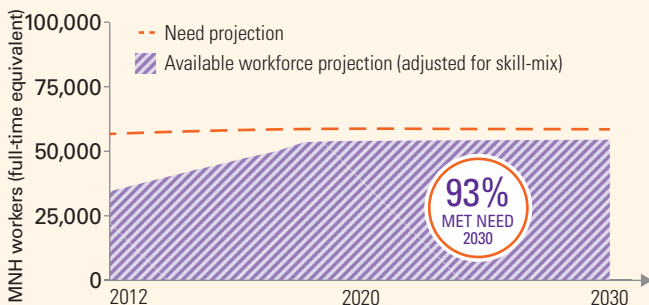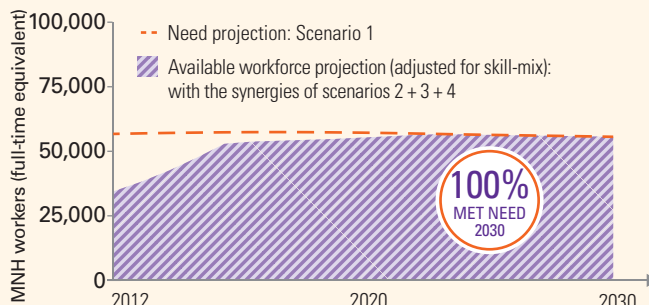
MNH workers (full-time equivalent)

100,000
75,000
50,000
25,000
0

- - - Need projection

Available workforce projection (adjusted for skill-mix)

93% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

100,000
75,000
50,000
25,000
0

- - - Need projection: Scenario 1

Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes parteras; Auxiliary midwives: includes parteras auxiliares; Nurse-midwives: includes enfermeras-parteras; Auxiliary nurse-midwives: includes enfermeras parteras auxiliares; Generalist physicians: includes médicos generales; Obstetricians & gynaecologists: includes médicos obstetras y ginecólogos.
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan.*

MOROCCO

In 2012, of an estimated total population of 32.5 million, 13.2 million (41%) were living in rural areas and 9.2 million (28%) were women of reproductive age; the total fertility rate was 2.8. By 2030, the population is projected to increase by 21% to 39.2 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.9 million pregnancies per annum by 2030, 44% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 76 million antenatal visits, 13.1 million births and 52.4 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

1,094,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
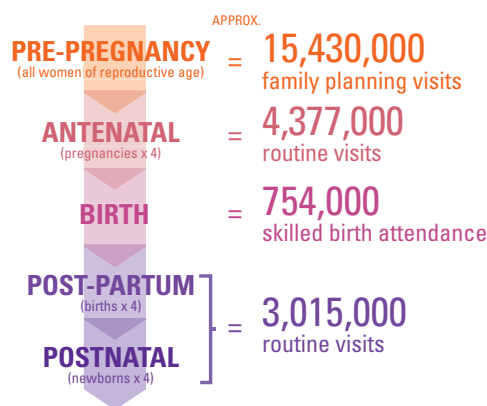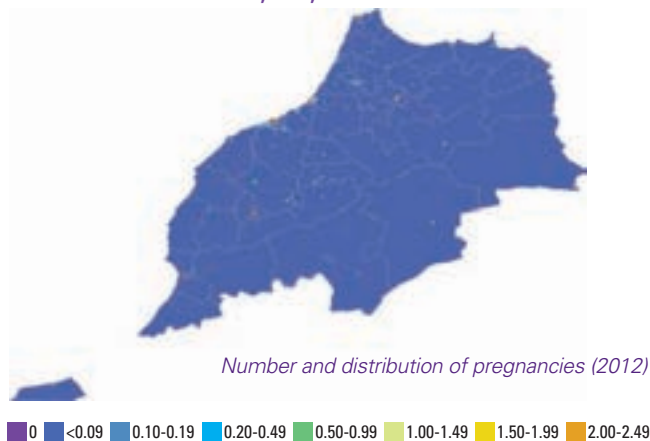
Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **15,430,000** family planning visits

ANTENATAL (pregnancies x 4) = **4,377,000** routine visits

BIRTH = **754,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **3,015,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	2,684	100
Midwives, auxiliary	na	na
Nurse-midwives	375	100
Nurses	5,200	100
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	10,288	40
Obstetricians & gynaecologists	1,006	100
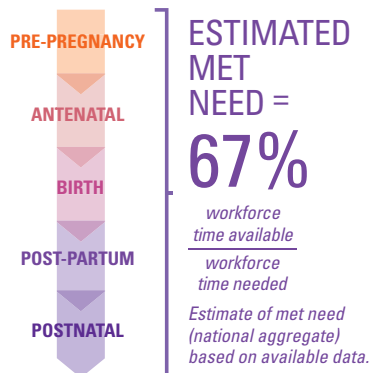
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 67%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

11% (n=5)

89% (n=41)

■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	80
Number of 2012 graduates/as % of all practising midwives	454/17
% of graduates employed in MNH within one year	75%

MIDWIFERY REGULATION

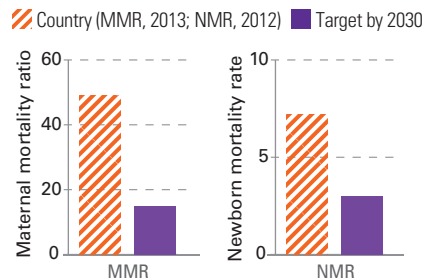|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1990, 2011
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies — 1,200,000 / 900,000 / 600,000 / 300,000 / 0

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012)   ■ Target by 2030

Maternal mortality ratio — 120 / 80 / 40 / 0 — MMR

Newborn mortality rate — 20 / 10 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS   ## PROJECTED INFLOWS   ## PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) — 24,000 / 18,000 / 12,000 / 6,000 / 0

Outflows: 2012 2015 2020 2025 2030
Inflows: 2013 2015 2020 2025 2030
Workforce: 2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.89 million — CURRENT ➜ 0.71 million — SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT ➜ SCENARIO

98% MET NEED 2030 ➜ 100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT ➜ SCENARIO

98% MET NEED 2030 ➜ 100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

12% leak — CURRENT ➜ 6% leak — SCENARIO

98% MET NEED 2030 ➜ 100% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent) — 24,000 / 18,000 / 12,000 / 6,000 / 0

2012 2020 2030

99% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent) — 24,000 / 18,000 / 12,000 / 6,000 / 0

2012 2020 2030

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes sages femmes; Nurse-midwives: includes infirmières accoucheuses; Nurses: includes infirmières polyvalentes de santé maternelle et infantile; Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes gynéco obstétriciens. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

MOZAMBIQUE

In 2012, of an estimated total population of 25.2 million, 19.4 million (77%) were living in rural areas and 5.8 million (23%) were women of reproductive age; the total fertility rate was 5.2. By 2030, the population is projected to increase by 54% to 38.9 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.8 million pregnancies per annum by 2030, 75% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 116.3 million antenatal visits, 22.2 million births and 89 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

1,337,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age)	=	APPROX. **8,728,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**5,349,000** routine visits
BIRTH	=	**1,023,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**4,093,000** routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	3,545	60
Midwives, auxiliary	720	60
Nurse-midwives	*na*	*na*
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	678	15
Clinical officers & medical assistants	3,019	20
Physicians, generalists	878	30
Obstetricians & gynaecologists	65	60
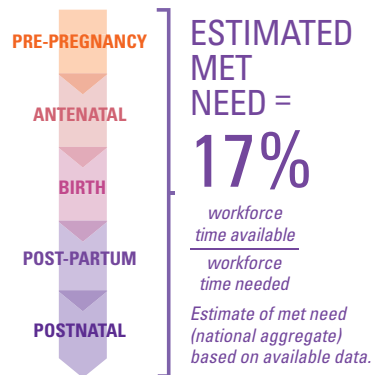
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

17%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

15% (n=7)
85% (n=39)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (0 – 900,000)

Rural | Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	580/16
% of graduates employed in MNH within one year	96%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

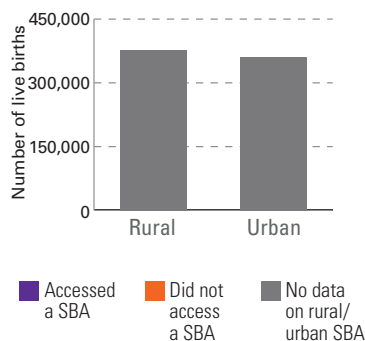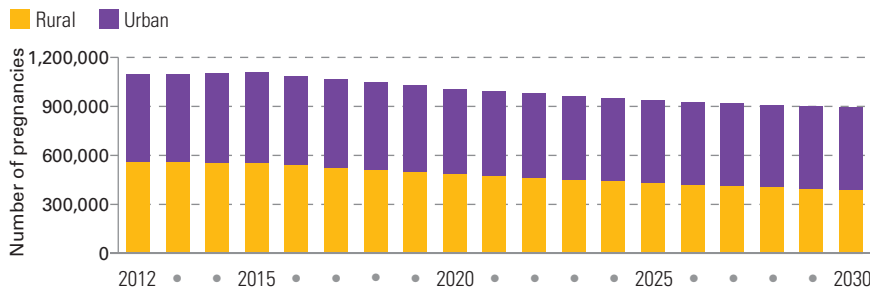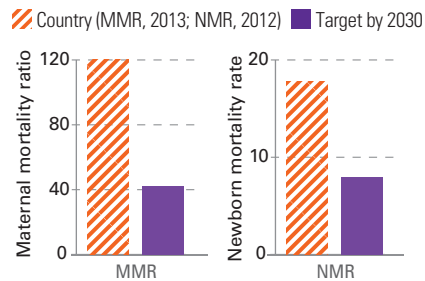|	
Year of creation of professional associations	1989, 2004
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

🟨 Rural 🟪 Urban

Number of pregnancies — 2012 · · 2015 · · · 2020 · · · 2025 · · 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) 🟪 Target by 2030

Maternal mortality ratio — MMR
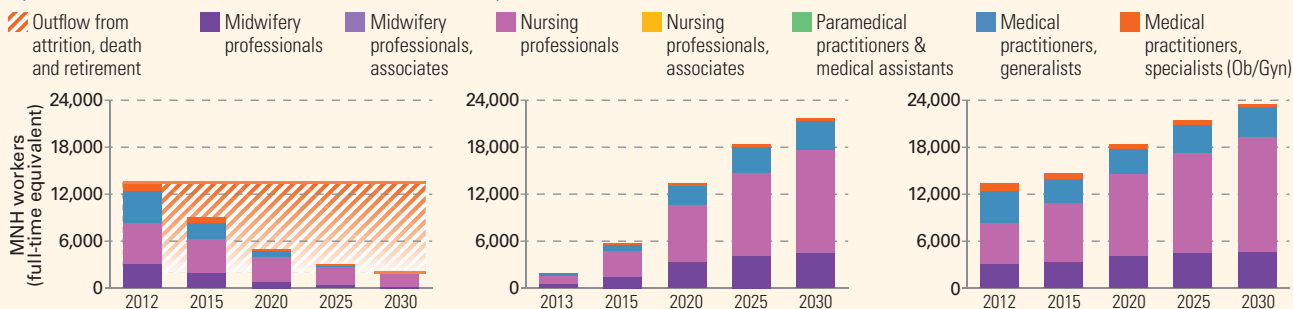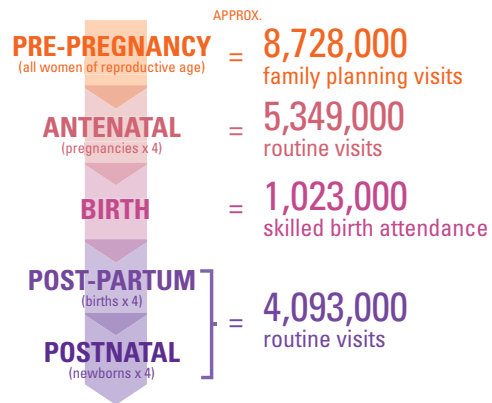Newborn mortality rate — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
🟪 Midwifery professionals
🟪 Midwifery professionals, associates
🟪 Nursing professionals
🟨 Nursing professionals, associates
🟩 Paramedical practitioners & medical assistants
🟦 Medical practitioners, generalists
🟧 Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) — 2012 2015 2020 2025 2030

2013 2015 2020 2025 2030

MNH workers (full-time equivalent) — 2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.8 million CURRENT → 1.4 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

25% MET NEED 2030 → 38% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

25% MET NEED 2030 → 35% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

0% leak CURRENT → 0% leak SCENARIO

25% MET NEED 2030 → 25% MET NEED 2030

CURRENT TRAJECTORY
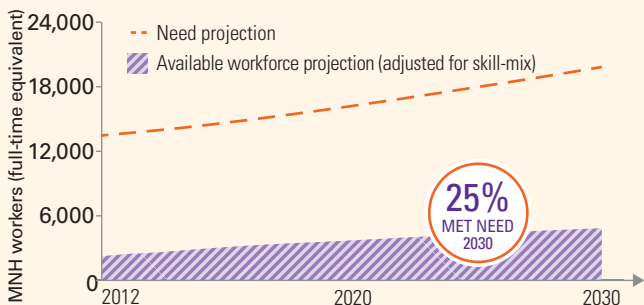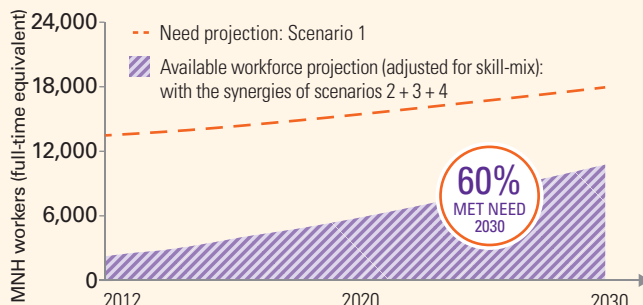
-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

25% MET NEED 2030

MNH workers (full-time equivalent) — 2012 2020 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

60% MET NEED 2030

MNH workers (full-time equivalent) — 2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes maternal-child health nurses (upper, medium and basic levels); Auxiliary midwives: includes elementary midwives; Auxiliary nurse-midwives: includes elementary nurses; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes physicians (obstetricians/gynaecologists); Clinical officers & medical assistants: includes surgical technicians (medium and upper level), medical technicians (medium level), medical agents (basic level). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the maternal-child health nurse (upper level) cadre. Information for number of 2012 graduates/as % of all practising midwives refers to maternal-child health nurse (upper, medium and basic levels) cadres.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

MYANMAR

In 2012, of an estimated total population of 52.8 million, 39.7 million (75%) were living in rural areas and 15.5 million (29%) were women of reproductive age; the total fertility rate was 2. By 2030, the population is projected to increase by 11% to 58.7 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.3 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 109 million antenatal visits, 16.6 million births and 66.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

1,559,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

	APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**26,352,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**6,237,000** routine visits
BIRTH	=	**948,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**3,793,000** routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	20,617	80
Midwives, auxiliary	22,757	85
Nurse-midwives	na	na
Nurses	28,254	80
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	29,832	20
Obstetricians & gynaecologists	267	80

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 87%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

72% (n=33) Covered
28% (n=13) Not covered

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (0 – 750,000)

Rural / Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA
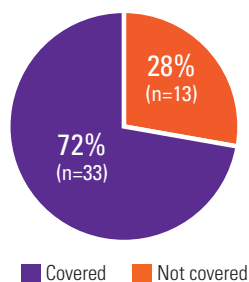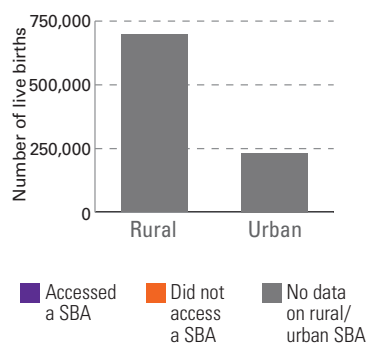
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	2
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	10
Number of 2012 graduates/as % of all practising midwives	929/5
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	4
Midwives allowed to provide injectable contraceptives/intrauterine devices	No/No

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1948
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural   Urban

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012)   Target by 2030
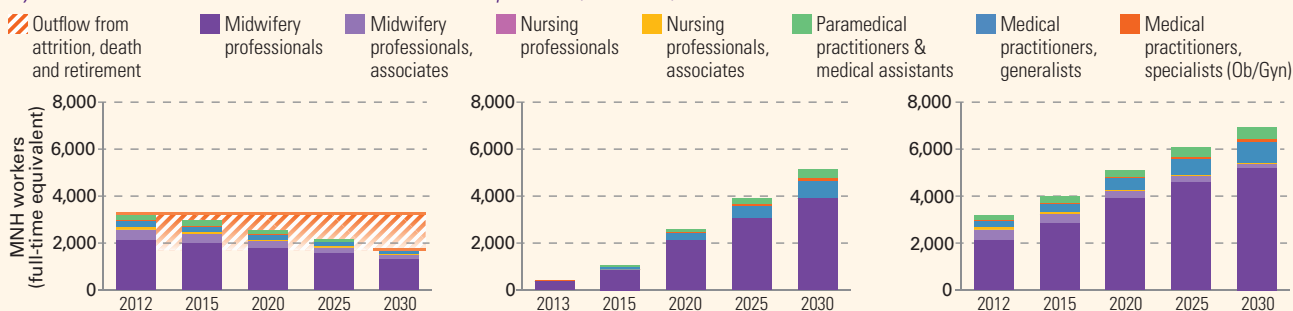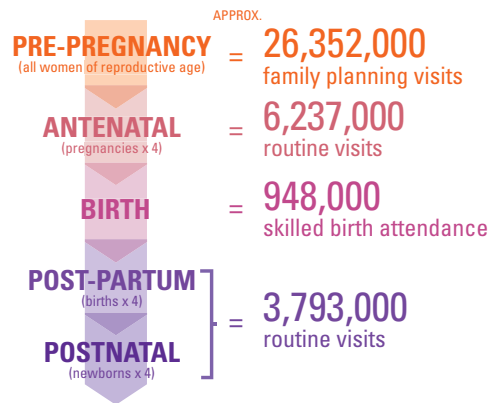

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS   ## PROJECTED INFLOWS   ## PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement   Midwifery professionals   Midwifery professionals, associates   Nursing professionals   Nursing professionals, associates   Paramedical practitioners & medical assistants   Medical practitioners, generalists   Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.3 million CURRENT → 1.0 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

88% MET NEED 2030   88% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

88% MET NEED 2030   88% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

1% leak CURRENT → 0.5% leak SCENARIO

88% MET NEED 2030   88% MET NEED 2030
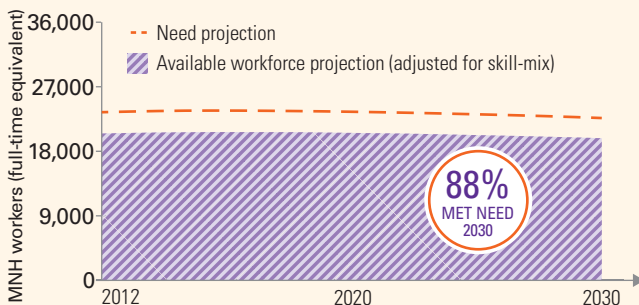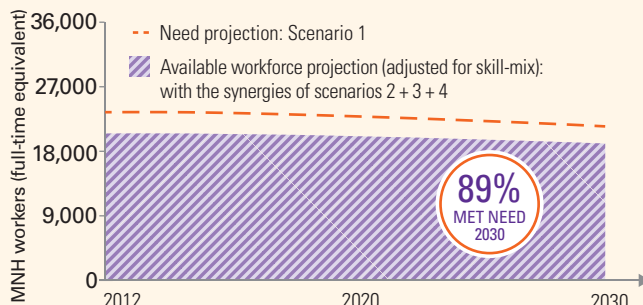
CURRENT TRAJECTORY

- - - Need projection

Available workforce projection (adjusted for skill-mix)

88% MET NEED 2030

WHAT IF... TRAJECTORY

- - - Need projection: Scenario 1

Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

89% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Auxiliary midwives: includes auxiliary midwives (volunteers), lady health visitors; Nurses: includes nurses; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes ob/gyns.
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

NEPAL

In 2012, of an estimated total population of 27.5 million, 23 million (84%) were living in rural areas and 7.4 million (27%) were women of reproductive age; the total fertility rate was 2.3. By 2030, the population is projected to increase by 20% to 32.9 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.9 million pregnancies per annum by 2030, 85% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 70.2 million antenatal visits, 10.9 million births and 43.7 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

974,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **13,501,000** family planning visits

ANTENATAL (pregnancies x 4) = **3,894,000** routine visits

BIRTH = **606,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **2,423,000** routine visits

	0	<0.09	0.10-0.19	0.20-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-10.00	>10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	*na*	*na*
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	4,029	60
Nurses or nurse-midwives, auxiliary	3,711	100
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	5,384	30
Obstetricians & gynaecologists	2,500	100
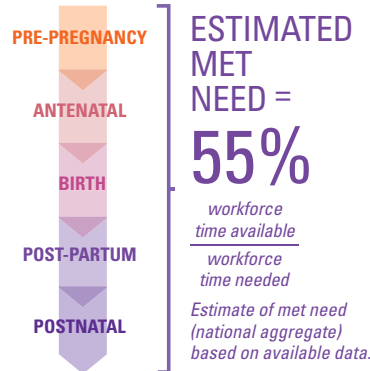
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

55%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

35% (n=16)

65% (n=30)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

600,000
400,000
200,000
0

Rural   Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	No, *na*
Minimum number of supervised births in curriculum	*na*
Number of 2012 graduates/as % of all practising midwives	1,300/32
% of graduates employed in MNH within one year	40%

MIDWIFERY REGULATION

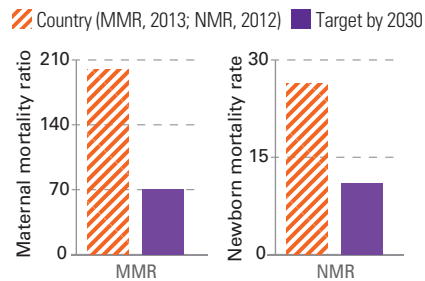|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	0
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1962, 2010
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural
Urban

Number of pregnancies

1,000,000
750,000
500,000
250,000
0

2012 · · 2015 · · 2020 · · 2025 · · 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012)
Target by 2030

Maternal mortality ratio
210
140
70
0
MMR

Newborn mortality rate
30
15
0
NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement
Midwifery professionals
Midwifery professionals, associates
Nursing professionals
Nursing professionals, associates
Paramedical practitioners & medical assistants
Medical practitioners, generalists
Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

28,000
21,000
14,000
7,000
0

2012 2015 2020 2025 2030

28,000
21,000
14,000
7,000
0

2013 2015 2020 2025 2030

28,000
21,000
14,000
7,000
0

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.87 million
CURRENT ➡ 0.70 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT ➡ SCENARIO

73% MET NEED 2030
96% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT ➡ SCENARIO

73% MET NEED 2030
96% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

9% leak CURRENT ➡ 4.5% leak SCENARIO

73% MET NEED 2030
94% MET NEED 2030
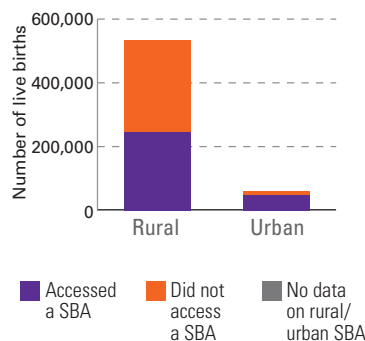
CURRENT TRAJECTORY

MNH workers (full-time equivalent)

24,000
18,000
12,000
6,000
0

- - Need projection
Available workforce projection (adjusted for skill-mix)

73% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

24,000
18,000
12,000
6,000
0

- - Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Nurses: includes nurses; Auxiliary nurse-midwives: includes ANMs; Generalist physicians: includes physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the nurse cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

NIGER

In 2012, of an estimated total population of 17.2 million, 13.8 million (80%) were living in rural areas and 3.6 million (21%) were women of reproductive age; the total fertility rate was 7.6. By 2030, the population is projected to increase by 101% to 34.5 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 2 million pregnancies per annum by 2030, 75% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 116.5 million antenatal visits, 23 million births and 92 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

1,109,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	**5,164,000**	family planning visits
ANTENATAL (pregnancies x 4)	=	**4,438,000**	routine visits
BIRTH	=	**877,000**	skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**3,507,000**	routine visits

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	1,090	100
Midwives, auxiliary	32	100
Nurse-midwives	*na*	*na*
Nurses	3,782	–
Nurses or nurse-midwives, auxiliary	3,554	–
Clinical officers & medical assistants	145	–
Physicians, generalists	958	–
Obstetricians & gynaecologists	49	100
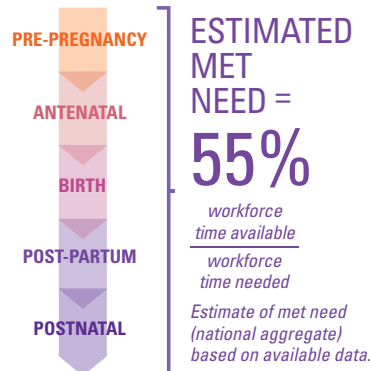
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

55%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

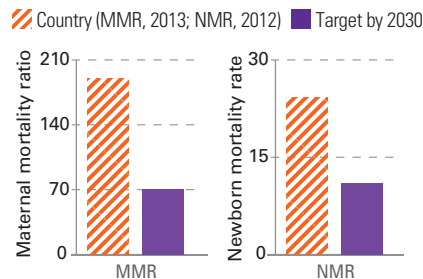*Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012*

11% (n=5)
89% (n=41)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

Rural | Urban

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2008
Minimum number of supervised births in curriculum	70
Number of 2012 graduates/as % of all practising midwives	78/7
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1954, 1975, 1988
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies (y-axis: 0 to 2,000,000; x-axis: 2012, 2015, 2020, 2025, 2030)

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

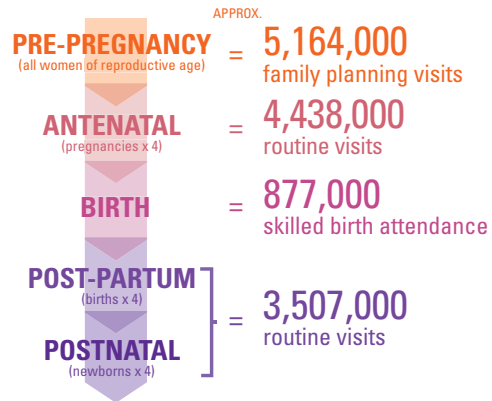Maternal mortality ratio (0 to 660) — MMR
Newborn mortality rate (0 to 30) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) (0 to 28,000) — 2012, 2015, 2020, 2025, 2030

(0 to 28,000) — 2013, 2015, 2020, 2025, 2030

(0 to 28,000) — 2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

2.0 million CURRENT → 1.6 million SCENARIO

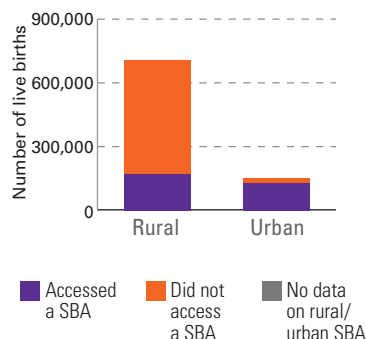Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

67% MET NEED 2030 → 97% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

67% MET NEED 2030 → 89% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

67% MET NEED 2030 → 69% MET NEED 2030

CURRENT TRAJECTORY
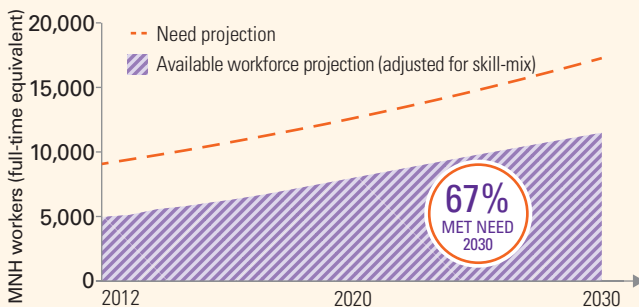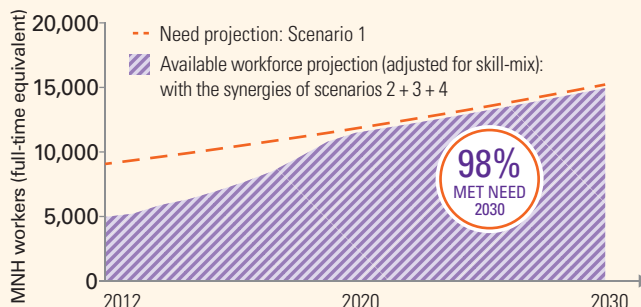
MNH workers (full-time equivalent) (0 to 20,000; 2012, 2020, 2030)
- - - Need projection
▨ Available workforce projection (adjusted for skill-mix)

67% MET NEED 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent) (0 to 20,000; 2012, 2020, 2030)
- - - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

98% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes sages-femmes; Auxiliary midwives: includes assistantes sages-femmes; Nurses: includes infirmiers diplômés d'etat; Auxiliary nurse-midwives: in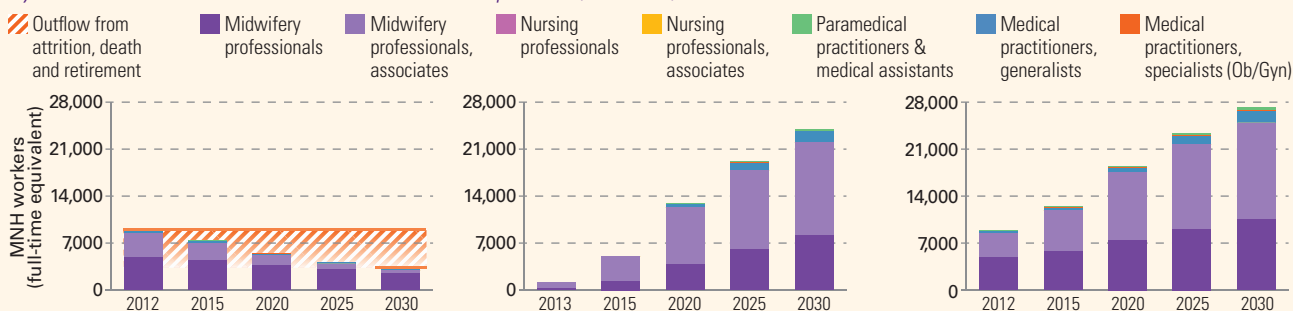cludes agents de santé de base (ASB); Generalist physicians: includes médecins généralistes, capacitaires en chirurgie de district (CCD); Obstetricians & gynaecologists: includes médecins spécialistes (gynéco-obstétriciens); Clinical officers & medical assistants: includes aides-anesthésistes, aides-chirurgiens. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

NIGERIA

In 2012, of an estimated total population of 168.8 million, 109.5 million (65%) were living in rural areas and 38.2 million (23%) were women of reproductive age; the total fertility rate was 6. By 2030, the population is projected to increase by 62% to 273.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 12.8 million pregnancies per annum by 2030, 59% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 837.4 million antenatal visits, 163.8 million births and 655.4 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

9,366,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **58,924,000** family planning visits

ANTENATAL (pregnancies x 4) = **37,464,000** routine visits

BIRTH = **7,330,000** skilled birth attendance

POST-PARTUM (births x 4)
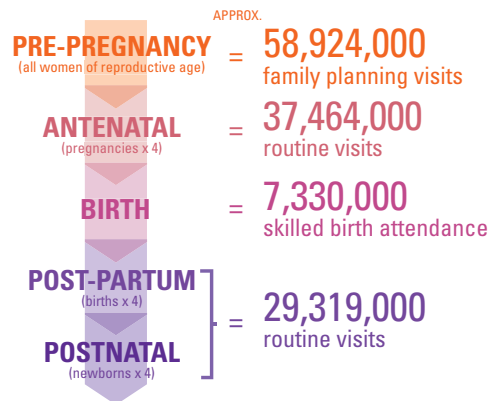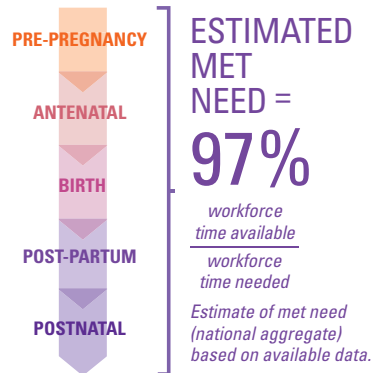**POSTNATAL** (newborns x 4) = **29,319,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	101,286	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	77,382	22
Physicians, generalists	20,284	30
Obstetricians & gynaecologists	968	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
97%
workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

11% (n=5)

89% (n=41)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

6,000,000 — 4,000,000 — 2,000,000 — 0

Rural   Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2006
Minimum number of supervised births in curriculum	130
Number of 2012 graduates/as % of all practising midwives	7,173/7
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes
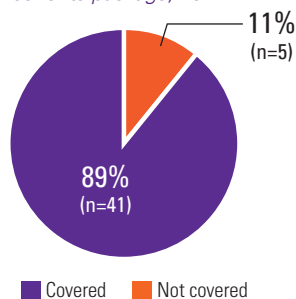
PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1977
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; – = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies (y-axis: 0 – 14,000,000)
Years: 2012, 2015, 2020, 2025, 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012) Target by 2030

Maternal mortality ratio (0 – 600) — MMR
Newborn mortality rate (0 – 50) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement
Midwifery professionals
Midwifery professionals, associates
Nursing professionals
Nursing professionals, associates
Paramedical practitioners & medical assistants
Medical practitioners, generalists
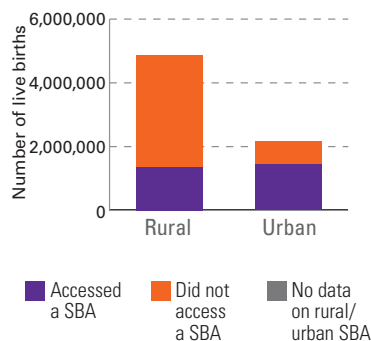Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) (0 – 200,000)

Outflows years: 2012, 2015, 2020, 2025, 2030
Inflows years: 2013, 2015, 2020, 2025, 2030
Workforce years: 2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

12.8 million CURRENT → 10.3 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

97% MET NEED 2030 → 98% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

97% MET NEED 2030 → 97% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

2% leak CURRENT → 1% leak SCENARIO

97% MET NEED 2030 → 97% MET NEED 2030

CURRENT TRAJECTORY

Need projection
Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent) (0 – 160,000)
Years: 2012, 2020, 2030

97% MET NEED 2030

WHAT IF... TRAJECTORY

Need projection: Scenario 1
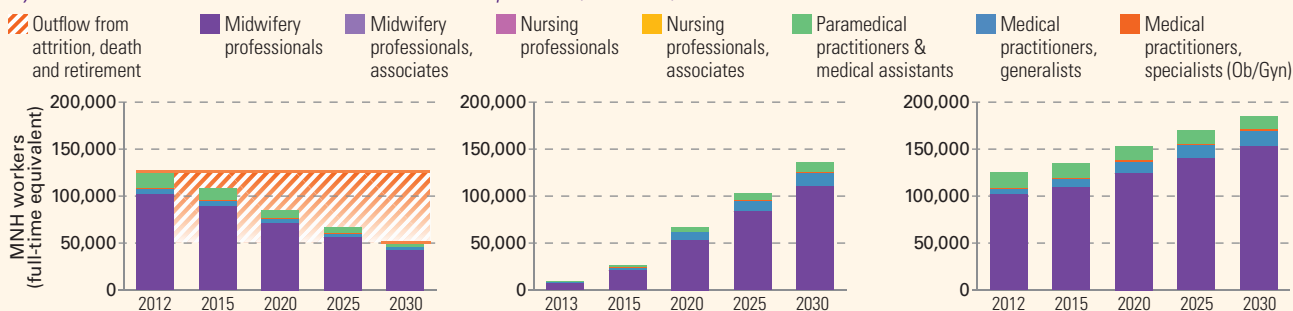Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent) (0 – 160,000)
Years: 2012, 2020, 2030

99% MET NEED 2030
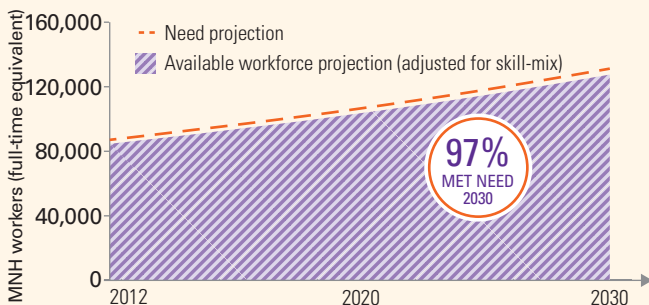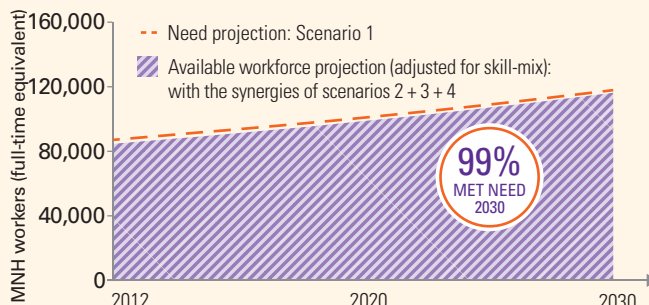
1. These health worker categories include the following country titles - Midwives: includes midwives, community midwives, nurse midwives; Generalist physicians: includes physicians; Obstetricians & gynaecologists: includes physicians (ob/gyn); Clinical officers & medical assistants: includes junior community health extension workers, community health officers, community health extension workers. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre. Information for number of 2012 graduates/as % of all practising midwives refers to the midwife, community midwife and nurse-midwife cadres.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

PAKISTAN

In 2012, of an estimated total population of 179.2 million, 111.9 million (62%) were living in rural areas and 46.2 million (26%) were women of reproductive age; the total fertility rate was 3.2. By 2030, the population is projected to increase by 29% to 231.7 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 6.8 million pregnancies per annum by 2030, 56% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 536.2 million antenatal visits, 90.3 million births and 361.1 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

7,175,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
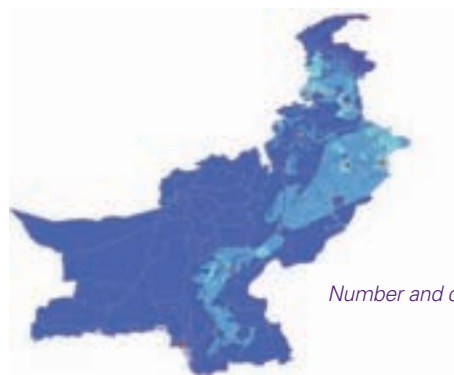
Number and distribution of pregnancies (2012)

0	<0.09	0.10-0.19
0.20-0.49	0.50-0.99	1.00-1.49
1.50-1.99	2.00-2.49	2.50-10.00
>10.00		

PRE-PREGNANCY (all women of reproductive age) = APPROX. **72,281,000** family planning visits

ANTENATAL (pregnancies x 4) = **28,701,000** routine visits
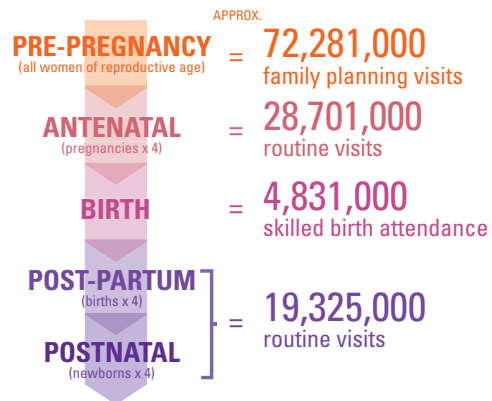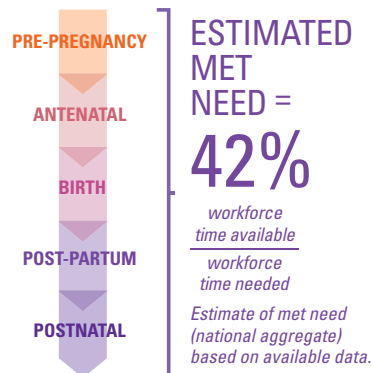
BIRTH = **4,831,000** skilled birth attendance

POST-PARTUM (births x 4) / **POSTNATAL** (newborns x 4) = **19,325,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	14,790	85
Midwives, auxiliary	*na*	*na*
Nurse-midwives	41,016	17
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	160,000	34
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	138,421	15
Obstetricians & gynaecologists	1,795	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 42%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

48% (n=22)
52% (n=24)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10+
Years of study required to qualify (rounded)	1
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	25
Number of 2012 graduates/as % of all practising midwives	6,306/43
% of graduates employed in MNH within one year	55%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	1
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2005
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	No
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

🟨 Rural   🟪 Urban

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012)   🟪 Target by 2030

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS   PROJECTED INFLOWS   PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
🟪 Midwifery professionals
🟪 Midwifery professionals, associates
🟪 Nursing professionals
🟨 Nursing professionals, associates
🟩 Paramedical practitioners & medical assistants
🟦 Medical practitioners, generalists
🟧 Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

6.8 million **CURRENT** → 5.4 million **SCENARIO**

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → **SCENARIO**

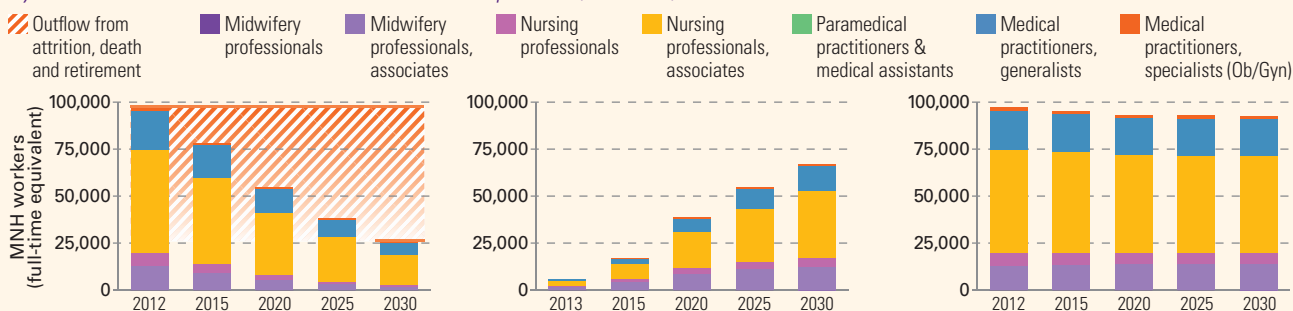37% MET NEED 2030 → 50% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → **SCENARIO**

37% MET NEED 2030 → 46% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

5% leak **CURRENT** → 2.5% leak **SCENARIO**

37% MET NEED 2030 → 43% MET NEED 2030

CURRENT TRAJECTORY
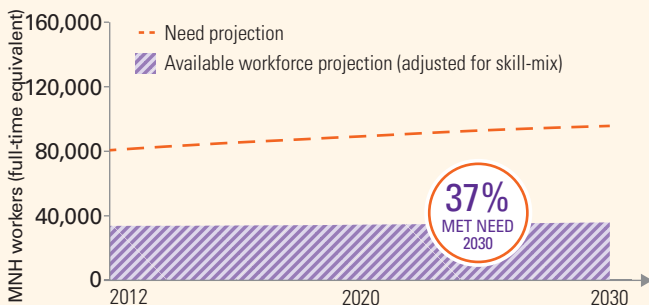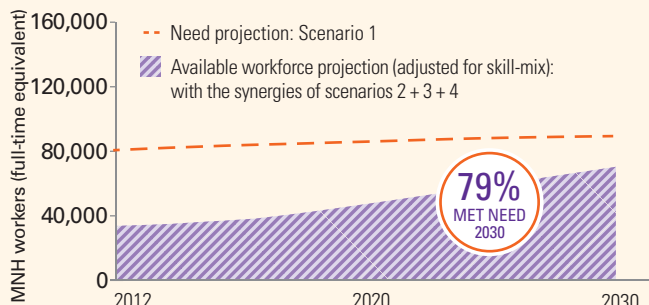
-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

37% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

79% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes community midwives(CMWs), Lady Health Visitor (LHV) midwives; Nurse-midwives: includes nurse-midwives; Auxiliary nurse-midwives: includes lady health visitors, family welfare workers; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the community midwife cadre. Information for number of 2012 graduates/as % of all practising midwives refers to the community midwife and Lady Health Visitor midwife cadres.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

PAPUA NEW GUINEA

In 2012, of an estimated total population of 7.2 million, 6.5 million (90%) were living in rural areas and 1.8 million (25%) were women of reproductive age; the total fertility rate was 3.8. By 2030, the population is projected to increase by 40% to 10 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.3 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 21.9 million antenatal visits, 4.3 million births and 17.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

268,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **3,110,000** family planning visits

ANTENATAL (pregnancies x 4) = **1,073,000** routine visits

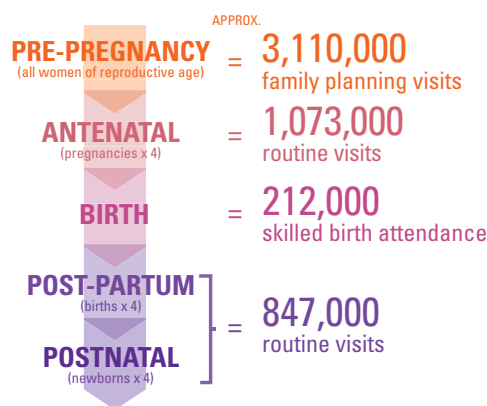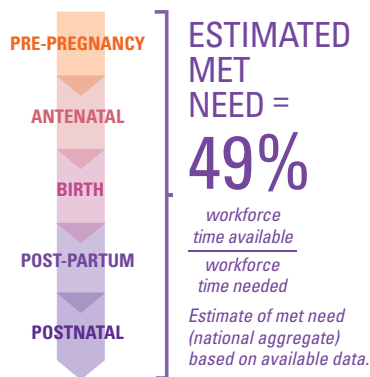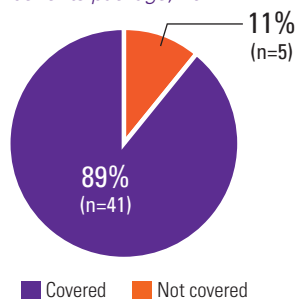**BIRTH** = **212,000** skilled birth attendance

POST-PARTUM (births x 4)

POSTNATAL (newborns x 4) = **847,000** routine visits

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	293	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	1,800	100
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	–	–
Physicians, generalists	175	30
Obstetricians & gynaecologists	28	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

49%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

11% (n=5)

89% (n=41)

■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

210,000
140,000
70,000
0

Rural   Urban

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/ urban SBA
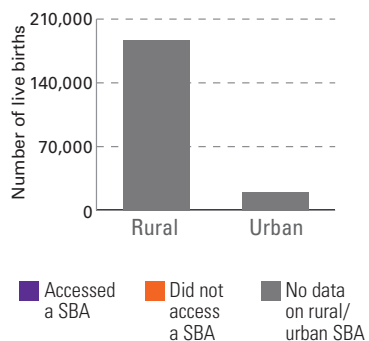
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	1
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	100
Number of 2012 graduates/as % of all practising midwives	79/27
% of graduates employed in MNH within one year	95%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1950, 2009, 2012
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

- Rural
- Urban

Number of pregnancies

320,000 / 240,000 / 160,000 / 80,000 / 0

2012 · · 2015 · · 2020 · · 2025 · · 2030

MORTALITY REDUCTION[5]

- Country (MMR, 2013; NMR, 2012)
- Target by 2030

Maternal mortality ratio: 300 / 200 / 100 / 0 — MMR

Newborn mortality rate: 30 / 15 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

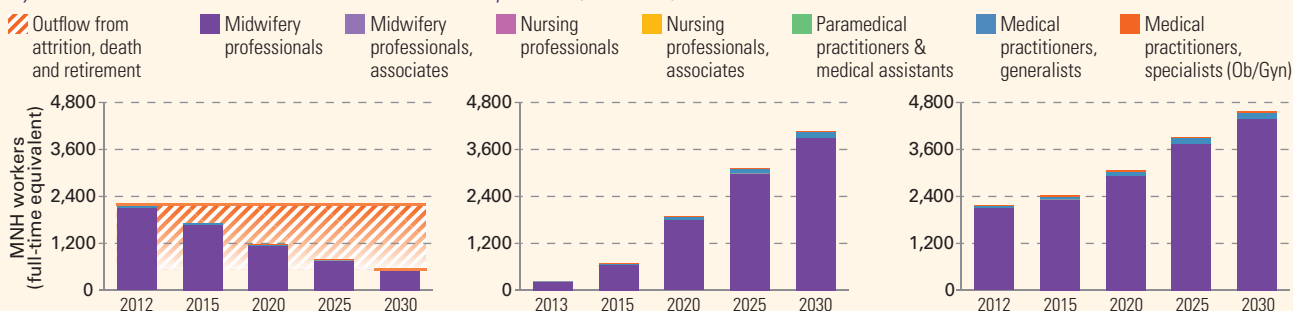- Outflow from attrition, death and retirement
- Midwifery professionals
- Midwifery professionals, associates
- Nursing professionals
- Nursing professionals, associates
- Paramedical practitioners & medical assistants
- Medical practitioners, generalists
- Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

4,800 / 3,600 / 2,400 / 1,200 / 0

Outflows: 2012 · 2015 · 2020 · 2025 · 2030

Inflows: 2013 · 2015 · 2020 · 2025 · 2030

Workforce: 2012 · 2015 · 2020 · 2025 · 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.31 million CURRENT → 0.25 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

78% MET NEED 2030 → 97% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

78% MET NEED 2030 → 97% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

5% leak CURRENT → 2.5% leak SCENARIO

78% MET NEED 2030 → 94% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent)

6,000 / 4,500 / 3,000 / 1,500 / 0

- - - Need projection
- Available workforce projection (adjusted for skill-mix)

78% MET NEED 2030

2012 · 2020 · 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

6,000 / 4,500 / 3,000 / 1,500 / 0

- - - Need projection: Scenario 1
- Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

98% MET NEED 2030

2012 · 2020 · 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurses: includes registered nurses; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

PERU

In 2012, of an estimated total population of 30 million, 12.9 million (43%) were living in rural areas and 8 million (27%) were women of reproductive age; the total fertility rate was 2.4. By 2030, the population is projected to increase by 22% to 36.5 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1 million pregnancies per annum by 2030, 47% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 79.4 million antenatal visits, 11.4 million births and 45.7 million post-partum/postnatal visits between 2012 and 2030.
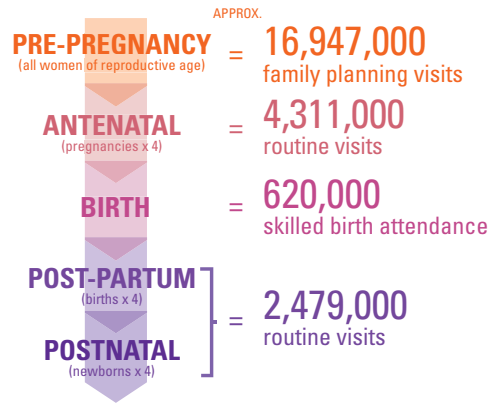
WHAT WOMEN AND NEWBORNS NEED (2012)

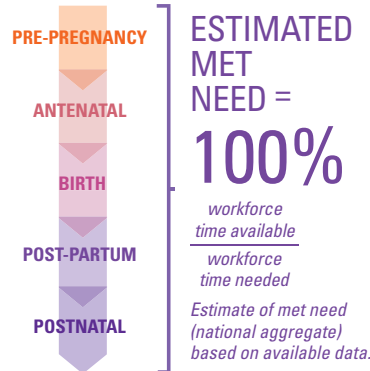### 1,078,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
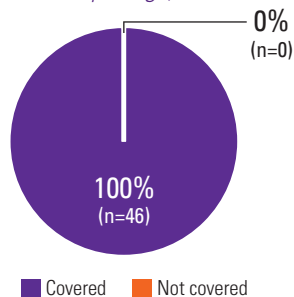
Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age)	=	APPROX. **16,947,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**4,311,000** routine visits
BIRTH	=	**620,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**2,479,000** routine visits

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	11,533	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	33,491	–
Nurses or nurse-midwives, auxiliary	13,347	50
Clinical officers & medical assistants	50,722	50
Physicians, generalists	33,669	20
Obstetricians & gynaecologists	2,197	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 100%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

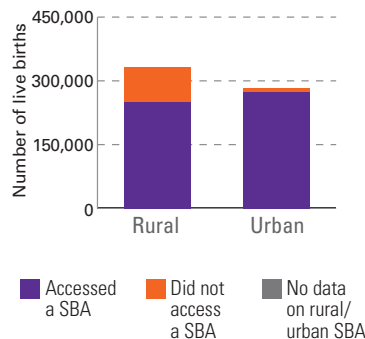## FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

0% (n=0)

100% (n=46)

■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	5
Standardized curriculum? Year of last update	No, *na*
Minimum number of supervised births in curriculum	*na*
Number of 2012 graduates/as % of all practising midwives	1,000/9
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	4
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1975
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardi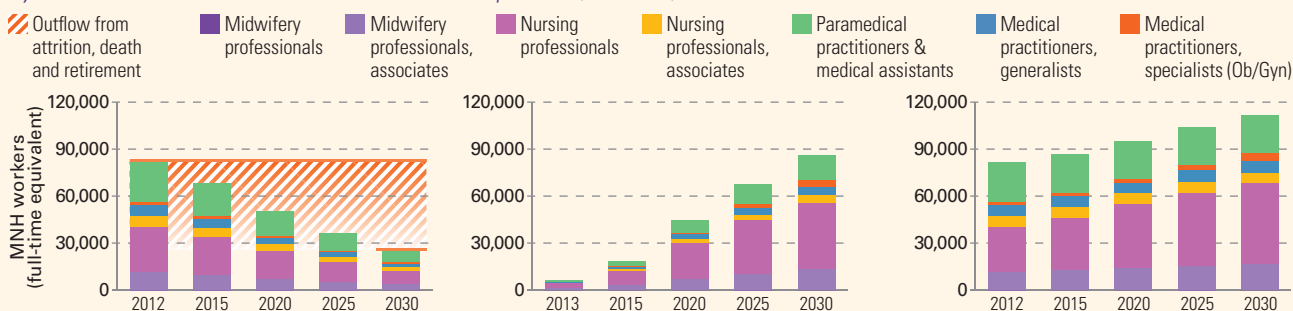zed, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.99 million **CURRENT** → 0.8 million **SCENARIO**

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → **SCENARIO**

100% MET NEED 2030   100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → **SCENARIO**

100% MET NEED 2030   100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak **CURRENT** → 2% leak **SCENARIO**

100% MET NEED 2030   100% MET NEED 2030

CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

100% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes profesionales de obstetricia; Nurses: includes enfermeras; Auxiliary nurse-midwives: includes auxiliares sanitarios; Generalist physicians: includes médicos (general); Obstetricians & gynaecologists: includes médicos obstetras y ginecólogos; Clinical officers & medical assistants: includes técnicos sanitarios. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

RWANDA

In 2012, of an estimated total population of 11.5 million, 10 million (88%) were living in rural areas and 2.8 million (24%) were women of reproductive age; the total fertility rate was 4.6. By 2030, the population is projected to increase by 55% to 17.8 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.7 million pregnancies per annum by 2030, 83% of these in rural settings. Th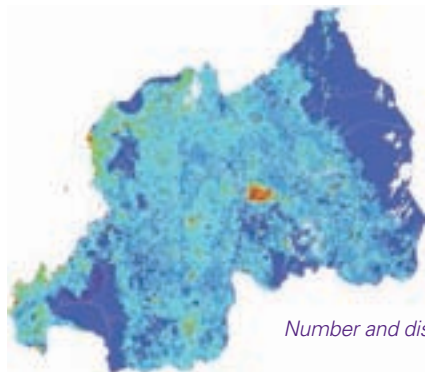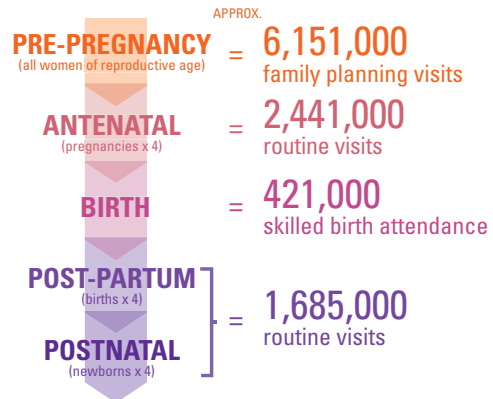e health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 50.3 million antenatal visits, 8.7 million births and 34.7 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
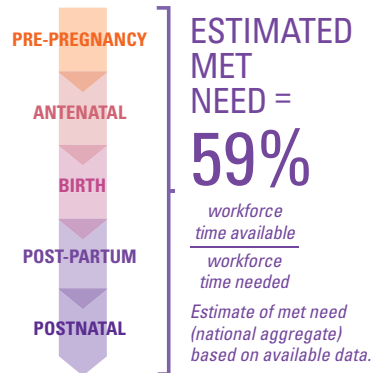
610,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **6,151,000** family planning visits

ANTENATAL (pregnancies x 4) = **2,441,000** routine visits

BIRTH = **421,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **1,685,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	622	100
Midwives, auxiliary	na	na
Nurse-midwives	5	75
Nurses	8,273	50
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	625	60
Obstetricians & gynaecologists	35	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

59%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	100
Number of 2012 graduates/as % of all practising midwives	170/27
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2011, 2011
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	No

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

13% (n=6)
87% (n=40)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births — Rural — Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural   ■ Urban

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012)   ■ Target by 2030

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projection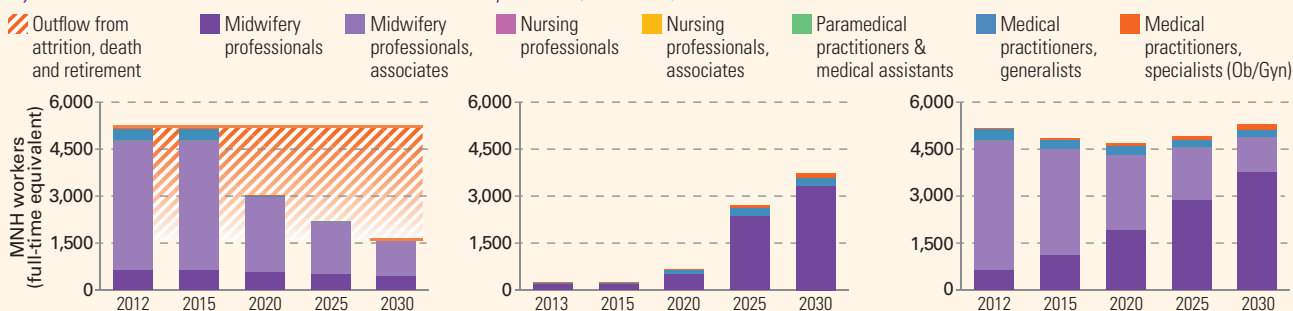s are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.71 million CURRENT → 0.57 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

42% MET NEED 2030 → 67% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

42% MET NEED 2030 → 60% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

5% leak CURRENT → 2.5% leak SCENARIO

42% MET NEED 2030 → 46% MET NEED 2030

CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

42% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030
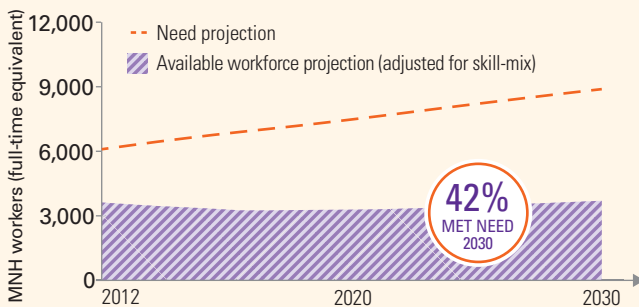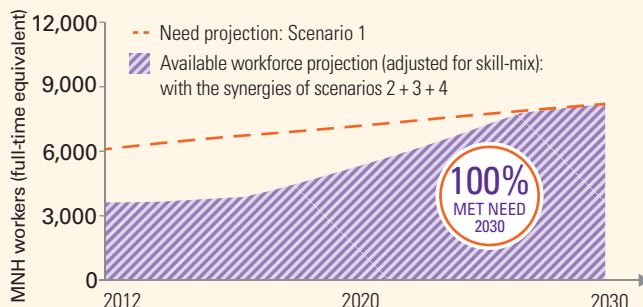
1. These health worker categories include the following country titles - Midwives: includes midwives; Nurse-midwives: includes nurse-midwives; Nurses: includes A2 enrolled nurses; Generalist physicians: includes general practitioners; Obstetricians & gynaecologists: includes obstetricians & gynaecologists.
2. Year of data is as per most recent data available in STATCOMPILER. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

SAO TOME AND PRINCIPE

In 2012, of an estimated total population of 0.19 million, 0.12 million (63%) were living in rural areas and 0.05 million (25%) were women of reproductive age; the total fertility rate was 4.1. By 2030, the population is projected to increase by 48% to 0.3 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.01 million pregnancies per annum by 2030, 60% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 0.9 million antenatal visits, 0.1 million births and 0.6 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

11,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

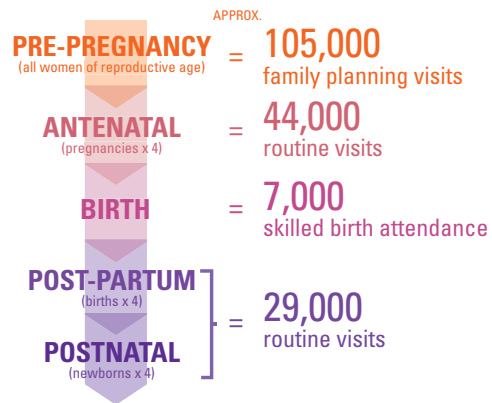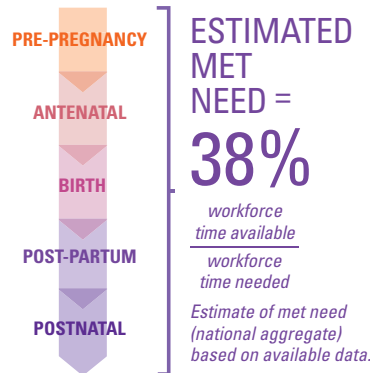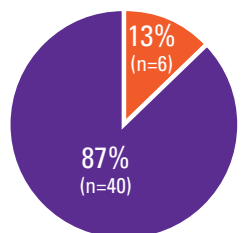|			APPROX.
PRE-PREGNANCY (all women of reproductive age)	=	**105,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**44,000** routine visits
BIRTH	=	**7,000** skilled birth attendance
POST-PARTUM (births x 4)	=	**29,000** routine visits
POSTNATAL (newborns x 4)		

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	31	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	20	100
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	2	100
Physicians, generalists	*na*	*na*
Obstetricians & gynaecologists	2	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

38%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

13% (n=6)
87% (n=40)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (y-axis: 0, 2,000, 4,000, 6,000)

Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	No, *na*
Minimum number of supervised births in curriculum	*na*
Number of 2012 graduates/as % of all practising midwives	0/*na*
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	4
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2013, –, –
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; – = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural   Urban

Number of pregnancies (16,000 / 12,000 / 8,000 / 4,000 / 0)
2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012)   Target by 2030

Maternal mortality ratio (300 / 200 / 100 / 0) — MMR
Newborn mortality rate (30 / 15 / 0) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.
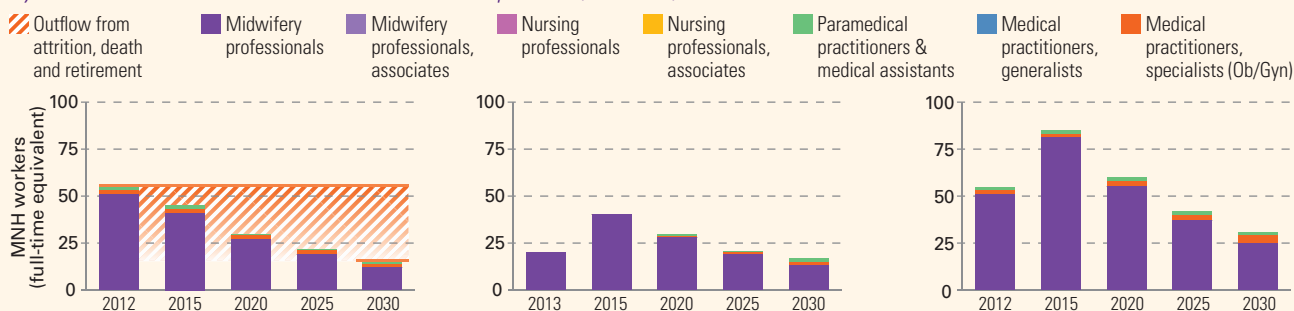
PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement   Midwifery professionals   Midwifery professionals, associates   Nursing professionals   Nursing professionals, associates   Paramedical practitioners & medical assistants   Medical practitioners, generalists   Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) (100 / 75 / 50 / 25 / 0)
2012 2015 2020 2025 2030

MNH workers (100 / 75 / 50 / 25 / 0)
2013 2015 2020 2025 2030

MNH workers (100 / 75 / 50 / 25 / 0)
2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.012 million CURRENT → 0.010 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

15% MET NEED 2030 → 17% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

15% MET NEED 2030 → 22% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

6% leak CURRENT → 3% leak SCENARIO

15% MET NEED 2030 → 23% MET NEED 2030

CURRENT TRAJECTORY
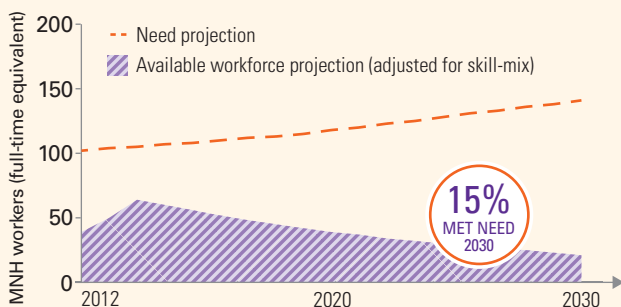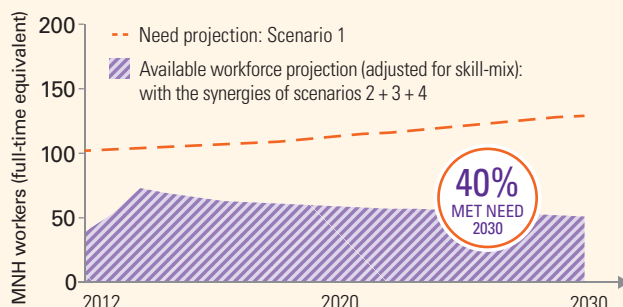
- - Need projection
Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent) (200 / 150 / 100 / 50 / 0)
2012 2020 2030

15% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent) (200 / 150 / 100 / 50 / 0)
2012 2020 2030

40% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurse-midwives: includes nurse-midwives; Obstetricians & gynaecologists: includes obstetricians & gynaecologists; Clinical officers & medical assistants: includes paramédicos em obstetricia. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

SENEGAL

In 2012, of an estimated total population of 13.7 million, 7.4 million (54%) were living in rural areas and 3.3 million (24%) were women of reproductive age; the total fertility rate was 5. By 2030, the population is projected to increase by 59% to 21.9 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1 million pregnancies per annum by 2030, 53% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 66 million antenatal visits, 11.7 million births and 46.7 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

769,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
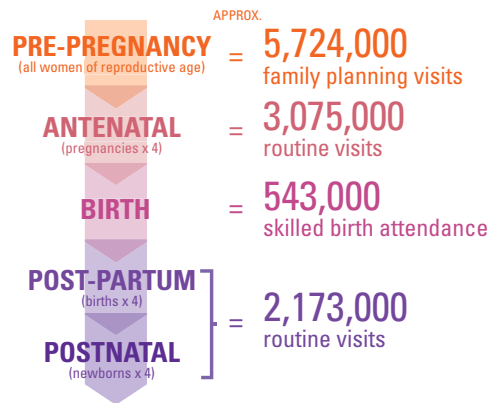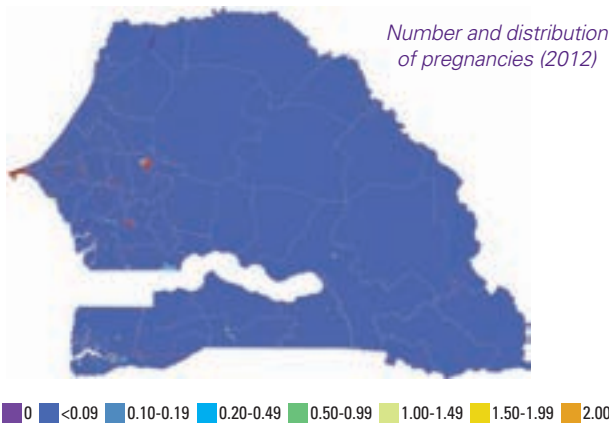
Number and distribution
of pregnancies (2012)

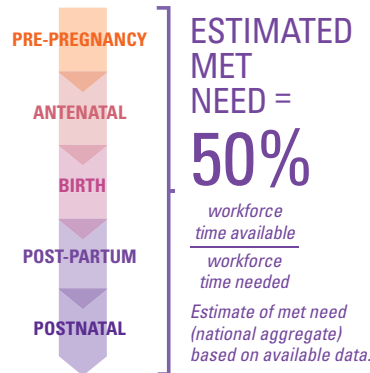|	
PRE-PREGNANCY (all women of reproductive age)	= APPROX. **5,724,000** family planning visits
ANTENATAL (pregnancies x 4)	= **3,075,000** routine visits
BIRTH	= **543,000** skilled birth attendance
POST-PARTUM (births x 4)	= **2,173,000** routine visits
POSTNATAL (newborns x 4)	

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	3,946	100
Midwives, auxiliary	1,751	100
Nurse-midwives	na	na
Nurses	1,295	50
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	1,011	25
Obstetricians & gynaecologists	160	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

50%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

2% (n=1)

98% (n=45)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

450,000
300,000
150,000
0

Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]
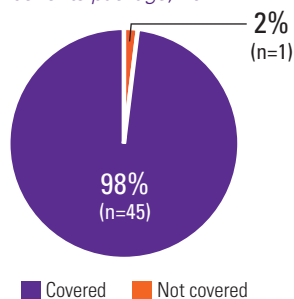
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	10
Number of 2012 graduates/as % of all practising midwives	393/10
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1963
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural Urban

Number of pregnancies

1,000,000
750,000
500,000
250,000
0

2012   2015   2020   2025   2030

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012)   Target by 2030

Maternal mortality ratio

330
220
110
0

MMR

Newborn mortality rate

30
15
0

NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

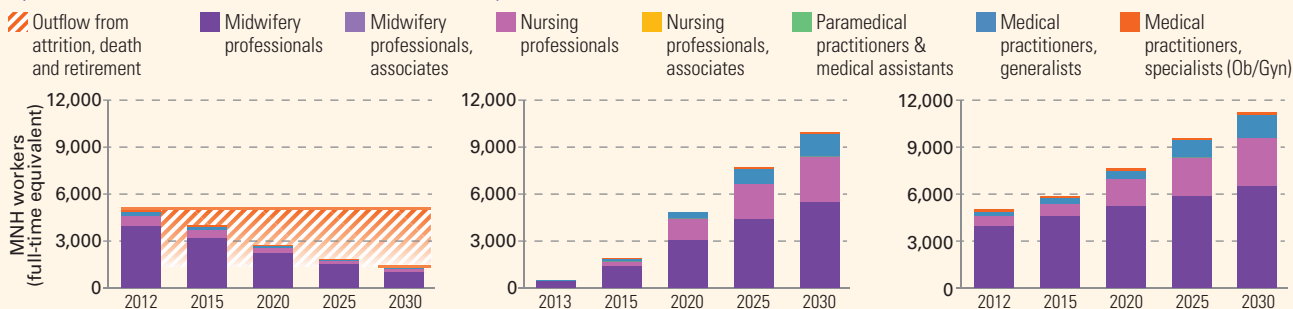## PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement | Midwifery professionals | Midwifery professionals, associates | Nursing professionals | Nursing professionals, associates | Paramedical practitioners & medical assistants | Medical practitioners, generalists | Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

12,000
9,000
6,000
3,000
0

2012   2015   2020   2025   2030

12,000
9,000
6,000
3,000
0

2013   2015   2020   2025   2030

12,000
9,000
6,000
3,000
0

2012   2015   2020   2025   2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.97 million
CURRENT

0.78 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

76% MET NEED 2030

97% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
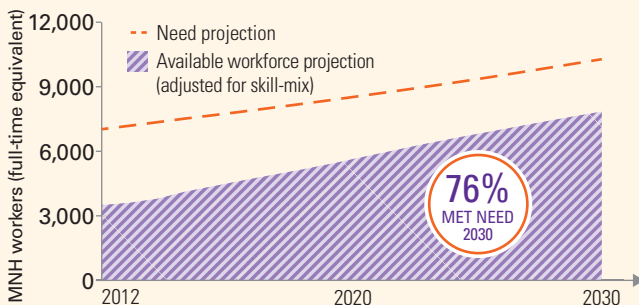
CURRENT → SCENARIO

76% MET NEED 2030

97% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak
CURRENT

2% leak
SCENARIO

76% MET NEED 2030

90% MET NEED 2030

CURRENT TRAJECTORY

- - - Need projection

Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)

12,000
9,000
6,000
3,000
0

2012   2020   2030

76% MET NEED 2030

WHAT IF... TRAJECTORY

- - - Need projection: Scenario 1

Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)

12,000
9,000
6,000
3,000
0

2012   2020   2030

99% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes sages-femmes; Auxiliary midwives: includes matrones; Nurses: includes infirmiers d'etat; Generalist physicians: includes médecins généralistes; Obstetricians & gynaecologists: includes gyneco-obstétriciens. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

SIERRA LEONE
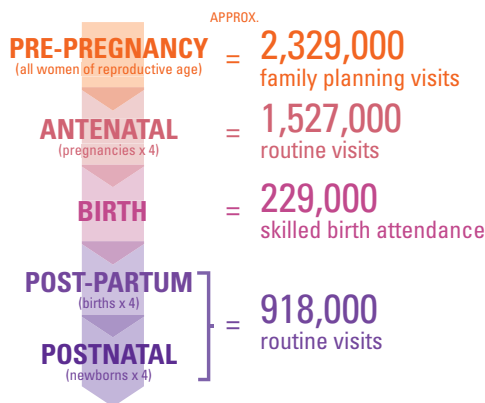
In 2012, of an estimated total population of 6 million, 4 million (67%) were living in rural areas and 1.5 million (25%) were women of reproductive age; the total fertility rate was 4.7. By 2030, the population is projected to increase by 35% to 8.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.4 million pregnancies per annum by 2030, 67% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 29.9 million antenatal visits, 4.5 million births and 18 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
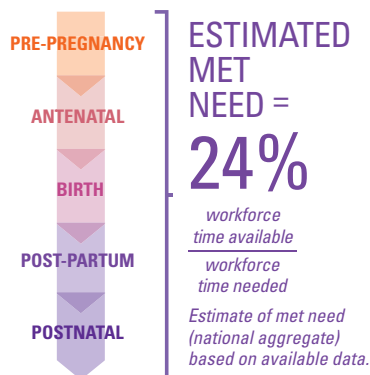
382,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **2,329,000** family planning visits

ANTENATAL (pregnancies x 4) = **1,527,000** routine visits

BIRTH = **229,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **918,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	286	90
Midwives, auxiliary	2376	90
Nurse-midwives	*na*	*na*
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	1,018	–
Clinical officers & medical assistants	65	50
Physicians, generalists	45	–
Obstetricians & gynaecologists	7	51

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 24%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

11% (n=5)

89% (n=41)

- ■ Covered
- ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

- ■ Accessed a SBA
- ■ Did not access a SBA
- ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	2
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	121/42
% of graduates employed in MNH within one year	99%

MIDWIFERY REGULATION

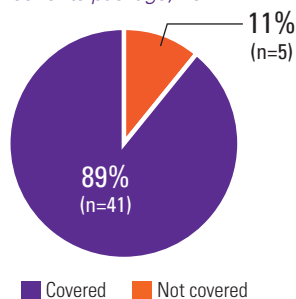|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

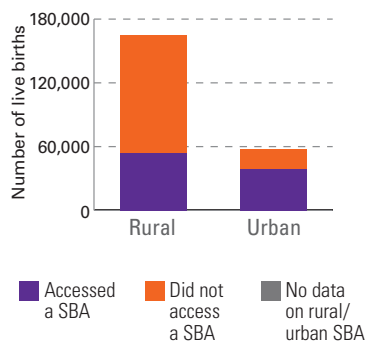|	
Year of creation of professional associations	1969
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies: 420,000 / 315,000 / 210,000 / 105,000 / 0

Years: 2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio: 1,200 / 800 / 400 / 0 — MMR

Newborn mortality rate: 50 / 25 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

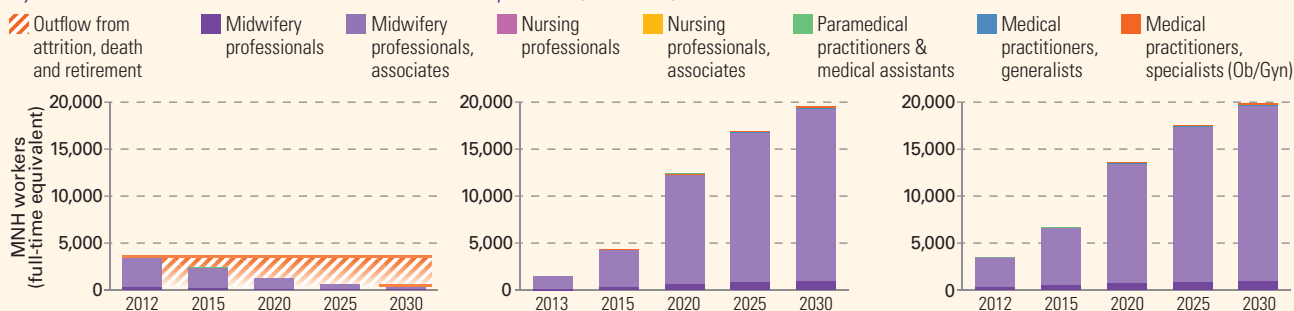## PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent): 20,000 / 15,000 / 10,000 / 5,000 / 0

Outflows years: 2012 2015 2020 2025 2030
Inflows years: 2013 2015 2020 2025 2030
Workforce years: 2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.40 million CURRENT → 0.32 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

42% MET NEED 2030 → 62% MET NEED 2030

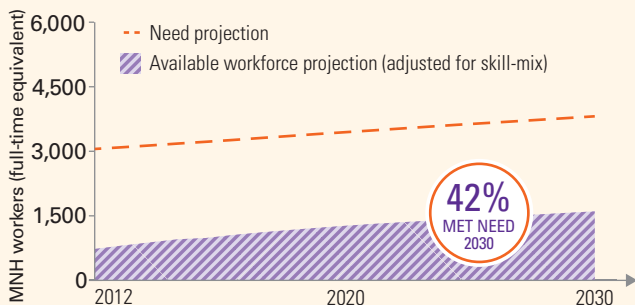**3 Efficiency improved by 2% per year until 2030?**

CURRENT → SCENARIO

42% MET NEED 2030 → 52% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

10% leak CURRENT → 5% leak SCENARIO

42% MET NEED 2030 → 49% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent): 6,000 / 4,500 / 3,000 / 1,500 / 0

2012 2020 2030

42% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent): 6,000 / 4,500 / 3,000 / 1,500 / 0
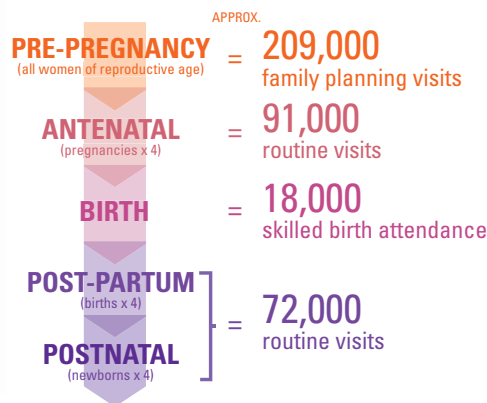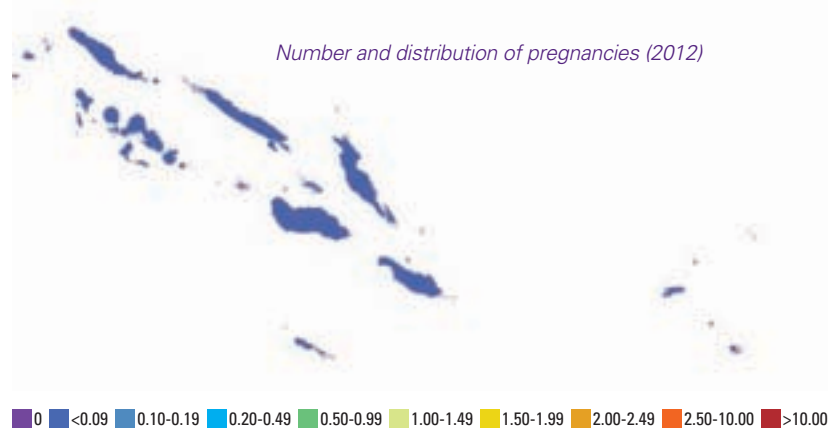
2012 2020 2030

100% MET NEED 2030
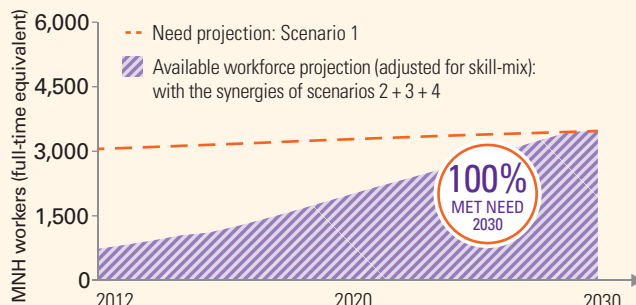
1. These health worker categories include the following country titles - Midwives: includes midwives; Auxiliary midwives: includes maternal and child health aides (MCHAs), nursing aides; Auxiliary nurse-midwives: includes state enrolled community health nurses (SECHNs); Generalist physicians: includes medical officers; Obstetricians & gynaecologists: includes obstetricians & gynaecologists, physician specialists; Clinical officers & medical assistants: includes community health officers (CHOs). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

SOLOMON ISLANDS

In 2012, of an estimated total population of 0.5 million, 100% were living in rural areas and 0.1 million (25%) were women of reproductive age; the total fertility rate was 4.1. By 2030, the population is projected to increase by 39% to 0.8 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.03 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 1.8 million antenatal visits, 0.4 million births and 1.4 million post-partum/postnatal visits between 2012 and 2030.
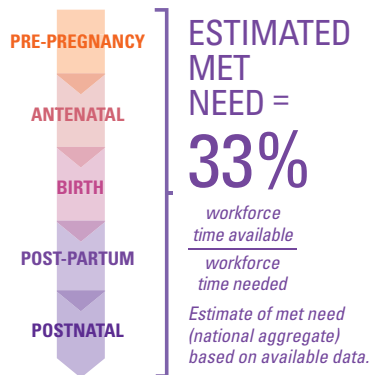
WHAT WOMEN AND NEWBORNS NEED (2012)

23,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age)	=	APPROX. **209,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**91,000** routine visits
BIRTH	=	**18,000** skilled birth attendance
POST-PARTUM (births x 4) POSTNATAL (newborns x 4)	=	**72,000** routine visits

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	141	80
Midwives, auxiliary	na	na
Nurse-midwives	na	na
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	na	na
Physicians, generalists	3	15
Obstetricians & gynaecologists	2	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
33%
workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)
91% (n=42)

■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

18,000 — 12,000 — 6,000 — 0

Rural | Urban

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	2
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	40
Number of 2012 graduates/as % of all practising midwives	–/–
% of graduates employed in MNH within one year	90%

MIDWIFERY REGULATION

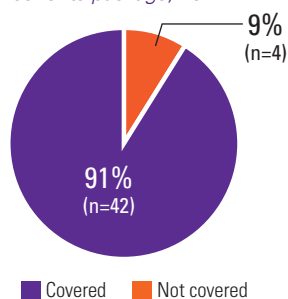|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

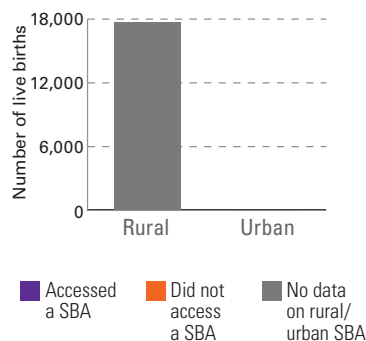|	
Year of creation of professional associations	2004, –, –
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies: 28,000 / 21,000 / 14,000 / 7,000 / 0
Years: 2012, 2015, 2020, 2025, 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio: 150 / 100 / 50 / 0 — MMR
Newborn mortality rate: 20 / 10 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolm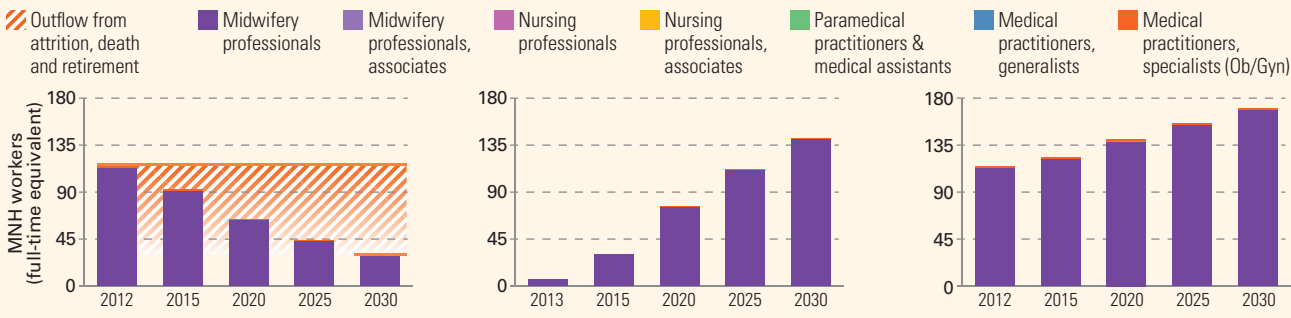ent, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent): 180 / 135 / 90 / 45 / 0
Years: 2012, 2015, 2020, 2025, 2030 (Outflows); 2013, 2015, 2020, 2025, 2030 (Inflows); 2012, 2015, 2020, 2025, 2030 (Workforce)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.03 million CURRENT → 0.02 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO
39% MET NEED 2030 → 66% MET NEED 2030

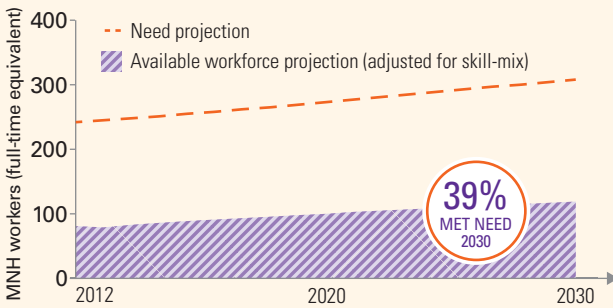**3** Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO
39% MET NEED 2030 → 55% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO
39% MET NEED 2030 → 46% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent): 400 / 300 / 200 / 100 / 0
Years: 2012, 2020, 2030

39% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent): 400 / 300 / 200 / 100 / 0
Years: 2012, 2020, 2030

98% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
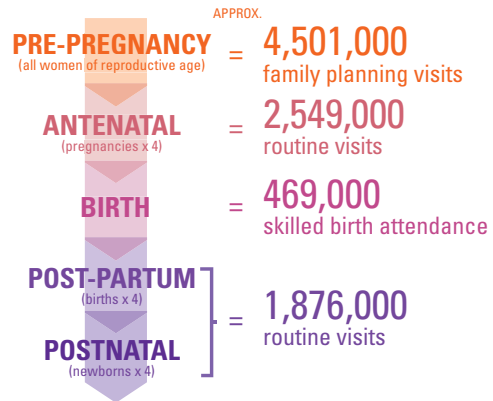
SOMALIA

In 2012, of an estimated total population of 10.2 million, 7.7 million (76%) were living in rural areas and 2.2 million (22%) were women of reproductive age; the total fertility rate was 6.6. By 2030, the population is projected to increase by 66% to 16.9 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.9 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 57.8 million antenatal visits, 10.6 million births and 42.5 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
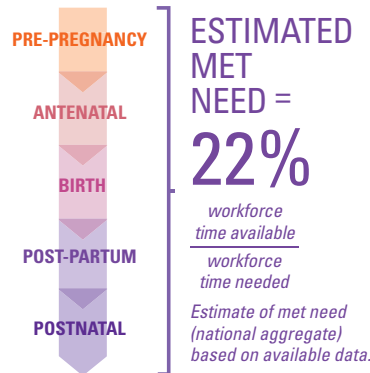
637,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age)	=	APPROX. **4,501,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**2,549,000** routine visits
BIRTH	=	**469,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**1,876,000** routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	65	100
Midwives, auxiliary	612	100
Nurse-midwives	218	70
Nurses	na	na
Nurses or nurse-midwives, auxiliary	1,838	50
Clinical officers & medical assistants	na	na
Physicians, generalists	339	27
Obstetricians & gynaecologists	21	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 22%

workforce time available / workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

15% (n=7)
85% (n=39)

Covered | Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural | Urban

Accessed a SBA | Did not access a SBA | No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	No, na
Minimum number of supervised births in curriculum	na
Number of 2012 graduates/as % of all practising midwives	–/na
% of graduates employed in MNH within one year	na

MIDWIFERY REGULATION

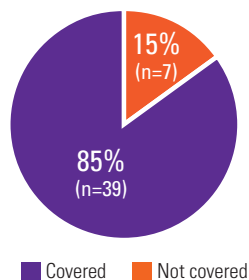|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/No

PROFESSIONAL ASSOCIATIONS[4]

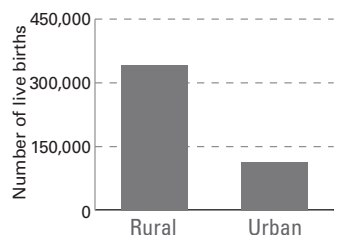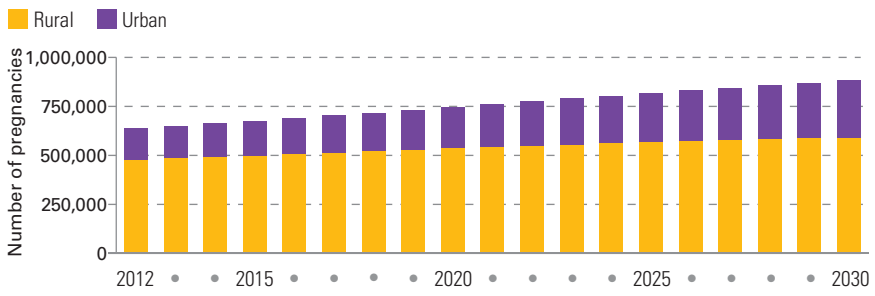|	
Year of creation of professional associations	2013
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies

1,000,000
750,000
500,000
250,000
0

2012   2015   2020   2025   2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio

900
600
300
0

MMR

Newborn mortality rate
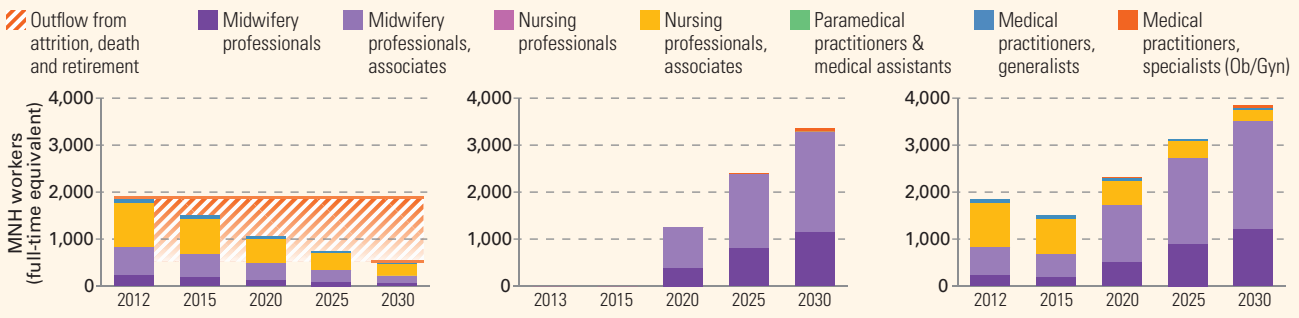
50
25
0

NMR

ESTIMATES AND PROJECTIONS TO 2030

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PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

4,000
3,000
2,000
1,000
0

2012   2015   2020   2025   2030

4,000
3,000
2,000
1,000
0

2013   2015   2020   2025   2030

4,000
3,000
2,000
1,000
0

2012   2015   2020   2025   2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.88 million
CURRENT ➤ SCENARIO
0.71 million

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT ➤ SCENARIO

31% MET NEED 2030 ➤ 40% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
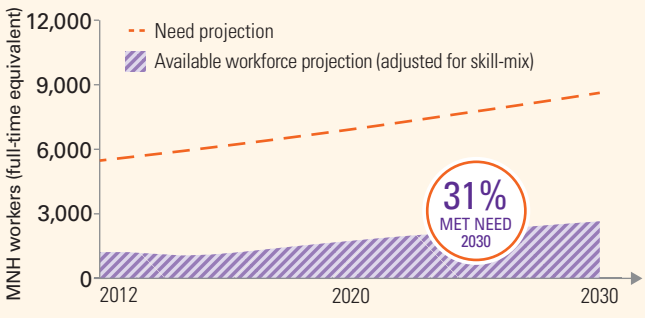
CURRENT ➤ SCENARIO

31% MET NEED 2030 ➤ 35% MET NEED 2030

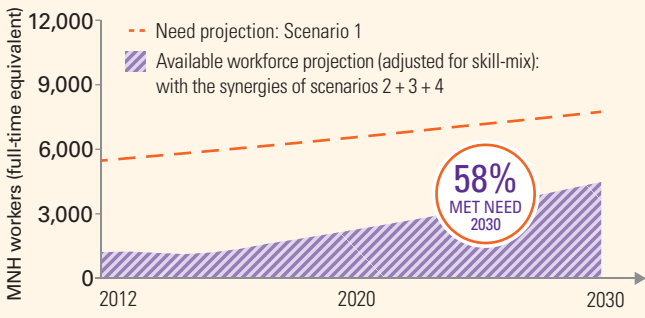**4** Attrition was halved in the next 5 years (2012-2017)?

4% leak
CURRENT ➤ SCENARIO
2% leak

31% MET NEED 2030 ➤ 32% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent)

12,000
9,000
6,000
3,000
0

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

31% MET NEED 2030

2012   2020   2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

12,000
9,000
6,000
3,000
0

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

58% MET NEED 2030

2012   2020   2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Auxiliary midwives: includes auxiliary midwives; Nurse-midwives: includes nurse-midwives; Auxiliary nurse-midwives: includes auxiliary nurse-midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan.*
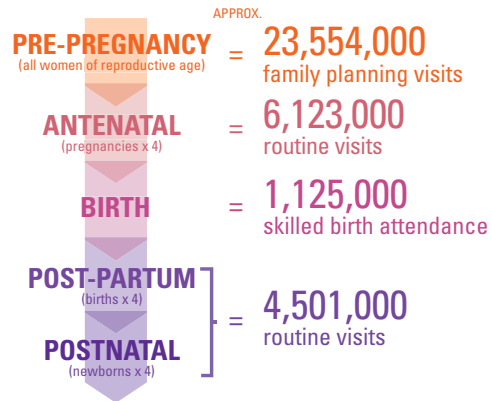
SOUTH AFRICA

In 2012, of an estimated total population of 52.4 million, 20.8 million (40%) were living in rural areas and 14.1 million (27%) were women of reproductive age; the total fertility rate was 2.4. By 2030, the population is projected to increase by 11% to 58.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.4 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 109.3 million antenatal visits, 20.1 million births and 80.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

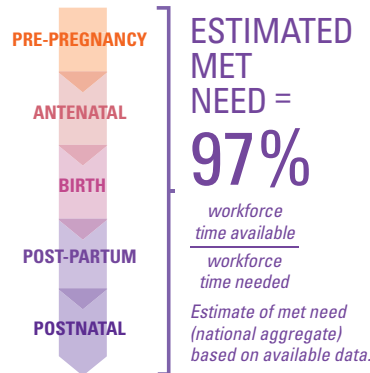### 1,531,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
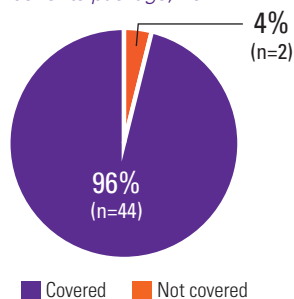
Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **23,554,000** family planning visits

ANTENATAL (pregnancies x 4) = **6,123,000** routine visits

BIRTH = **1,125,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **4,501,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	–	–
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	124,045	–
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	39,541	–
Obstetricians & gynaecologists	–	–

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 97%

workforce time available
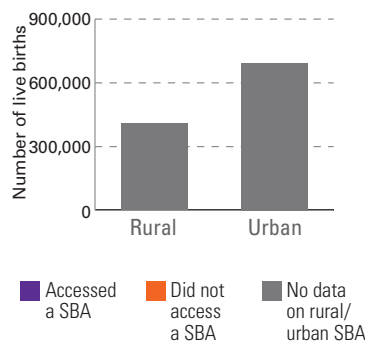workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

4% (n=2)

96% (n=44)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births
900,000
300,000
0
Rural   Urban

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

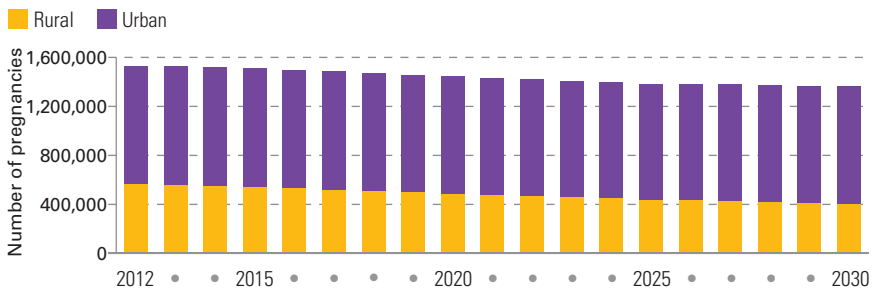|	
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	1
Standardized curriculum? Year of last update	No, *na*
Minimum number of supervised births in curriculum	*na*
Number of 2012 graduates/as % of all practising midwives	958/–
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/No

PROFESSIONAL ASSOCIATIONS[4]
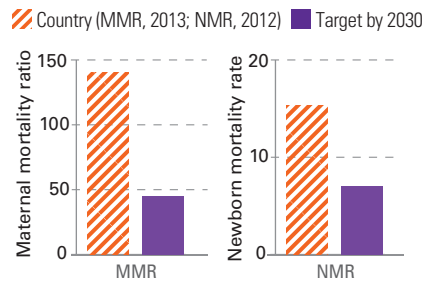
Year of creation of professional associations	1996, 2001
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ■ Urban

Number of pregnancies — y-axis: 0; 400,000; 800,000; 1,200,000; 1,600,000
x-axis: 2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio — y-axis: 0, 50, 100, 150 (MMR)
Newborn mortality rate — y-axis: 0, 10, 20 (NMR)
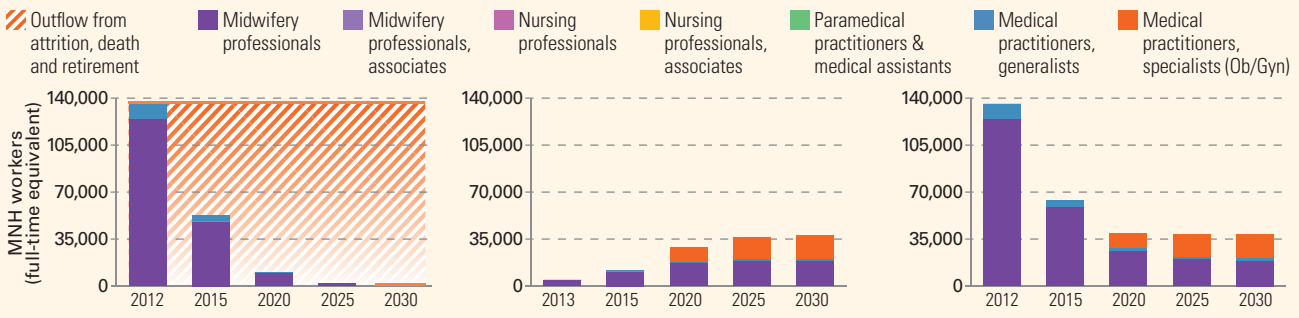
ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) — y-axis: 0; 35,000; 70,000; 105,000; 140,000
Outflows x-axis: 2012, 2015, 2020, 2025, 2030
Inflows x-axis: 2013, 2015, 2020, 2025, 2030
Workforce x-axis: 2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.4 million CURRENT → 1.1 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
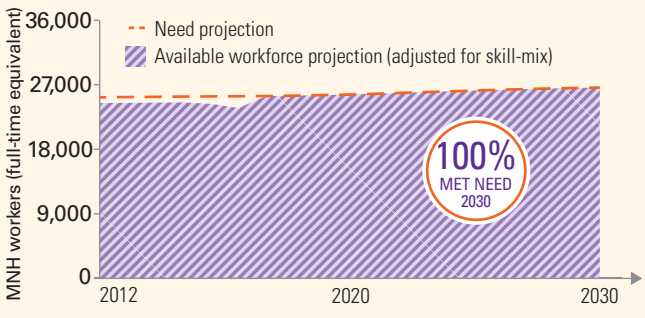
CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

25% leak CURRENT → 12.5% leak SCENARIO

100% MET NEED 2030   100% MET NEED 2030
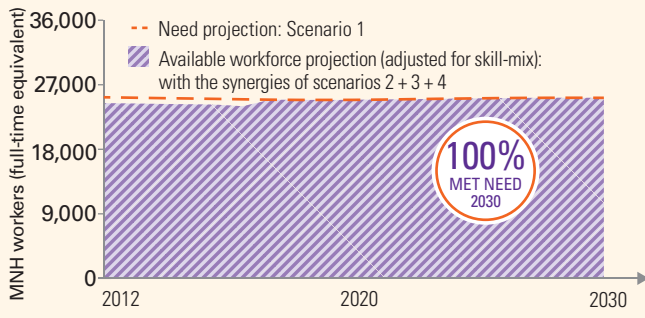
CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent) — y-axis: 0; 9,000; 18,000; 27,000; 36,000
x-axis: 2012, 2020, 2030

100% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent) — y-axis: 0; 9,000; 18,000; 27,000; 36,000
x-axis: 2012, 2020, 2030

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwife specialists (advanced midwives); Nurses: includes professional nurses; Generalist physicians: includes doctors; Obstetricians & gynaecologists: includes gynaecologists, obstetricians. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
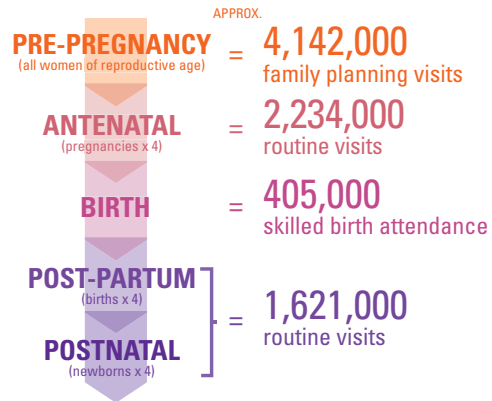
SOUTH SUDAN

In 2012, of an estimated total population of 10.8 million, 9.8 million (91%) were living in rural areas and 2.6 million (24%) were women of reproductive age; the total fertility rate was 5. By 2030, the population is projected to increase by 60% to 17.3 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.7 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 49.5 million antenatal visits, 9 million births and 35.9 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
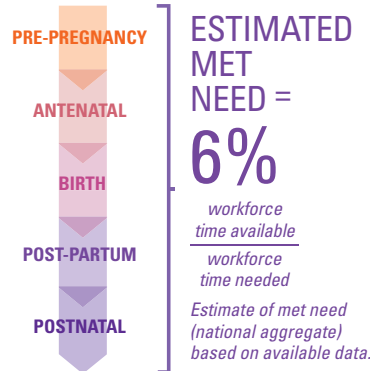
558,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
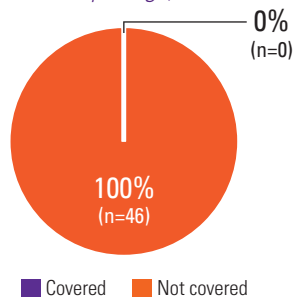

Number and distribution of pregnancies (2012)

0	<0.09	0.10–0.19	0.20–0.49	0.50–0.99	1.00–1.49	1.50–1.99	2.00–2.49	2.50–10.00	>10.00	

PRE-PREGNANCY (all women of reproductive age) = APPROX. **4,142,000** family planning visits

ANTENATAL (pregnancies x 4) = **2,234,000** routine visits

BIRTH = **405,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **1,621,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	307	100
Midwives, auxiliary	237	100
Nurse-midwives	*na*	*na*
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	238	40
Physicians, generalists	150	40
Obstetricians & gynaecologists	–	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 6%

workforce time available / workforce time needed
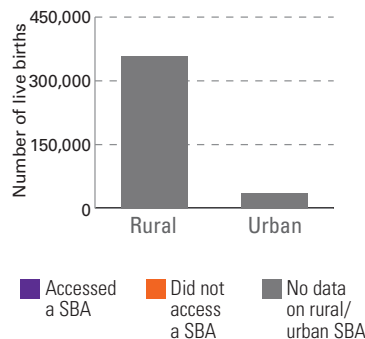
Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

0% (n=0)
100% (n=46)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/ urban SBA

MIDWIFERY EDUCATION[3]

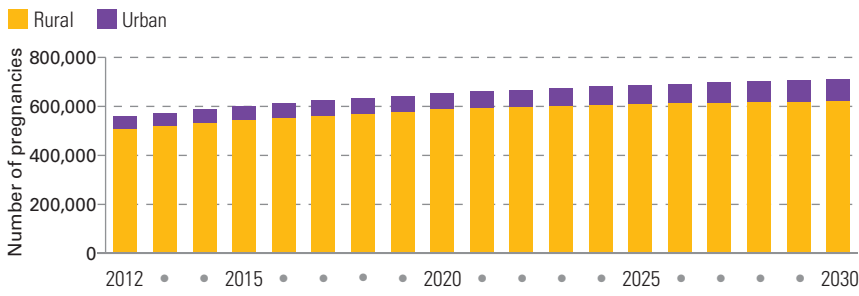|	
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	–/*na*
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

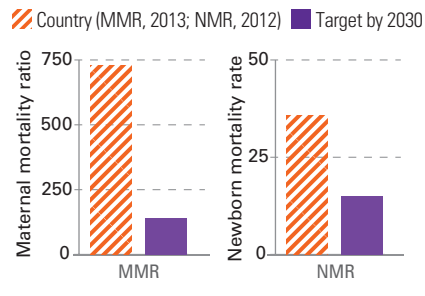|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	No
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	5
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2011
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030
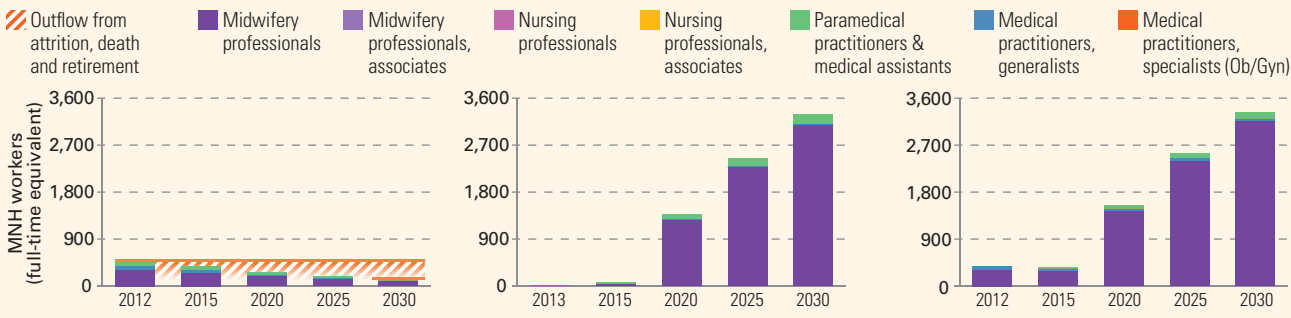

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.71 million CURRENT → 0.57 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

31% MET NEED 2030 → 57% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
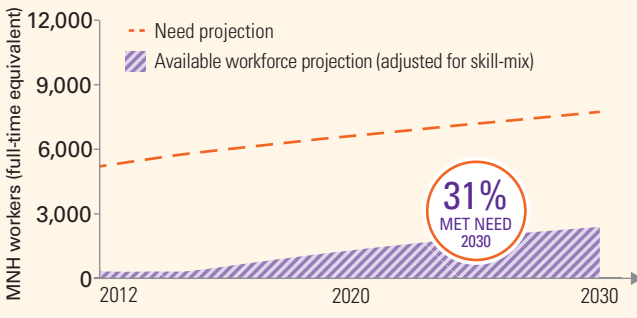
CURRENT → SCENARIO

31% MET NEED 2030 → 44% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

31% MET NEED 2030 → 35% MET NEED 2030
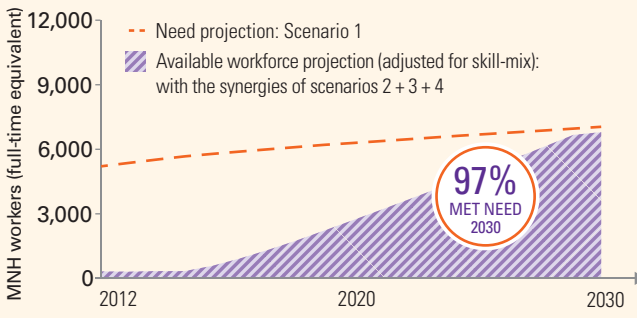
CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

31% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

97% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes registered midwives; registered nurse midwives, certified & enrolled nurse midwives, health visitors; Auxiliary midwives: includes village midwives, community midwives; Generalist physicians: includes medical officers; Obstetricians & gynaecologists: includes obstetrician and gynaecologists; Clinical officers & medical assistants: includes clinical officers. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
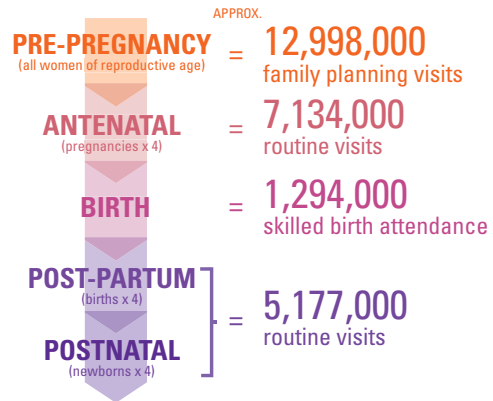
SUDAN

In 2012, of an estimated total population of 37.2 million, 24 million (64%) were living in rural areas and 9 million (24%) were women of reproductive age; the total fertility rate was 4.5. By 2030, the population is projected to increase by 48% to 55.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 2.1 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 149.3 million antenatal visits, 27.1 million births and 108.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)
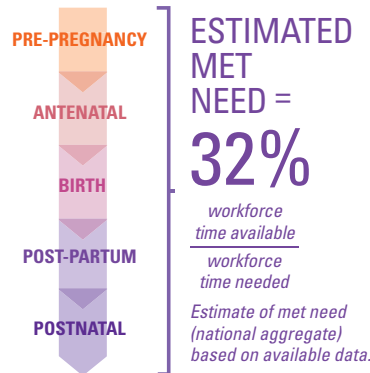
1,784,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **12,998,000** family planning visits

ANTENATAL (pregnancies x 4) = **7,134,000** routine visits

BIRTH = **1,294,000** skilled birth attendance

POST-PARTUM (births x 4)

POSTNATAL (newborns x 4) = **5,177,000** routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	478	100
Midwives, auxiliary	67	100
Nurse-midwives	689	100
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	13,455	–
Physicians, generalists	7,226	50
Obstetricians & gynaecologists	316	80

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 32%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	50
Number of 2012 graduates/as % of all practising midwives	0/*na*
% of graduates employed in MNH within one year	33%

MIDWIFERY REGULATION

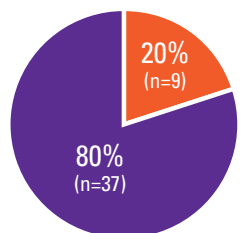|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	5
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/No

PROFESSIONAL ASSOCIATIONS[4]

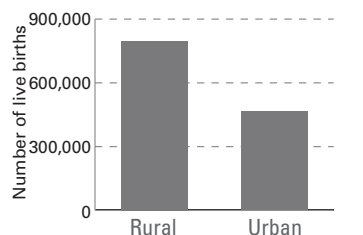|	
Year of creation of professional associations	2008
Roles performed by professional associations:	
Continuing professional development	No
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	No
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	No

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012
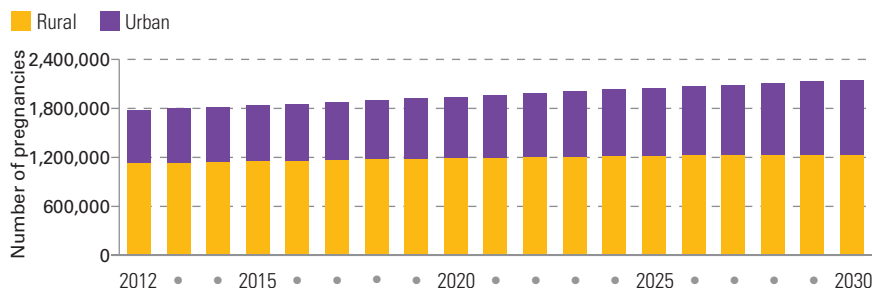
20% (n=9)
80% (n=37)

Covered | Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

900,000
300,000
0

Rural | Urban

Accessed a SBA | Did not access a SBA | No data on rural/urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

Number of pregnancies (y-axis: 0 to 2,400,000)
x-axis: 2012 · · 2015 · · 2020 · · 2025 · · 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio (0 to 450) — MMR
Newborn mortality rate (0 to 40) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) (0 to 56,000)
Outflows x-axis: 2012, 2015, 2020, 2025, 2030
Inflows x-axis: 2013, 2015, 2020, 2025, 2030
Workforce x-axis: 2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

2.1 million CURRENT → 1.7 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

38% MET NEED 2030 → 46% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
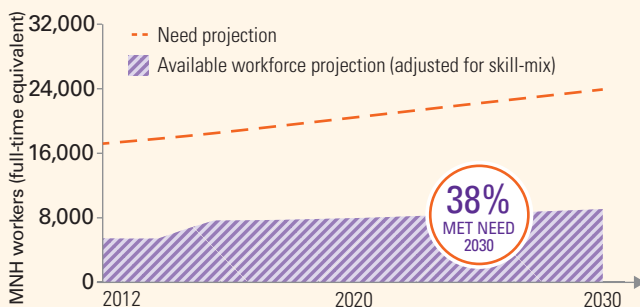
CURRENT → SCENARIO

38% MET NEED 2030 → 43% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

38% MET NEED 2030 → 40% MET NEED 2030

CURRENT TRAJECTORY
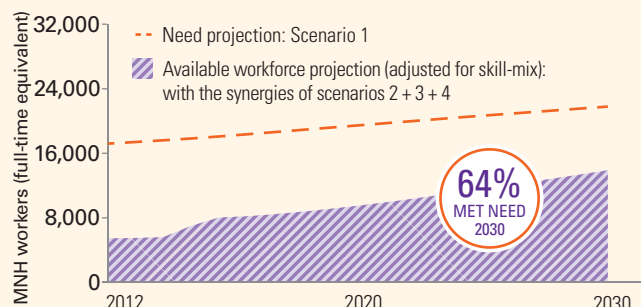
-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent) (0 to 32,000)
x-axis: 2012, 2020, 2030

38% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent) (0 to 32,000)
x-axis: 2012, 2020, 2030

64% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives, health visitors; Auxiliary midwives: includes technical/community midwives; Nurse-midwives: includes nurse-midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists; Clinical officers & medical assistants: includes medical assistants. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
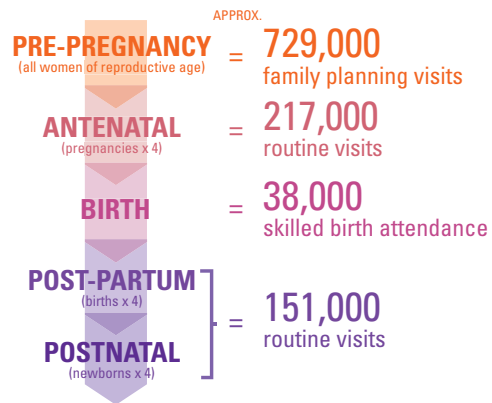
SWAZILAND

In 2012, of an estimated total population of 1.2 million, 0.9 million (69%) were living in rural areas and 0.3 million (26%) were women of reproductive age; the total fertility rate was 3.4. By 2030, the population is projected to increase by 23% to 1.5 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.05 million pregnancies per annum by 2030, 74% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 4.1 million antenatal visits, 0.7 million births and 2.8 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

54,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?
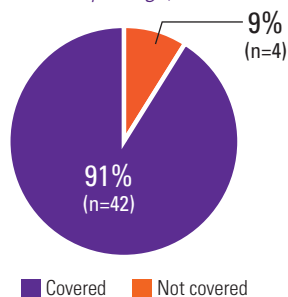
Number and distribution of pregnancies (2012)

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **729,000** family planning visits

ANTENATAL (pregnancies x 4) = **217,000** routine visits

BIRTH = **38,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **151,000** routine visits

■ 0	■ <0.09	■ 0.10-0.19	■ 0.20-0.49	■ 0.50-0.99	■ 1.00-1.49	■ 1.50-1.99	■ 2.00-2.49	■ 2.50-10.00	■ >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	*na*	*na*
Midwives, auxiliary	*na*	*na*
Nurse-midwives	1,200	100
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	70	100
Clinical officers & medical assistants	–	–
Physicians, generalists	259	30
Obstetricians & gynaecologists	4	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 88%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

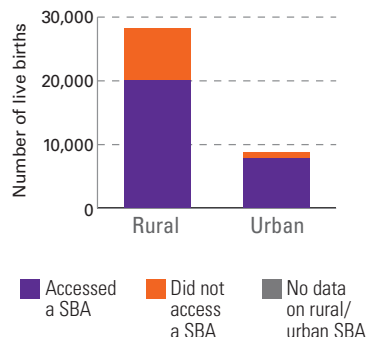## FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)

91% (n=42)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

30,000
20,000
10,000
0

Rural   Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2011
Minimum number of supervised births in curriculum	25
Number of 2012 graduates/as % of all practising midwives	113/9
% of graduates employed in MNH within one year	86%

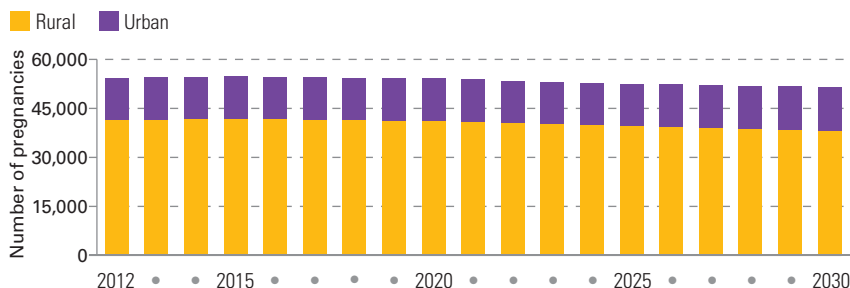## MIDWIFERY REGULATION

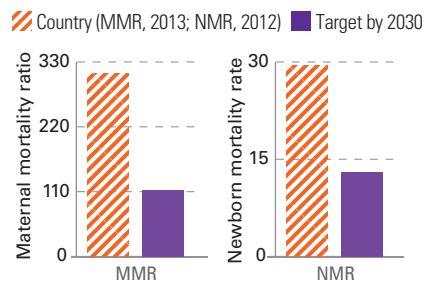|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	5
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1965, 2002, –
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030
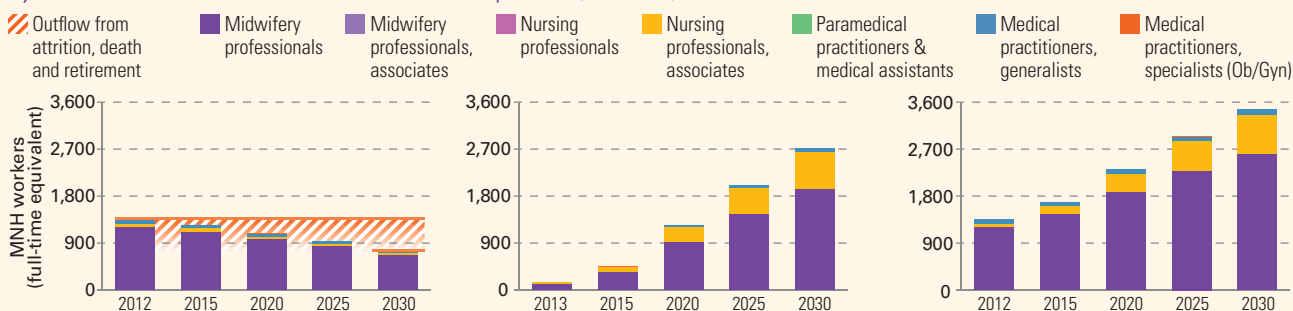
ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

WHAT IF... Estimates of met need based on available data.

1 The number of pregnancies was reduced by 20% by 2030?

0.05 million CURRENT → 0.04 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

87% MET NEED 2030 → 91% MET NEED 2030

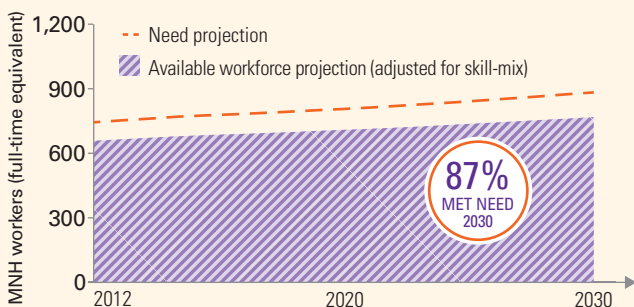**3** Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

87% MET NEED 2030 → 90% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

0% leak CURRENT → 0% leak SCENARIO

87% MET NEED 2030 → 87% MET NEED 2030

CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

87% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

97% MET NEED 2030
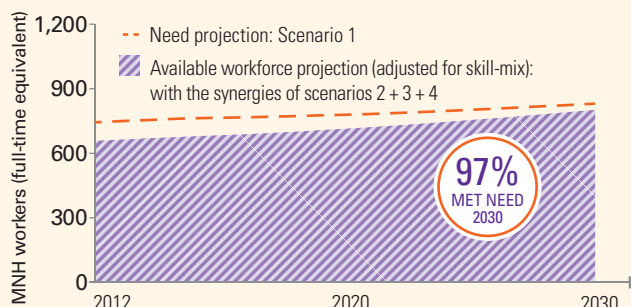
1. These health worker categories include the following country titles - Nurse-midwives: includes nurse-midwives; Auxiliary nurse-midwives: includes nursing assistants; Generalist physicians: includes physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists; Clinical officers & medical assistants: includes paramedics. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the nurse-midwife cadre category.
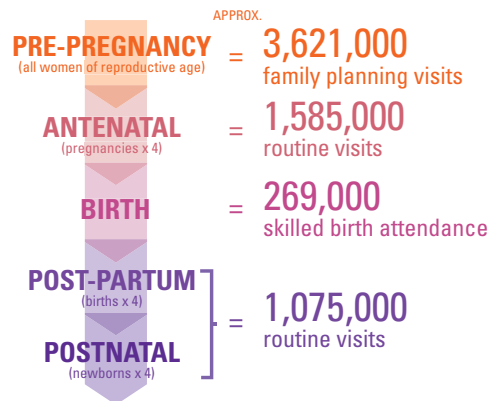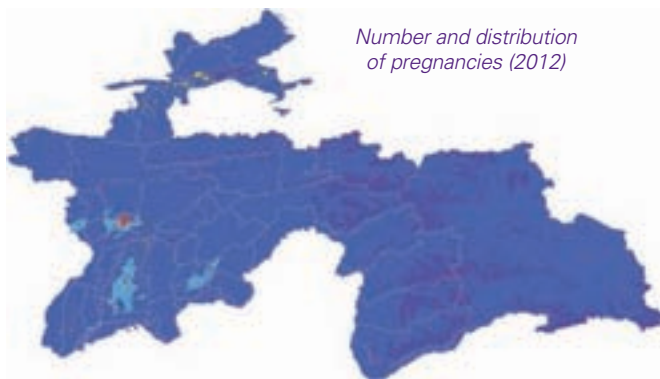4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

TAJIKISTAN

In 2012, of an estimated total population of 8 million, 4.2 million (52%) were living in rural areas and 2.1 million (26%) were women of reproductive age; the total fertility rate was 3.9. By 2030, the population is projected to increase by 42% to 11.4 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.4 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 30.6 million antenatal visits, 5.2 million births and 20.7 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

396,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **3,621,000** family planning visits

ANTENATAL (pregnancies x 4) = **1,585,000** routine visits

BIRTH = **269,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **1,075,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	4,376	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	*na*	*na*
Nurses	16,908	23
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	1,568	20
Physicians, generalists	4,040	18
Obstetricians & gynaecologists	1,407	100
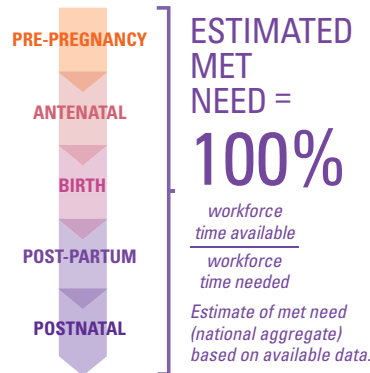
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
100%
workforce time available
workforce time needed
Estimate of met need (national aggregate) based on available data.

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	4
Standardized curriculum? Year of last update	Yes, 2008
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	530/12
% of graduates employed in MNH within one year	78%

MIDWIFERY REGULATION

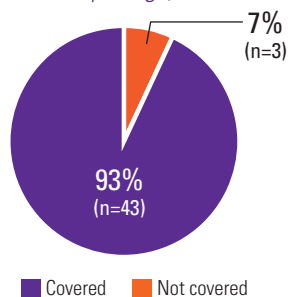| Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/No

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1987, 1997
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

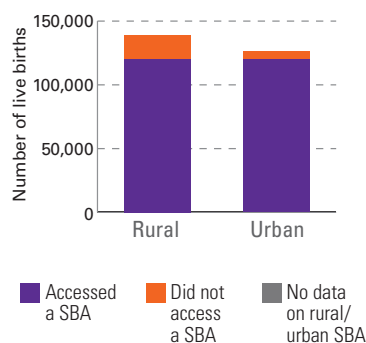## FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

7% (n=3)
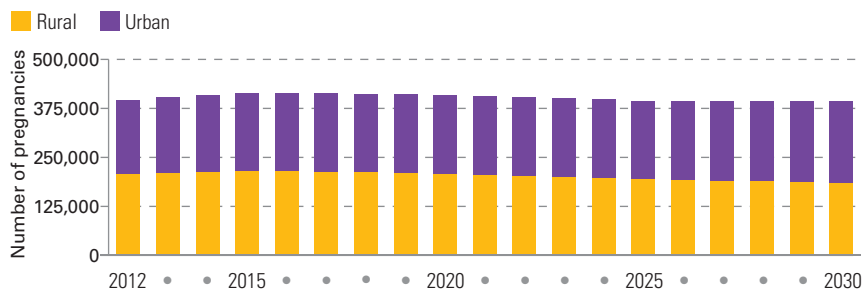93% (n=43)

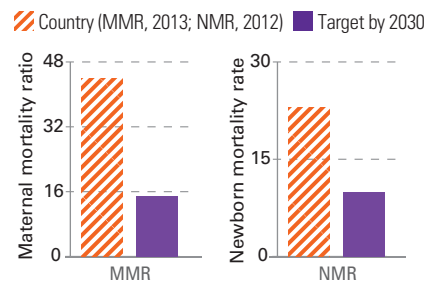■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Legend: Rural | Urban

Number of pregnancies (y-axis: 0 – 500,000)
Years: 2012, 2015, 2020, 2025, 2030

MORTALITY REDUCTION[5]

Legend: Country (MMR, 2013; NMR, 2012) | Target by 2030

Maternal mortality ratio (y-axis: 0 – 48) — MMR

Newborn mortality rate (y-axis: 0 – 30) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Legend:
- Outflow from attrition, death and retirement
- Midwifery professionals
- Midwifery professionals, associates
- Nursing professionals
- Nursing professionals, associates
- Paramedical practitioners & medical assistants
- Medical practitioners, generalists
- Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent) (y-axis: 0 – 16,000)

Projected Outflows years: 2012, 2015, 2020, 2025, 2030
Projected Inflows years: 2013, 2015, 2020, 2025, 2030
Projected Workforce years: 2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.39 million CURRENT → 0.31 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

100% MET NEED 2030 → 100% MET NEED 2030

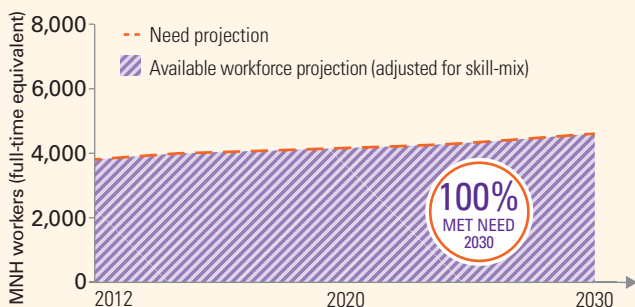**3** Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

100% MET NEED 2030 → 100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

100% MET NEED 2030 → 100% MET NEED 2030

CURRENT TRAJECTORY

Legend:
- Need projection
- Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent) (y-axis: 0 – 8,000)
Years: 2012, 2020, 2030

100% MET NEED 2030

WHAT IF... TRAJECTORY

Legend:
- Need projection: Scenario 1
- Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent) (y-axis: 0 – 8,000)
Years: 2012, 2020, 2030

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurses: includes family nurses, nurses of primary health care institutions; Generalist physicians: includes physicians (therapeutists), family physicians; Obstetricians & gynaecologists: includes ob/gyns; Clinical officers & medical assistants: includes feldshers. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
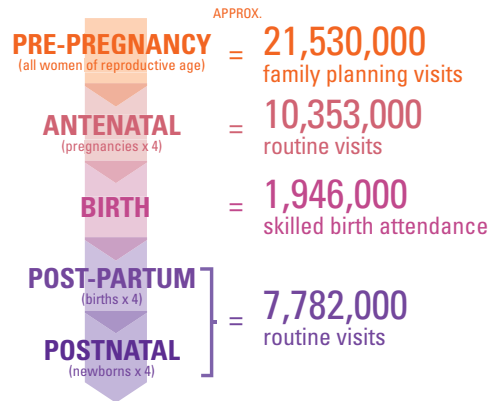
TANZANIA, UNITED REPUBLIC OF

In 2012, of an estimated total population of 47.8 million, 40.1 million (84%) were living in rural areas and 10.9 million (23%) were women of reproductive age; the total fertility rate was 5.2. By 2030, the population is projected to increase by 66% to 79.4 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 3.6 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 232.1 million antenatal visits, 43.6 million births and 174.5 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

2,588,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

0	<0.09	0.10-0.19	0.20-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.49	2.50-10.00	>10.00

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **21,530,000** family planning visits

ANTENATAL (pregnancies x 4) = **10,353,000** routine visits

BIRTH = **1,946,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **7,782,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	na	na
Midwives, auxiliary	na	na
Nurse-midwives	20,800	100
Nurses	na	na
Nurses or nurse-midwives, auxiliary	na	na
Clinical officers & medical assistants	8,787	50
Physicians, generalists	1,135	50
Obstetricians & gynaecologists	122	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
74%
workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.
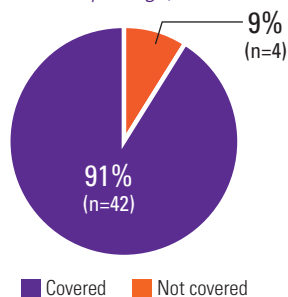
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2009
Minimum number of supervised births in curriculum	–
Number of 2012 graduates/as % of all practising midwives	2,944/14
% of graduates employed in MNH within one year	0%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

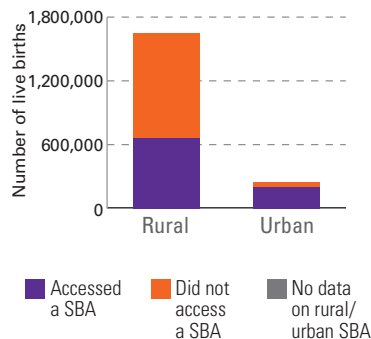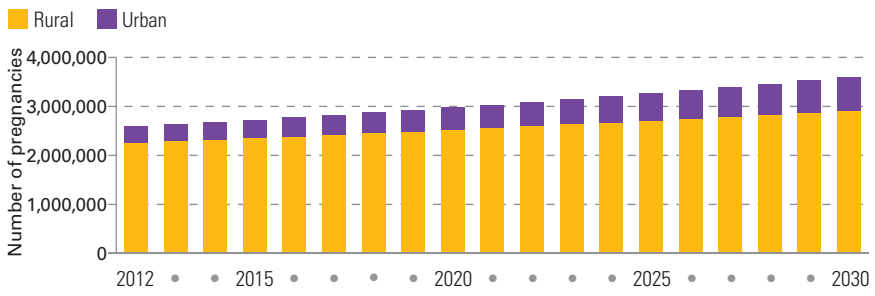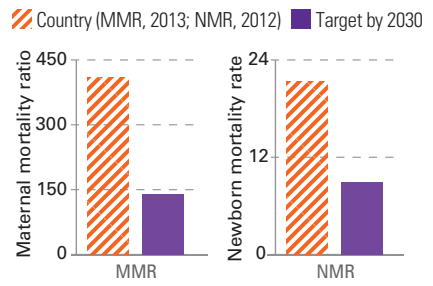|	
Year of creation of professional associations	1992, –
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

9% (n=4)

91% (n=42)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/ urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ■ Urban

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030
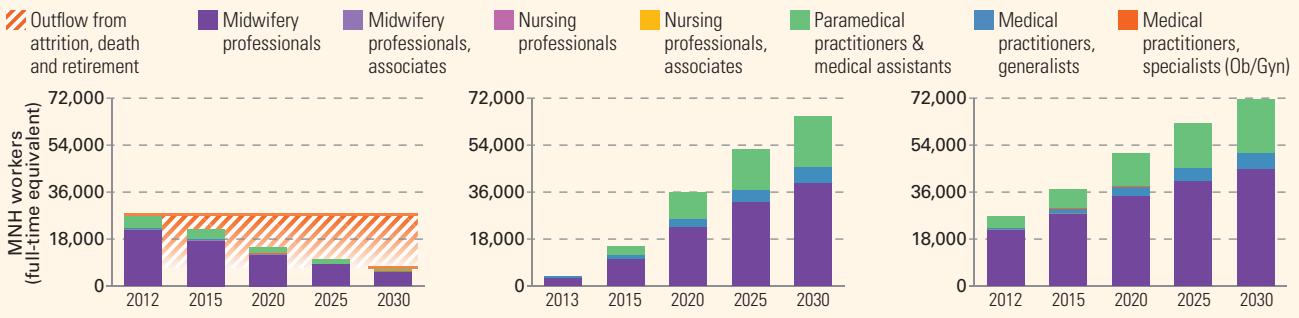

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

PROJECTED INFLOWS

PROJECTED WORKFORCE

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

3.6 million
CURRENT →
2.9 million
SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

97% MET NEED 2030 → 97% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

97% MET NEED 2030 → 97% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak → 2% leak
CURRENT → SCENARIO

97% MET NEED 2030 → 97% MET NEED 2030

CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

97% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

98% MET NEED 2030

1. These health worker categories include the following country titles - Nurse-midwives: includes nurse midwives (enrolled and registered), nursing officers, assistant nurse officers; Generalist physicians: includes medical officers; Obstetricians & gynaecologists: includes specialist (obs/gyn); Clinical officers & medical assistants: includes clinical officers (CO), assistant medical officers (AMO), clinical assistants (CA). Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the nurse-midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
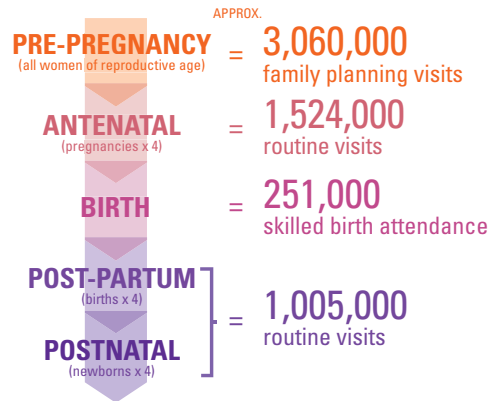
TOGO

In 2012, of an estimated total population of 6.6 million, 4.3 million (64%) were living in rural areas and 1.6 million (25%) were women of reproductive age; the total fertility rate was 4.7. By 2030, the population is projected to increase by 51% to 10 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.4 million pregnancies per annum by 2030, 68% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 31.4 million antenatal visits, 5.2 million births and 20.7 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

381,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

PRE-PREGNANCY (all women of reproductive age) = APPROX. **3,060,000** family planning visits

ANTENATAL (pregnancies x 4) = **1,524,000** routine visits

BIRTH = **251,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **1,005,000** routine visits

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	396	100
Midwives, auxiliary	399	100
Nurse-midwives	*na*	*na*
Nurses	818	–
Nurses or nurse-midwives, auxiliary	569	–
Clinical officers & medical assistants	378	–
Physicians, generalists	154	–
Obstetricians & gynaecologists	16	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = **45%**

workforce time available
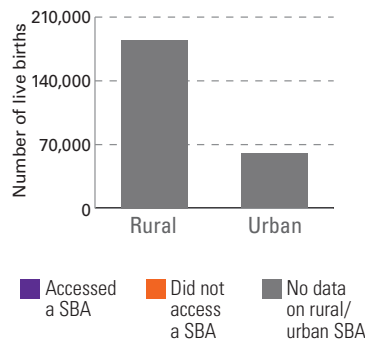workforce time needed
Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

7% (n=3)
93% (n=43)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

210,000
140,000
70,000
0

Rural — Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA
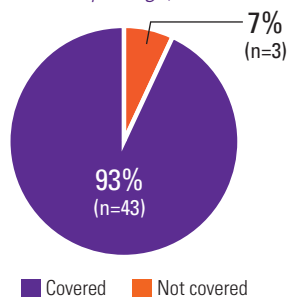
MIDWIFERY EDUCATION[3]

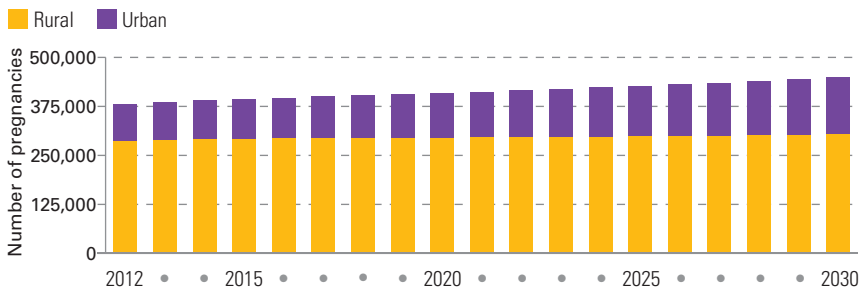|	
Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, –
Minimum number of supervised births in curriculum	75
Number of 2012 graduates/as % of all practising midwives	76/19
% of graduates employed in MNH within one year	–

MIDWIFERY REGULATION

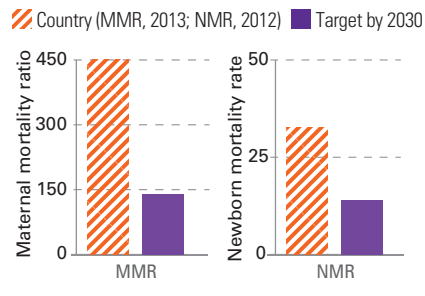|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	No
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1966
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural ■ Urban

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030
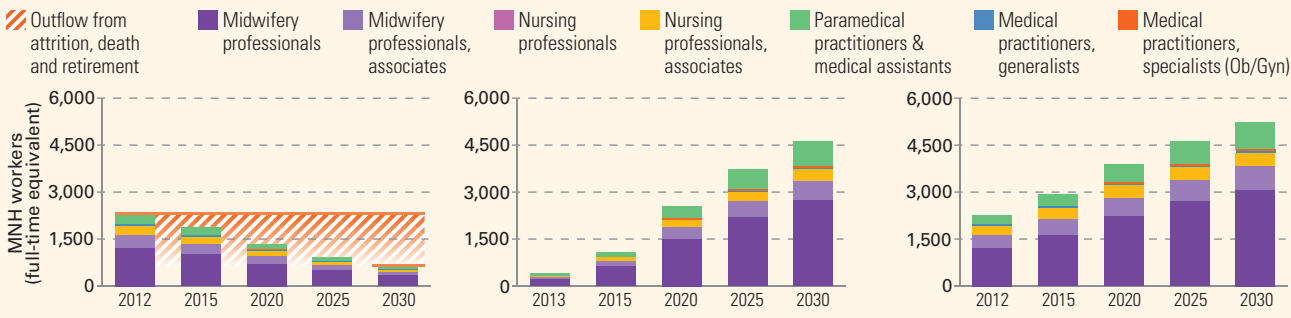

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.45 million CURRENT → 0.36 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

70% MET NEED 2030 → 97% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?
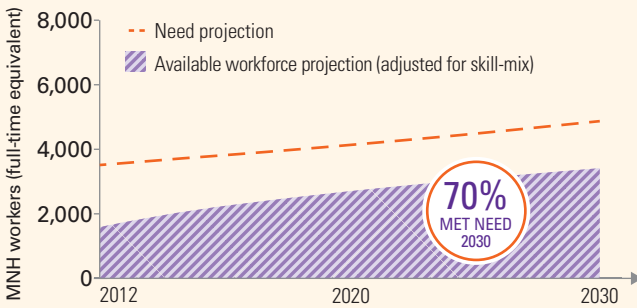
CURRENT → SCENARIO

70% MET NEED 2030 → 93% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

70% MET NEED 2030 → 81% MET NEED 2030
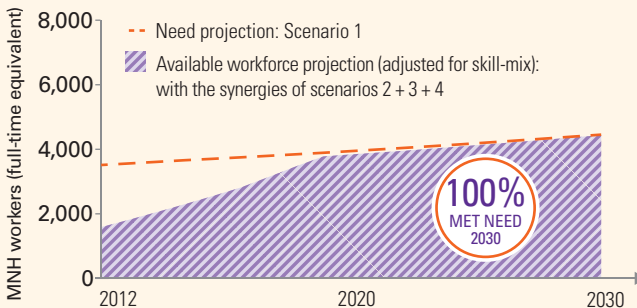
CURRENT TRAJECTORY

-- Need projection
▨ Available workforce projection (adjusted for skill-mix)

70% MET NEED 2030

WHAT IF... TRAJECTORY

-- Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4
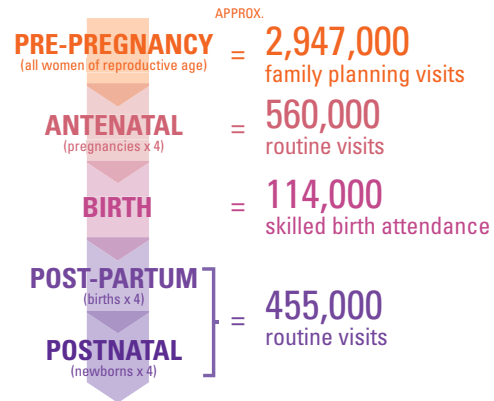

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Auxiliary midwives: includes accoucheuses auxiliaires; Nurses: includes infirmiers diplômés d'etat; Auxiliary nurse-midwives: includes infirmiers auxiliaires; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes gynéco-obstétriciens; Clinical officers & medical assistants: includes techniciens supérieurs de santé. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

TURKMENISTAN

In 2012, of an estimated total population of 5.2 million, 3.9 million (75%) were living in rural areas and 1.5 million (29%) were women of reproductive age; the total fertility rate was 2.3. By 2030, the population is projected to increase by 19% to 6.2 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.1 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 10.1 million antenatal visits, 2 million births and 8.2 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

140,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

		APPROX.
PRE-PREGNANCY (all women of reproductive age)	=	**2,947,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**560,000** routine visits
BIRTH	=	**114,000** skilled birth attendance
POST-PARTUM (births x 4) / **POSTNATAL** (newborns x 4)	=	**455,000** routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	410	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	–	100
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	–	100
Obstetricians & gynaecologists	767	–

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

37%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

0% (n=0)

100% (n=46)

■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (Rural, Urban)

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	10
Number of 2012 graduates/as % of all practising midwives	0/*na*
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

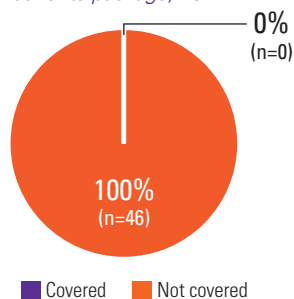|	
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	3
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/No

PROFESSIONAL ASSOCIATIONS[4]

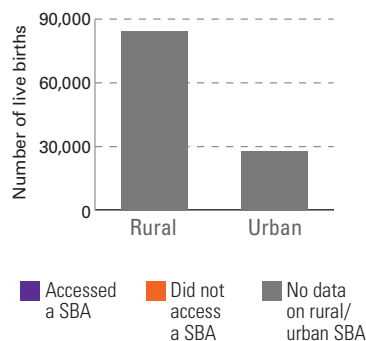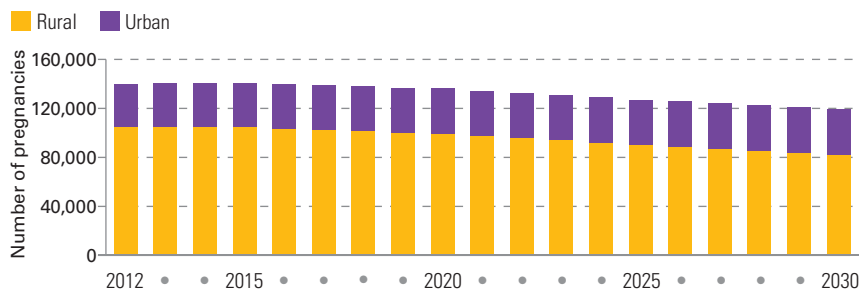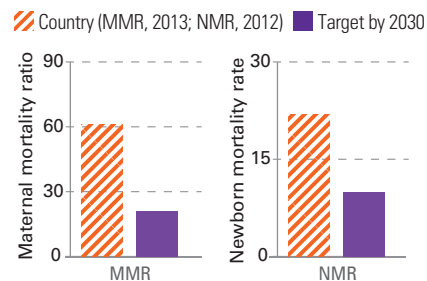|	
Year of creation of professional associations	*na*
Roles performed by professional associations:	
Continuing professional development	*na*
Advising or representing members accused of misconduct	*na*
Advising members on quality standards for MNH care	*na*
Advising the Government on policy documents related to MNH	*na*
Negotiating work or salary issues with the Government	*na*

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

🟧 Rural 🟪 Urban

Number of pregnancies

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) 🟪 Target by 2030

Maternal mortality ratio — MMR
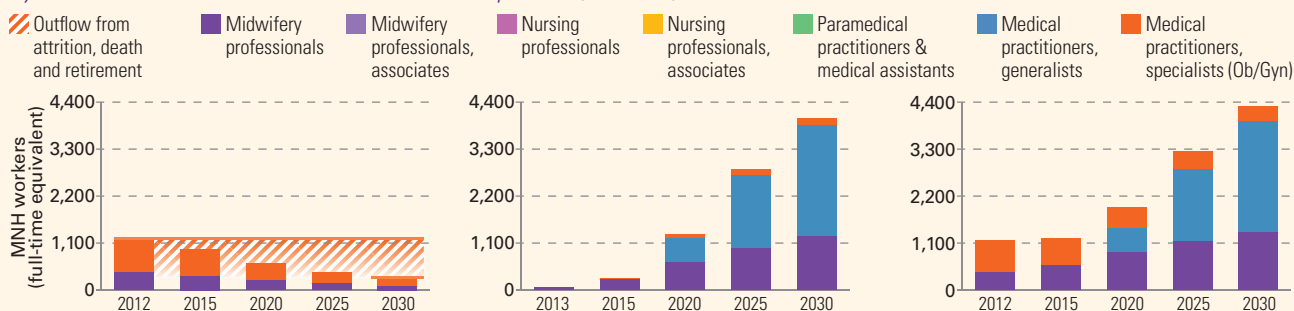
Newborn mortality rate — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
🟪 Midwifery professionals
🟪 Midwifery professionals, associates
🟪 Nursing professionals
🟨 Nursing professionals, associates
🟩 Paramedical practitioners & medical assistants
🟦 Medical practitioners, generalists
🟧 Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.12 million CURRENT → 0.10 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

100% MET NEED 2030   100% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)

100% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)

100% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurse-midwives: includes nurse-midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
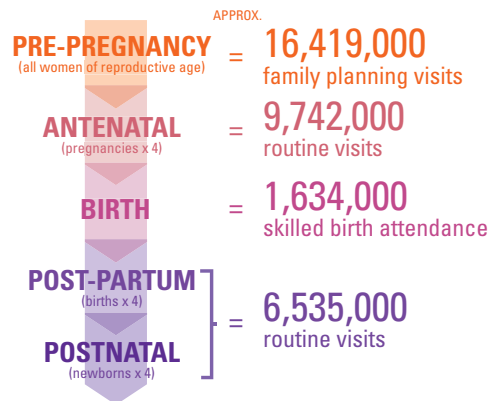
UGANDA

In 2012, of an estimated total population of 36.3 million, 31.5 million (87%) were living in rural areas and 8 million (22%) were women of reproductive age; the total fertility rate was 5.9. By 2030, the population is projected to increase by 74% to 63.4 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 3.4 million pregnancies per annum by 2030, 82% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 221.9 million antenatal visits, 37.2 million births and 148.8 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

2,435,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| | 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

PRE-PREGNANCY (all women of reproductive age) = APPROX. **16,419,000** family planning visits

ANTENATAL (pregnancies x 4) = **9,742,000** routine visits

BIRTH = **1,634,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **6,535,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	7,000	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	277	50
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	1,707	30
Physicians, generalists	495	50
Obstetricians & gynaecologists	32	100
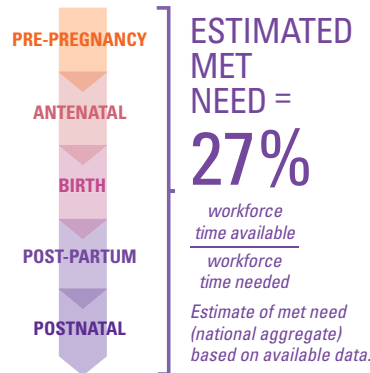
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 27%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

15% (n=7)
85% (n=39)

- Covered
- Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births — Rural — Urban

- Accessed a SBA
- Did not access a SBA
- No data on rural/urban SBA
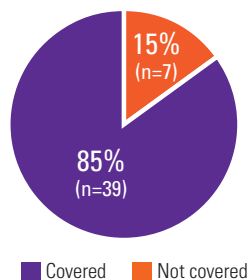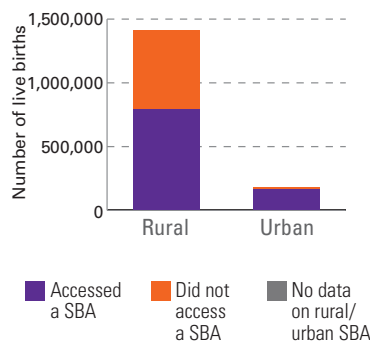
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 1997
Minimum number of supervised births in curriculum	70
Number of 2012 graduates/as % of all practising midwives	1,099/16
% of graduates employed in MNH within one year	—

MIDWIFERY REGULATION
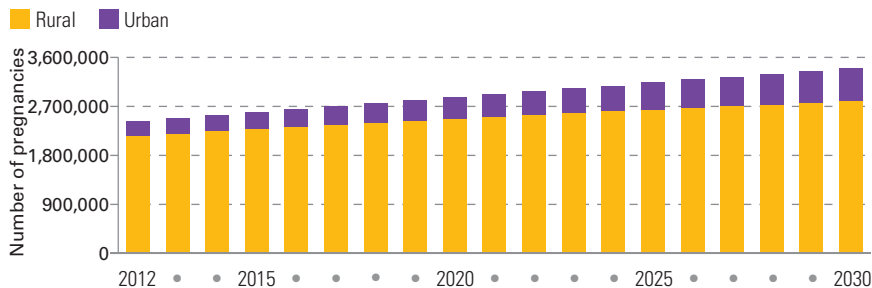
Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

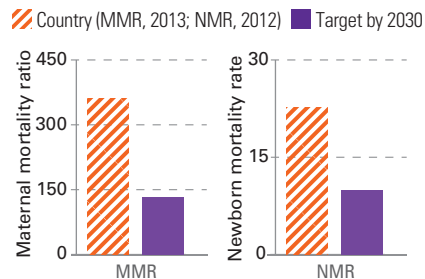## PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1948, 2003
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

🟨 Rural 🟪 Urban

Number of pregnancies (y-axis: 0 to 3,600,000)
x-axis: 2012, 2015, 2020, 2025, 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) 🟪 Target by 2030

Maternal mortality ratio (0 to 450) — MMR
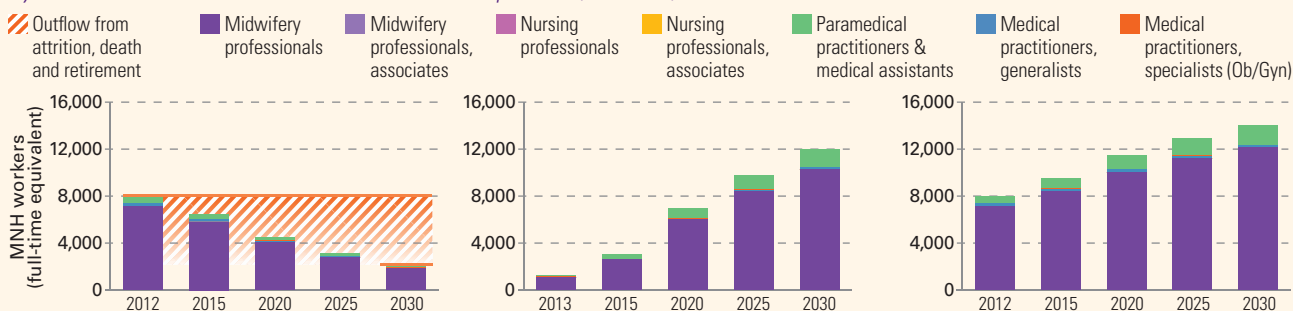Newborn mortality rate (0 to 30) — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
🟪 Midwifery professionals
🟪 Midwifery professionals, associates
🟪 Nursing professionals
🟨 Nursing professionals, associates
🟩 Paramedical practitioners & medical assistants
🟦 Medical practitioners, generalists
🟧 Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent), y-axis 0 to 16,000
Outflows x-axis: 2012, 2015, 2020, 2025, 2030
Inflows x-axis: 2013, 2015, 2020, 2025, 2030
Workforce x-axis: 2012, 2015, 2020, 2025, 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

3.4 million CURRENT → 2.7 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO
29% MET NEED 2030 → 48% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO
29% MET NEED 2030 → 42% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO
29% MET NEED 2030 → 35% MET NEED 2030
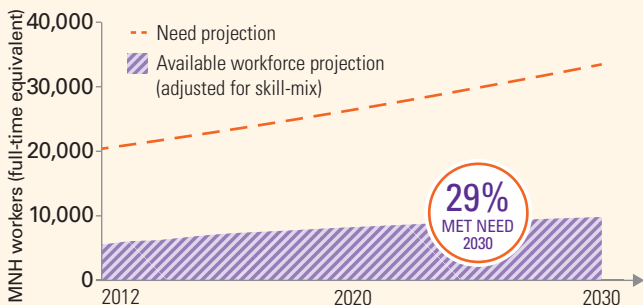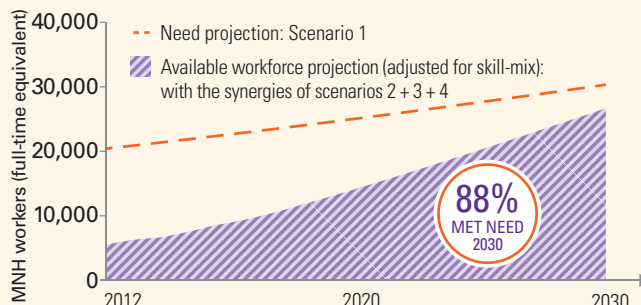
CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent), y-axis 0 to 40,000
x-axis: 2012, 2020, 2030

29% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent), y-axis 0 to 40,000
x-axis: 2012, 2020, 2030

88% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes registered midwives (diploma), enrolled midwives (certificate); Nurse-midwives: includes double trained nurse midwives; Generalist physicians: includes medical officers; Obstetricians & gynaecologists: includes medical officers - special grade; Clinical officers & medical assistants: includes medical clinical officers.
2. Year of data is as per most recent data available in STATCOMPILER. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan.*
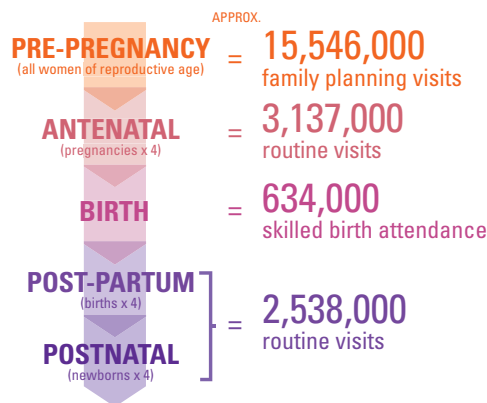
UZBEKISTAN

In 2012, of an estimated total population of 28.5 million, 14.4 million (50%) were living in rural areas and 8 million (28%) were women of reproductive age; the total fertility rate was 2.3. By 2030, the population is projected to increase by 20% to 34.1 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.6 million pregnancies per annum by 2030, 53% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 54.9 million antenatal visits, 11.1 million births and 44.4 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

784,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **15,546,000** family planning visits

ANTENATAL (pregnancies x 4) = **3,137,000** routine visits

BIRTH = **634,000** skilled birth attendance

POST-PARTUM (births x 4)

POSTNATAL (newborns x 4) = **2,538,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	7,000	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	4,000	50
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	12,000	30
Obstetricians & gynaecologists	5,000	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 84%

workforce time available

workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

0% (n=0)

100% (n=46)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

Rural   Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA
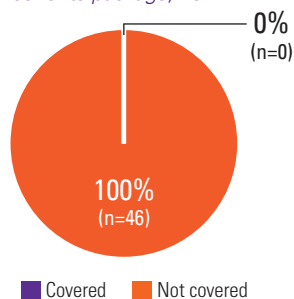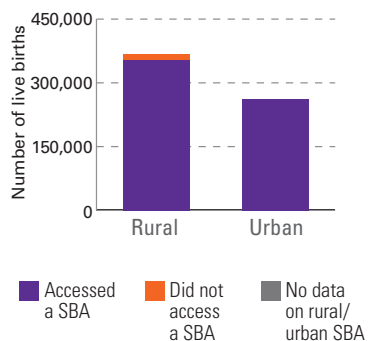
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2009
Minimum number of supervised births in curriculum	5
Number of 2012 graduates/as % of all practising midwives	2,500/36
% of graduates employed in MNH within one year	60%

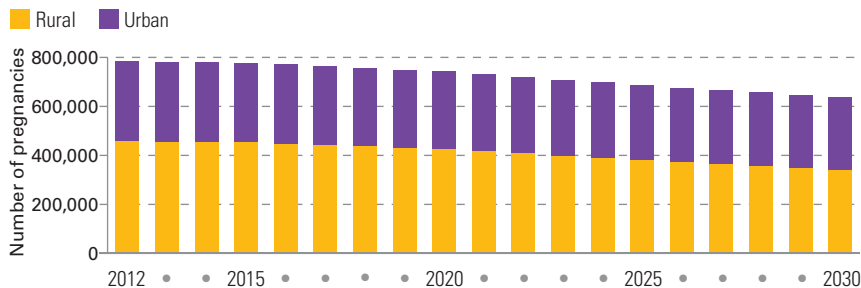## MIDWIFERY REGULATION

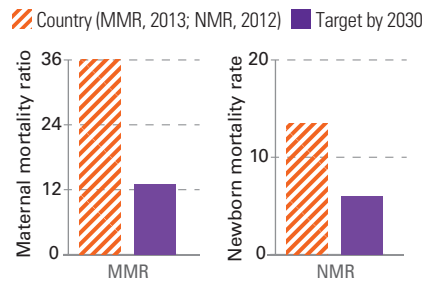|	
Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	2
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2000
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	No
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

■ Rural   ■ Urban

Number of pregnancies

800,000
600,000
400,000
200,000
0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012)   ■ Target by 2030

Maternal mortality ratio: 36 / 24 / 12 / 0 — MMR

Newborn mortality rate: 20 / 10 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

52,000 / 39,000 / 26,000 / 13,000 / 0

Outflows: 2012 2015 2020 2025 2030
Inflows: 2013 2015 2020 2025 2030
Workforce: 2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

0.64 million CURRENT → 0.51 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

8% leak CURRENT → 4% leak SCENARIO

100% MET NEED 2030   100% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent)

20,000 / 15,000 / 10,000 / 5,000 / 0

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

2012   2020   2030

100% MET NEED 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

20,000 / 15,000 / 10,000 / 5,000 / 0

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

2012   2020   2030

100% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurse-midwives: includes nurse-midwives; Generalist physicians: includes general practitioners; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
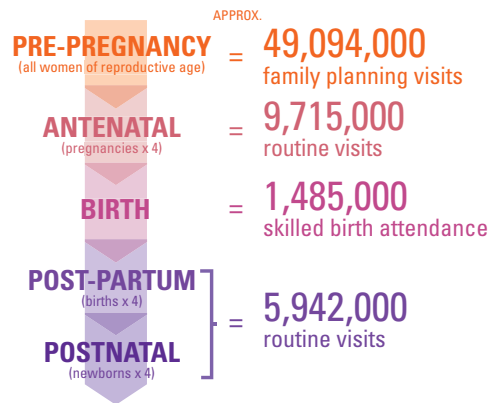
VIET NAM

In 2012, of an estimated total population of 90.8 million, 65.6 million (72%) were living in rural areas and 26 million (29%) were women of reproductive age; the total fertility rate was 1.8. By 2030, the population is projected to increase by 12% to 101.8 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.8 million pregnancies per annum by 2030, 67% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 160.7 million antenatal visits, 24.6 million births and 98.3 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

2,429,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

APPROX.

PRE-PREGNANCY (all women of reproductive age)	=	**49,094,000** family planning visits
ANTENATAL (pregnancies x 4)	=	**9,715,000** routine visits
BIRTH	=	**1,485,000** skilled birth attendance
POST-PARTUM (births x 4) **POSTNATAL** (newborns x 4)	=	**5,942,000** routine visits

0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	23,272	100
Midwives, auxiliary	2,750	50
Nurse-midwives	*na*	*na*
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	102,034	50
Clinical officers & medical assistants	7,200	50
Physicians, generalists	7,180	30
Obstetricians & gynaecologists	8,130	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = 83%

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

4% (n=2)

96% (n=44)

■ Covered   ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births

1,200,000
800,000
400,000
0

Rural | Urban

■ Accessed a SBA   ■ Did not access a SBA   ■ No data on rural/ urban SBA
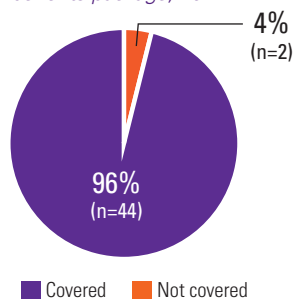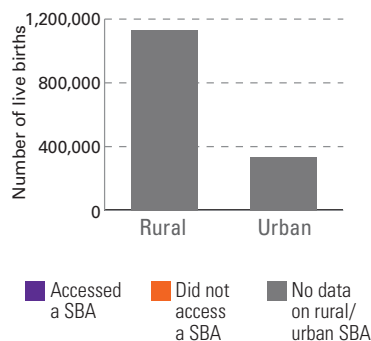
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	2
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	2,050/9
% of graduates employed in MNH within one year	85%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

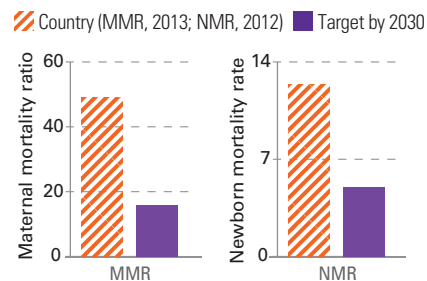## PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1990, 1995
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

🟨 Rural 🟪 Urban

Number of pregnancies

3,000,000 · 2,250,000 · 1,500,000 · 750,000 · 0

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) 🟪 Target by 2030

Maternal mortality ratio: 60 · 40 · 20 · 0 — MMR

Newborn mortality rate: 14 · 7 · 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement 🟪 Midwifery professionals 🟪 Midwifery professionals, associates 🟪 Nursing professionals 🟨 Nursing professionals, associates 🟩 Paramedical practitioners & medical assistants 🟦 Medical practitioners, generalists 🟧 Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

100,000 · 75,000 · 50,000 · 25,000 · 0

2012 2015 2020 2025 2030

100,000 · 75,000 · 50,000 · 25,000 · 0

2013 2015 2020 2025 2030

100,000 · 75,000 · 50,000 · 25,000 · 0

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.8 million CURRENT → 1.5 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

100% MET NEED 2030   100% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

100% MET NEED 2030   100% MET NEED 2030

CURRENT TRAJECTORY

MNH workers (full-time equivalent)

56,000 · 42,000 · 28,000 · 14,000 · 0

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

100% MET NEED 2030

2012 2020 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

56,000 · 42,000 · 28,000 · 14,000 · 0

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

100% MET NEED 2030

2012 2020 2030

1. These health worker categories include the following country titles - Midwives: includes midwives, nurse midwives; Auxiliary midwives: includes auxiliary midwives, village-based ethnic minority midwives; Auxiliary nurse-midwives: includes auxiliary nurse-midwives, village health workers; Generalist physicians: includes paediatricians; Obstetricians & gynaecologists: includes obstetricians; Clinical officers & medical assistants: includes obstetric paediatric assistant doctors. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.
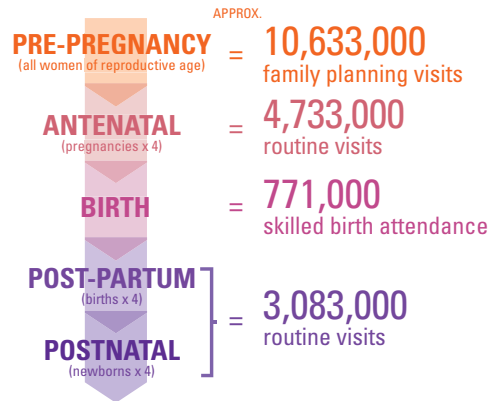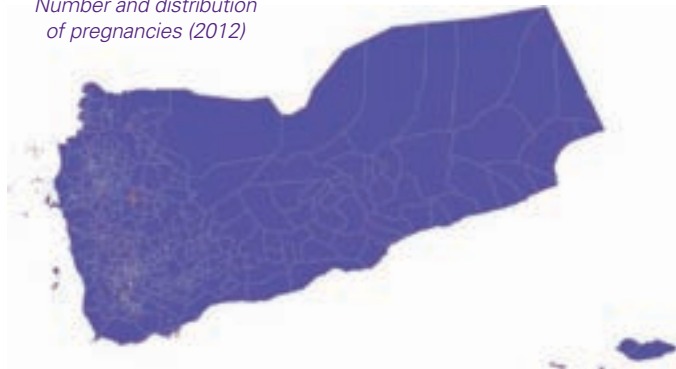
YEMEN

In 2012, of an estimated total population of 23.9 million, 10.5 million (44%) were living in rural areas and 5.9 million (25%) were women of reproductive age; the total fertility rate was 4.1. By 2030, the population is projected to increase by 43% to 34 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.2 million pregnancies per annum by 2030. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 93.1 million antenatal visits, 15.2 million births and 60.6 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

1,183,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

| 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00 |

APPROX.

PRE-PREGNANCY (all women of reproductive age) = **10,633,000** family planning visits

ANTENATAL (pregnancies x 4) = **4,733,000** routine visits

BIRTH = **771,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **3,083,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	5,500	100
Midwives, auxiliary	na	na
Nurse-midwives	500	90
Nurses	na	na
Nurses or nurse-midwives, auxiliary	100	60
Clinical officers & medical assistants	na	na
Physicians, generalists	5,412	30
Obstetricians & gynaecologists	1,543	100

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =

57%

workforce time available / workforce time needed

Estimate of met need (national aggregate) based on available data.
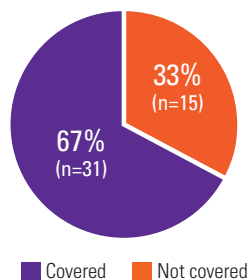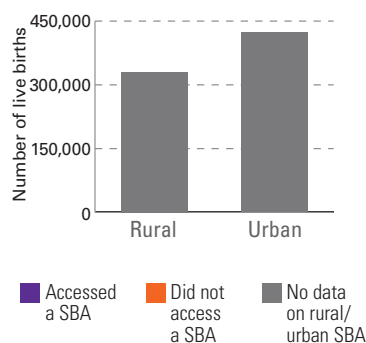
MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 10-
Years of study required to qualify (rounded)	3
Standardized curriculum? Year of last update	Yes, 2012
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	290/5
% of graduates employed in MNH within one year	0%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	No
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	No
A live registry of licensed midwives exists	No
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	6
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2004
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	No
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	No

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

- 33% (n=15)
- 67% (n=31)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/ urban SBA

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL
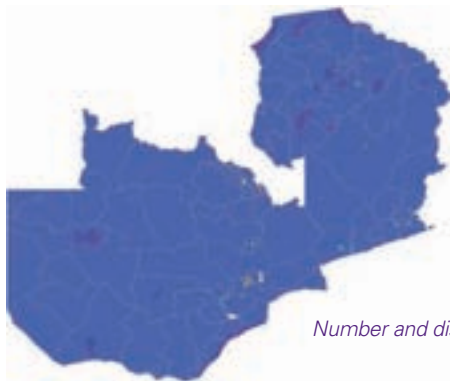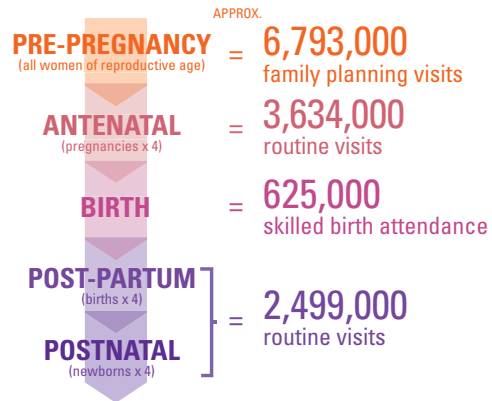
■ Rural ■ Urban

Number of pregnancies

1,300,000 / 975,000 / 650,000 / 325,000 / 0

2012 • • 2015 • • • 2020 • • • 2025 • • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio: 300 / 200 / 100 / 0 — MMR

Newborn mortality rate: 30 / 15 / 0 — NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement ■ Midwifery professionals ■ Midwifery professionals, associates ■ Nursing professionals ■ Nursing professionals, associates ■ Paramedical practitioners & medical assistants ■ Medical practitioners, generalists ■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

10,000 / 7,500 / 5,000 / 2,500 / 0

2012 2015 2020 2025 2030

2013 2015 2020 2025 2030

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.2 million CURRENT → 0.97 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2 The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

25% MET NEED 2030 → 37% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

25% MET NEED 2030 → 36% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

13% leak CURRENT → 6.5% leak SCENARIO

25% MET NEED 2030 → 34% MET NEED 2030

CURRENT TRAJECTORY
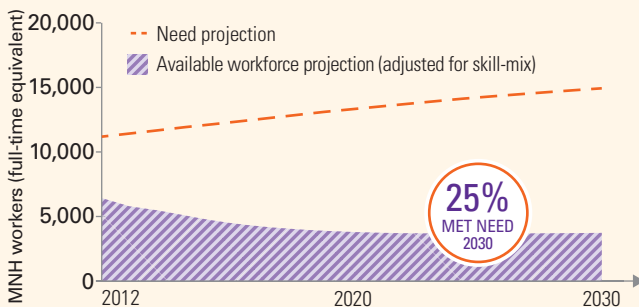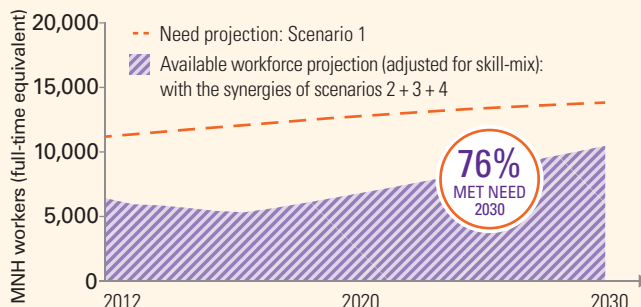
MNH workers (full-time equivalent)

20,000 / 15,000 / 10,000 / 5,000 / 0

-- Need projection
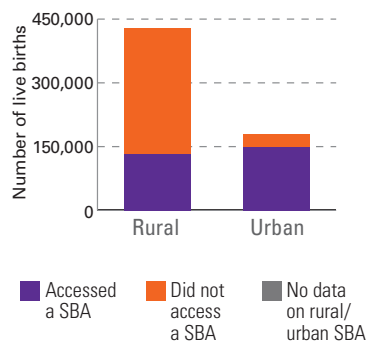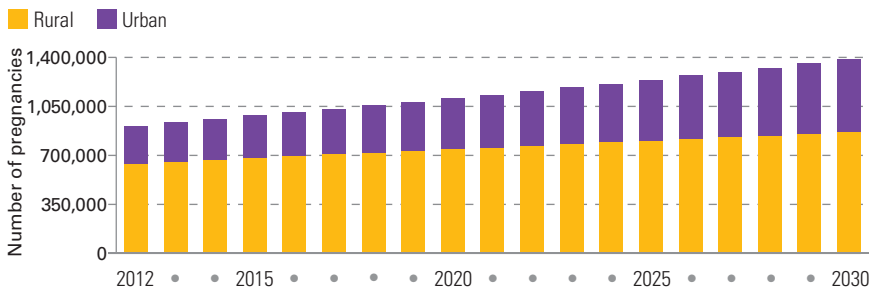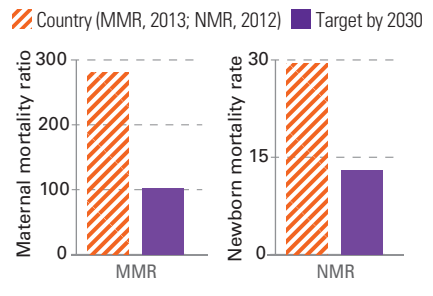
▨ Available workforce projection (adjusted for skill-mix)

2012 2020 2030

25% MET NEED 2030

WHAT IF... TRAJECTORY

MNH workers (full-time equivalent)

20,000 / 15,000 / 10,000 / 5,000 / 0

-- Need projection: Scenario 1

▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

2012 2020 2030

76% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes community midwives, technical midwives; Nurse-midwives: includes nurse midwives; Auxiliary nurse-midwives: includes female primary health care workers (Morshidate); Generalist physicians: includes physicians (general practitioners); Obstetricians & gynaecologists: includes obs/gyn specialists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Rural/urban SBA coverage is not available. Figure refers to rural/urban births only.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

ZAMBIA

In 2012, of an estimated total population of 14.1 million, 8.7 million (62%) were living in rural areas and 3.2 million (23%) were women of reproductive age; the total fertility rate was 5.7. By 2030, the population is projected to increase by 77% to 25 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 1.4 million pregnancies per annum by 2030, 62% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 86.5 million antenatal visits, 14.9 million births and 59.5 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

909,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

PRE-PREGNANCY (all women of reproductive age) = APPROX. **6,793,000** family planning visits

ANTENATAL (pregnancies x 4) = **3,634,000** routine visits

BIRTH = **625,000** skilled birth attendance

POST-PARTUM (births x 4)
POSTNATAL (newborns x 4) = **2,499,000** routine visits

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	2,773	100
Midwives, auxiliary	*na*	*na*
Nurse-midwives	9,575	100
Nurses	*na*	*na*
Nurses or nurse-midwives, auxiliary	*na*	*na*
Clinical officers & medical assistants	*na*	*na*
Physicians, generalists	1,630	20
Obstetricians & gynaecologists	1,150	75

PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED = **99%**

workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

26% (n=12)
74% (n=34)

Covered | Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births — Rural, Urban

Accessed a SBA | Did not access a SBA | No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	1
Standardized curriculum? Year of last update	Yes, 2010
Minimum number of supervised births in curriculum	20
Number of 2012 graduates/as % of all practising midwives	247/9
% of graduates employed in MNH within one year	95%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	2011, –, –
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural ■ Urban

Number of pregnancies

2012 • • 2015 • • 2020 • • 2025 • • 2030

MORTALITY REDUCTION[5]

▨ Country (MMR, 2013; NMR, 2012) ■ Target by 2030

Maternal mortality ratio — MMR

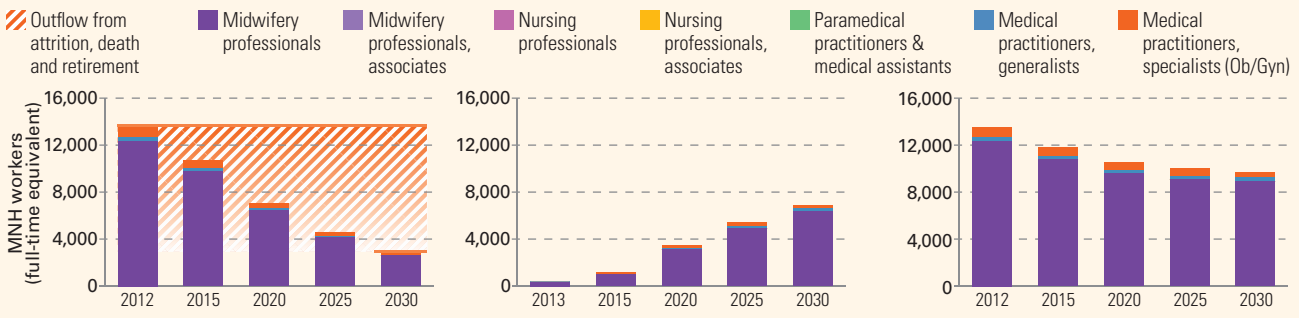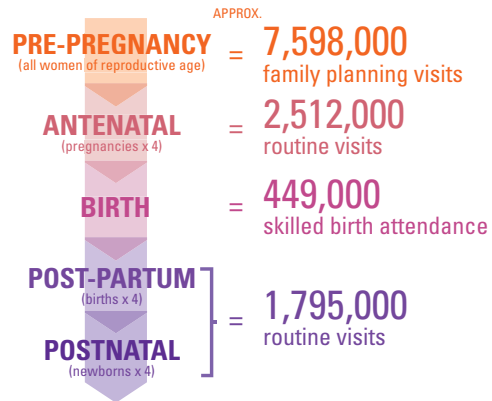Newborn mortality rate — NMR

ESTIMATES AND PROJECTIONS TO 2030

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PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

▨ Outflow from attrition, death and retirement
■ Midwifery professionals
■ Midwifery professionals, associates
■ Nursing professionals
■ Nursing professionals, associates
■ Paramedical practitioners & medical assistants
■ Medical practitioners, generalists
■ Medical practitioners, specialists (Ob/Gyn)

MNH workers (full-time equivalent)

2012 2015 2020 2025 2030

2013 2015 2020 2025 2030

2012 2015 2020 2025 2030

WHAT IF... *Estimates of met need based on available data.*

1 The number of pregnancies was reduced by 20% by 2030?

1.4 million CURRENT → 1.1 million SCENARIO

Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

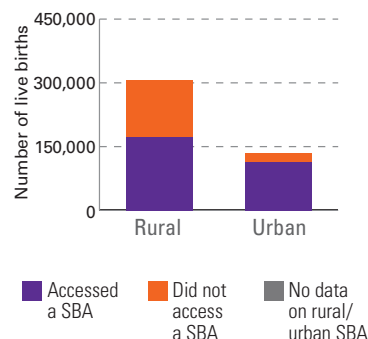**2** The number of midwife, nurse and physician graduates doubled by 2020?

CURRENT → SCENARIO

48% MET NEED 2030 → 78% MET NEED 2030

3 Efficiency improved by 2% per year until 2030?

CURRENT → SCENARIO

48% MET NEED 2030 → 68% MET NEED 2030

4 Attrition was halved in the next 5 years (2012-2017)?

4% leak CURRENT → 2% leak SCENARIO

48% MET NEED 2030 → 57% MET NEED 2030

CURRENT TRAJECTORY

- - Need projection
▨ Available workforce projection (adjusted for skill-mix)

MNH workers (full-time equivalent)

2012 2020 2030

48% MET NEED 2030

WHAT IF... TRAJECTORY

- - Need projection: Scenario 1
▨ Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4

MNH workers (full-time equivalent)

2012 2020 2030

99% MET NEED 2030

1. These health worker categories include the following country titles - Midwives: includes midwives; Nurse-midwives: includes nurse-midwives; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

ZIMBABWE

In 2012, of an estimated total population of 13.7 million, 8.9 million (65%) were living in rural areas and 3.4 million (25%) were women of reproductive age; the total fertility rate was 3.5. By 2030, the population is projected to increase by 48% to 20.3 million. To achieve universal access to sexual, reproductive, maternal and newborn care, midwifery services must respond to 0.7 million pregnancies per annum by 2030, 60% of these in rural settings. The health system implications include how best to configure and equitably deploy the SRMNH workforce to cover at least 50.5 million antenatal visits, 9 million births and 36.1 million post-partum/postnatal visits between 2012 and 2030.

WHAT WOMEN AND NEWBORNS NEED (2012)

628,000 PREGNANCIES A YEAR = HOW MANY EPISODES OF CARE?

Number and distribution of pregnancies (2012)

		APPROX.	
PRE-PREGNANCY (all women of reproductive age)	=	7,598,000	family planning visits
ANTENATAL (pregnancies x 4)	=	2,512,000	routine visits
BIRTH	=	449,000	skilled birth attendance
POST-PARTUM (births x 4) / POSTNATAL (newborns x 4)	=	1,795,000	routine visits

Legend: 0 | <0.09 | 0.10-0.19 | 0.20-0.49 | 0.50-0.99 | 1.00-1.49 | 1.50-1.99 | 2.00-2.49 | 2.50-10.00 | >10.00

WORKFORCE AVAILABILITY (2012)

	Country classification of staff working in MNH[1]	Time spent on MNH %
Midwives	na	na
Midwives, auxiliary	na	na
Nurse-midwives	2,247	100
Nurses	16,668	75
Nurses or nurse-midwives, auxiliary	1,567	87.5
Clinical officers & medical assistants	na	na
Physicians, generalists	453	—
Obstetricians & gynaecologists	9	100
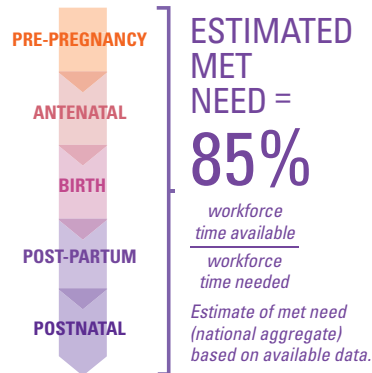
PRE-PREGNANCY
ANTENATAL
BIRTH
POST-PARTUM
POSTNATAL

ESTIMATED MET NEED =
85%
workforce time available
workforce time needed

Estimate of met need (national aggregate) based on available data.

FINANCIAL ACCESSIBILITY

Percentage of 46 RMNH Essential Interventions included in minimum health benefits package, 2012

4% (n=2)
96% (n=44)

■ Covered ■ Not covered

GEOGRAPHICAL ACCESSIBILITY

Number of births with a skilled birth attendant (SBA)[2]

Number of live births (0 – 450,000)

Rural | Urban

■ Accessed a SBA ■ Did not access a SBA ■ No data on rural/urban SBA

MIDWIFERY EDUCATION[3]

Minimum high-school requirement to start training	Grade 12+
Years of study required to qualify (rounded)	1
Standardized curriculum? Year of last update	Yes, 2013
Minimum number of supervised births in curriculum	30
Number of 2012 graduates/as % of all practising midwives	719/32
% of graduates employed in MNH within one year	100%

MIDWIFERY REGULATION

Legislation exists recognizing midwifery as an autonomous profession	Yes
A recognized definition of a professional midwife exists	Yes
A government body regulates midwifery practice	Yes
A licence is required to practise midwifery	Yes
A live registry of licensed midwives exists	Yes
Number of EmONC basic signal functions that midwives are allowed to practise (out of a possible 7)	7
Midwives allowed to provide injectable contraceptives/intrauterine devices	Yes/Yes

PROFESSIONAL ASSOCIATIONS[4]

Year of creation of professional associations	1995
Roles performed by professional associations:	
Continuing professional development	Yes
Advising or representing members accused of misconduct	Yes
Advising members on quality standards for MNH care	Yes
Advising the Government on policy documents related to MNH	Yes
Negotiating work or salary issues with the Government	Yes

na = not applicable; — = missing data

PROJECTED NUMBER OF PREGNANCIES BY YEAR: URBAN VS. RURAL

Rural   Urban

MORTALITY REDUCTION[5]

Country (MMR, 2013; NMR, 2012)   Target by 2030
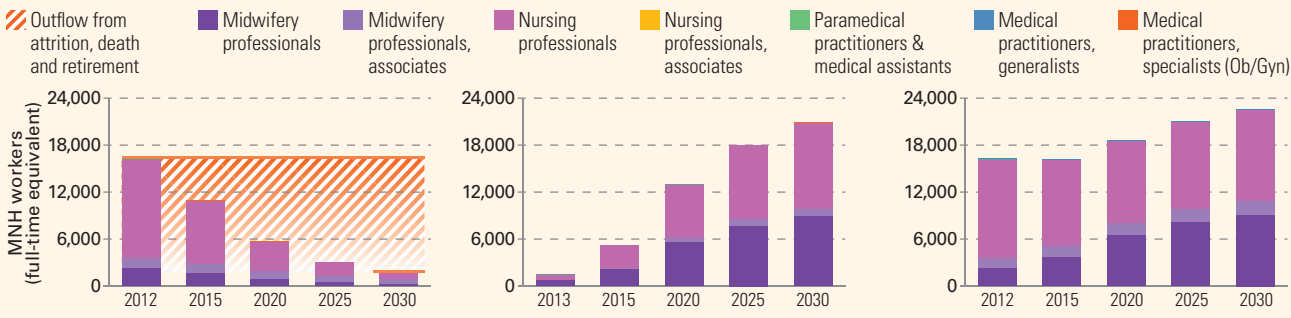
MMR   NMR

ESTIMATES AND PROJECTIONS TO 2030

This section of the brief uses reported country data to calculate needs-based planning estimates and projections to 2030. The projections are sensitive to reported enrolment, graduation, % time spent on MNH services, age distribution, roles and attrition. In the absence of country data, standardized, evidence-based assumptions are used. The projections are indicative and should be used to verify the accuracy of country data and inform further policy discussion. Further information in the "How to read" section on page 50.

PROJECTED OUTFLOWS

PROJECTED INFLOWS

PROJECTED WORKFORCE

by International Standard Classification of Occupations (ISCO-08)

Outflow from attrition, death and retirement   Midwifery professionals   Midwifery professionals, associates   Nursing professionals   Nursing professionals, associates   Paramedical practitioners & medical assistants   Medical practitioners, generalists   Medical practitioners, specialists (Ob/Gyn)

WHAT IF... *Estimates of met need based on available data.*

1. The number of pregnancies was reduced by 20% by 2030?
0.66 million CURRENT → 0.53 million SCENARIO
Immediate increase in met need for pregnancy, birth, post-partum/postnatal care. Acceleration in met need for pre-pregnancy services from 2028 onwards.

2. The number of midwife, nurse and physician graduates doubled by 2020?
CURRENT → SCENARIO
85% MET NEED 2030 → 86% MET NEED 2030

3. Efficiency improved by 2% per year until 2030?
CURRENT → SCENARIO
85% MET NEED 2030 → 85% MET NEED 2030

4. Attrition was halved in the next 5 years (2012-2017)?
10% leak → 5% leak
CURRENT → SCENARIO
85% MET NEED 2030 → 85% MET NEED 2030

CURRENT TRAJECTORY

Need projection
Available workforce projection (adjusted for skill-mix)
85% MET NEED 2030

WHAT IF... TRAJECTORY

Need projection: Scenario 1
Available workforce projection (adjusted for skill-mix): with the synergies of scenarios 2 + 3 + 4
86% MET NEED 2030
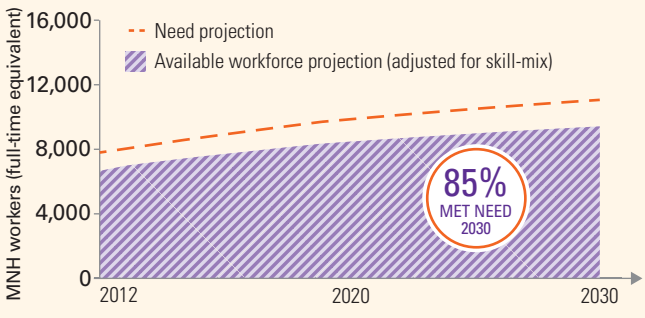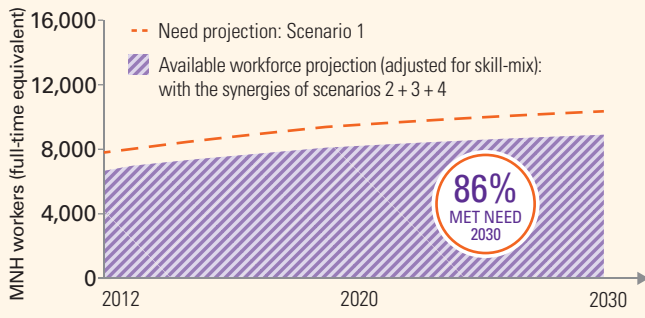
1. These health worker categories include the following country titles - Nurse-midwives: includes nurse-midwives; Nurses: includes registered general nurses; Auxiliary nurse-midwives: includes primary care nurses; Generalist physicians: includes generalist physicians; Obstetricians & gynaecologists: includes obstetricians & gynaecologists. Source: SoWMy 2014 or secondary sources (WHO Global Health Observatory; government policy documents).
2. Year of data is as per most recent data available in STATCOMPILER.
3. Information refers to the nurse-midwife cadre category.
4. National associations for midwifery and nursing.
5. These are proposed targets for MMR and NMR by 2030 from the recommendations of *Ending Preventable Maternal Mortality by 2030* and the *Every Newborn Action Plan*.

STATE OF THE WORLD'S MIDWIFERY COUNTRY SURVEY RESPONDENTS

Special thanks go to the heads of UNFPA country offices, and their staff, for facilitating the task of collecting responses to the country survey. All contributions are greatly appreciated. The following list includes the names of the respondents who wished to be acknowledged. We would also like to extend our appreciation to the many other contributors who requested not to be acknowledged by name in the report. All efforts have been made to make this list as extensive as possible. Sincere apologies are extended to any respondents who have been unintentionally omitted.

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Acceptability (of health services): Dimension of the right to health, which requires that all health facilities, goods and services must be respectful of medical ethics and culturally appropriate, as well as sensitive to gender and life-cycle requirements [1].

Acceptability (of the health workforce): The characteristics and ability of the workforce to treat everyone with dignity, create trust and enable or promote demand for services [2].

Accessibility (of health services): Dimension of the right to health, which requires that health facilities, goods and services are accessible to everyone within the jurisdiction of the State Party. Accessibility has four overlapping dimensions: non-discrimination; physical accessibility; economic accessibility (affordability) and information accessibility [1].

Accessibility (of the health workforce): The equitable access to health workers, including in terms of travel time and transport, opening hours and corresponding workforce attendance, whether the infrastructure is disability-friendly, referral mechanisms and the direct and indirect cost of services, both formal and informal [2].

Accreditation: A process designed to confirm the educational quality of new, developing and established education and training programmes. It is usually carried out by peer/third-party review against established standards/outcomes [3].

Association (or College): An organized body of persons engaged in a common professional practice, sharing information, career-advancement objectives, in-service training, advocacy and other activities. It usually defends the interests of the profession and the professionals, but is not a union.

Auxiliary midwife: A health worker assisting in the provision of maternal and newborn health care, particularly during childbirth, who possesses some of the competencies in midwifery but is not a fully qualified/licensed midwife. In the latest International Standard Classification of Occupations (ISCO-08), these are also referred to as midwifery associate professionals [4].

Auxiliary nurse-midwife: A health worker assisting in the provision of maternal and newborn health care, particularly during childbirth but also in the prenatal and post-partum periods, who possesses some of the competencies in midwifery but is not a fully qualified/licensed nurse-midwife.

Availability (of health services): Dimension of the right to health that requires functioning public health and health-care facilities, goods and services, as well as programmes in sufficient quantity [1].

Availability (of the health workforce): The sufficient supply and stock of health workers, with the relevant competencies and skill mix that correspond with the health needs of the population [2].

Community health worker (CHW): According to the WHO definition, community health workers should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers [5].

Council, Board, Order or Ordem: A regulatory institution responsible for the registration and licensing of professionals, enabling them to practise, while overseeing their professional conduct and ensuring the ethics of the profession. Usually accredits educational institutions and programmes, sometimes in collaboration with the government or other bodies. It may be government-led, professional-led or mixed. It normally defends patients' interests.

Efficiency: The capacity to produce the maximum output for a given input [6].

Emergency obstetric and neonatal care facilities, basic (B-EmONC): Peripheral health facilities with maternity and newborn services that have practised in the past three months all seven basic signal functions: parenteral administration of antibiotics, anticonvulsants, oxytocics, manual removal of placenta, manual vacuum aspiration for retained products, assisted instrumental delivery by vacuum extractor, and newborn resuscitation with mask. The functions include stabilization of mothers and newborns with complications before and during transfer to a higher-level hospital [7].

Emergency obstetric and neonatal care facilities, comprehensive (C-EmONC): Health facilities with maternity services that have practised in the past three months all seven B-EmONC signal functions listed above plus two additional signal functions: emergency surgery (caesarean section) and safe blood transfusion (can also include advanced newborn resuscitation) [7].

Equity (in health): The absence of systematic or potentially remediable differences in health status, access to health care and health-enhancing environments, and treatment in one or more aspects of health across populations or population groups defined socially, economically, demographically or geographically within and across countries [6].

Licensing: Generally involves conferring upon an individual a licence to practise their particular health-care profession. Many countries do not distinguish between licensing and registration (see definition below) and both may be partial/ temporary/ conditional in certain circumstances (for instance, newly qualified professionals in some countries) [3].

Millennium Development Goal (MDG): Eight MDGs were adopted by world leaders at the Millennium Summit at the United Nations in 2000, with the global aim of reaching equitable development by 2015. MDG 4 is to reduce the under-5 mortality rate by two thirds of its 1990 value. MDG 5 is to improve maternal health by reducing the maternal mortality ratio by three quarters of its 1990 value by 2015 (Target 5A). The proportion of births attended by skilled health personnel is used as an official indicator of this target. In 2005 the international community added a second

target to MDG 5 (Target 5B): to achieve universal access to reproductive health by 2015. MDG 6 is to combat HIV/AIDS, tuberculosis, malaria and other infectious diseases [8].

Maternal and newborn health (MNH): The health of women during pregnancy, labour, childbirth and the post-partum period, as well as the health and survival of the foetus during labour and the newborn within the first few hours and days, a period during which the newborn is mostly cared for by a professional birth attendant (and in privi-leged circumstances by a neonatologist). This operational definition differentiates newborn health from neonatal health, which spans the period from birth to the end of the fourth week after birth, and is in accordance with the H4+ (UNAIDS, UN Women, WHO, UNFPA, UNICEF and the World Bank) consensus.

Midwife: The report uses the term "midwife" to include those health professionals who are educated to undertake the roles and responsibilities of a midwife regardless of their educational pathway to midwifery, whether direct-entry or after basic nursing.

This definition is aligned with the recommendations and position statements of the International Confederation of Midwives and the International Council of Nurses.

ICM defines a midwife as: A person who, having been regu-larly admitted to a midwifery educational programme, duly recognized in the country in which it is located: has success-fully completed the prescribed course of studies in midwifery that is based on the ICM Essential Competencies for Basic Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education; has acquired the requi-site qualifications to be registered and/or legally licensed to practise midwifery and use the title "midwife"; and demon-strates competency in the practice of midwifery [9].

Midwifery: Encompasses the health services and health workforce needed to support and care for women and newborns during pre-pregnancy, pregnancy, labour, and the post-partum/postnatal period.

It includes: measures aimed at preventing health problems in pregnancy, the detection of abnormal conditions, the procurement of medical assistance when necessary, and the execution of emergency measures in the absence of medical help [10].

Midwifery workforce: The health professionals whose primary function includes health services provided to women during pregnancy, labour and birth, as well as post-partum care for mothers and newborns. The definition includes midwives and others competent in the practice of midwifery, such as nurse-midwives and doctors with rel-evant competence (and in certain countries, auxiliary nurse midwives). These professionals are also referred to as skilled birth attendants [11].

Midwife-led maternity unit: Birth centres that are staffed and managed by midwives [12].

Minimum guaranteed benefits package: In the context of this report, this refers to a set of health services that a

government has committed itself to making available to all, free at the point of access. It can also be called an essential health package, which, in a low-income country, consists of a limited list of public health and clinical services which will be provided at primary and/or secondary care level [13].

Nurse-midwife: A person who is legally licensed/registered to practise the full scope of nursing and midwifery in his/her country [14].

Quality (of health services): Dimension of the right to health, which requires that health facilities, goods and services must be scientifically and medically appropriate and of good quality [1].

Quality (of the health workforce): The competencies, skills, knowledge and behaviour of the health worker assessed according to professional norms and as perceived by users [2].

Registration: Generally refers to the process of enrolling with a professional regulatory body following graduation from an accredited programme. Many countries do not distinguish between registration and licensing, but some do and a licence to practise may be issued by a separate authority, particularly in countries where the processes are managed at subnational level. Both licensing and registration may be partial/temporary/conditional under certain circumstances (for instance, newly qualified professionals in some countries) [3].

Regulation: Act of controlling professional practice in accor-dance with laws, policies and standards, and ethics. It can apply to education, practice, management of the profession, career advancement, etc.

Sexual, reproductive, maternal and newborn health (SRMNH): Health services provided in the continuum of care, from information, education and counselling on human sexuality to antenatal, safe delivery and post-natal care, as defined in the ICPD Programme of action, 1994 [15].

Skilled birth attendant: Defined by the WHO as an accredit-ed health professional — such as a midwife, doctor or nurse — who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnan-cies, childbirth and the immediate postnatal period, and in the identification, management and referral of complica-tions in women and newborns [16].

Skills: Abilities learned through training or acquired by experience to perform specific actions or tasks, usually associated with individual tasks or techniques, particularly requiring the use of the hands or body.

Union: A form of professional association that can include more than one type of health worker, generally independent of government, whose purpose is to defend the interests of the workers. In some countries the professional association is called a union.

Vulnerable: Vulnerable groups, usually women, children and elderly people, are associated with poverty, but vulner-ability can also arise when people are isolated, insecure and defenceless in the face of risk, shock or stress [17].

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ANNEX 2: GENERAL METHODOLOGY

This Annex describes how the SoWMy 2014 study was designed and conducted.

ICM, UNFPA and WHO co-chaired the development and launch of the *SoWMy 2014* report, with UNFPA and WHO coordinating on behalf of the H4+ agencies (UNAIDS, UNFPA, UNICEF, UN Women, the World Bank and WHO).

ICS Integrare, a UNFPA Implementing Partner, managed the research, writing, production and launch of the report, with research support from the University of Southampton (UK) and the University of Technology, Sydney (Australia). The Averting Maternal Death and Disability programme at the Mailman School of Public Health, ICM, Jhpiego, an affiliate of Johns Hopkins University (USA), the World Bank and WHO provided additional technical contributions.

Methods

Overall design
There were two strands to the primary data collection:

(1) a self-completion questionnaire to collect quantitative data on selected indicators, distributed to each of the 75 countries;

(2) a full-day deliberative workshop of national stakeholders and experts. It was recommended that all 75 countries hold a workshop.

The aim of the questionnaire was to elicit quantitative data on key indicators relating to the midwifery workforce and SRMNH services. The questionnaire was based on that used for the 2011 report, with key questions repeated to enable analysis of change over time in the 58 countries invited to take part in both surveys. It was amended to address lessons learned during the 2011 study, and to include a stronger focus on the size and structure of the midwifery workforce, as well as the key related issues of education, regulation and association and health service infrastructure.

The aim of the workshop was to engage national stakeholders and experts to identify barriers to effective coverage of SRMNH care, and to identify potential solutions to these barriers, by collecting qualitative data to inform the identification of success stories and future strategies to strengthen SRMNH care.

Ethical approval
Ethical approval was obtained from the research ethics committee at the University of Southampton. Particular attention was paid to methods of ensuring that participants were able to give informed consent to taking part in the workshops and that, having done so, steps were taken to avoid harm resulting from participation, e.g. by not making audio or video recordings, by asking participants to sign up to "Chatham House rules" and by giving participants the opportunity to view the workshop report before it was submitted to the research team. Those contributing to the self-completion questionnaire were asked to state whether or not they wanted their participation to be acknowledged in the final report.

Data collection: self-completion questionnaire
The questionnaire was developed through an iterative feedback process involving the core research team and members of the core group. Reference was made to international policy documents and agreed research and analysis frameworks. Information needs were balanced against the need to make the process manageable for respondents.

French and Spanish translations of the original English language questionnaire were also produced.

UNFPA and WHO distributed the self-completion questionnaire and the workshop guidance to their country representatives in each of the 75 countries, and nominated a lead technical midwifery/ SRMNH advisor in each country as the focal point in each country. The focal points worked with personnel from ministries of health and education, professional associations, H4+ agencies and other relevant stakeholders to complete and validate the questionnaire. Each contributor was named in the completed questionnaire, with the option of requesting anonymity in the final report.

The questionnaire was also made available as an online tool, in English, French and Spanish, allowing respondents to enter their answers online and upload them directly to the analysis team. Once users submitted their responses, the system generated a PDF document displaying their answers, allowing contributors to check and validate the submitted data. A multi-lingual helpdesk was available to assist users throughout the process.

Data collection: deliberative workshops
The WHO and UNFPA focal points also coordinated with the ministries of health to convene and host the policy workshops. They were asked to invite up to 25 participants per workshop, with participants selected on the basis of their knowledge and expertise of midwifery/SRMNH services and their potential contribution to policy dialogue. In practice, participants included representatives of (amongst others): ministries of health, ministries of education, H4+ agencies, professional associations, civil society, academia, private sector, women's and consumer groups and parliamentarians. A rapporteur was appointed for each workshop, with responsibility for taking detailed notes. Workshops were held under "Chatham House rules", with participants asked not to attribute comments to individuals.

The country focal points were provided with a "facilitator's handbook" for the workshops, which included written guidance, template invitations, participant consent forms and a reporting template.

Data collection: secondary data
Secondary data from published sources were collected on population, demographics, epidemiology and health service delivery to inform the modelling on effective coverage (see Annexes 3 and 4) and the mapping of subnational distributions of populations, women of reproductive age, pregnancies and live births (see Annex 6).

Data analysis and reporting
Members of the core group analysed the complete quantitative and qualitative dataset. Key subject areas analysed included: alignment between country cadre titles and ISCO classification; current policy environment; education; gap between designated and actual EmONC facilities; workforce availability and projections towards achieving UHC; strength of regulation and professional associations; broad perspectives; policy actions since 2011; salaries; workshop reports. A data analysis workshop was convened in Geneva in March 2014 for the Core Group to present and discuss their respective findings. These emergent findings informed the development of the report and its key messages.

ANNEX 3: METHODOLOGY FOR MODELLING EFFECTIVE COVERAGE OF THE ESSENTIAL INTERVENTIONS FOR SEXUAL, REPRODUCTIVE, MATERNAL AND NEWBORN HEALTH CARE

"Health interventions cannot be carried out without health workers" [1]

Health workforce projections are a policymaking necessity [2]. Their purpose in this report, aligned with the WHO framework on health policy and systems research, is to provide "directional" and "correctional" scenarios [3] that can inform policy dialogue and decisions within countries on "what actions need to be taken in the near future to ensure movement towards achieving longer-term objectives" [2]. A key element of these actions is the requirement for further detailed analysis and investigation of the health workforce and health labour market to account for changing demographic, economic and health service contexts [4].

The methodology for modelling effective coverage of the 46 essential interventions for SRMNH care [5] builds upon published papers, tools and guidelines from the World Bank, WHO and others to inform needs-based workforce planning [4,6–15]. The result is a snapshot of "met need", comparable across countries.

"Met need" is defined as: the percentage of a universal SRMNH benefits package that could potentially be obtained by women and newborns given the composition, competencies and available working time of the midwifery workforce* The universal benefits package in this instance is, at minimum, the 46 essential interventions. The indicator is calculated as:

$$\frac{\text{Volume of essential SRMNH services that can be provided by the midwifery workforce (expressed in hours of work)}}{\text{Volume of essential SRMNH services required by women and newborns (expressed in hours of work)}} \times 100$$

The model — Effective Coverage Modelling (ECoMod) – is a tool to test scenarios and encourage multi-criteria decision-making [16,17] in workforce planning for Universal Health Coverage. For each of the 73 countries that contributed to this report, ECoMod was used to create baselines and projections, for each year between 2012 and 2030, of met need for the 46 essential interventions. The model uses self-reported data from countries (collected through the SoWMy 2014 survey), published secondary sources for population, demographics, epidemiology and health service delivery data, as described in Annex 4, and evidence-informed assumptions when countries reported missing data or "don't know" (Annex 5). A full description is available in a separate Working Paper [18].

The model calculates:

1. The annual SRMNH workforce required to deliver universal coverage (100%) of the 46 essential interventions for SRMNH in relation to the needs of women and newborns;

2. The annual SRMNH workforce available and competent to deliver these interventions;

3. The annual SRMNH workforce deficit in relation to the requirement to meet women's and newborns' need for SRMNH services;

4. The impact of alternative scenarios and policy options to increase "met need".

1. Estimating workforce requirements (2012-2030)

The mathematical model follows an *adjusted service targets-based* approach. The model is implemented using the following steps:

a. Determining the package of SRMNH services that women and newborns need. This package is the set of 46 essential interventions which together cover the continuum of SRMNH care (pre-pregnancy, antenatal, childbirth and postnatal health care). These 46 interventions are recommended by the Partnership for Maternal Newborn and Child Health (PMNCH): they have an impact on reducing maternal, neonatal and child mortality; are suitable for delivery in low- and middle-income countries, and/or settings where minimal essential care is generally available; and are delivered through the health sector [5].

b. Quantifying the annual volume of each health-care service required. The model estimates the total number of contacts, per year, to deliver each essential intervention to women and/or newborns based the assumption of universal coverage (100% of need). Universal coverage is estimated based on key demographic variables (e.g. number of women of reproductive age, number of pregnancies, number of live births, each with urban/rural and sub-national disaggregation, projected over time) and on available country-specific data on the incidence/prevalence of conditions associated with the essential interventions.

c. Converting the annual volume of need into time and workload indicators of staffing requirements. Evidence-based estimates of the average time needed by a SRMNH worker to provide each essential intervention are available from the OneHealth tool [19]. When average time is multiplied by the total number of contacts and aggregated across the SRMNH continuum of care, it provides the total available working time (i.e. workforce requirement) needed to achieve universal coverage.

2. Estimating workforce availability (2012-2030)

Next, the model calculates, for the years 2012-2030, projections on the availability of the SRMNH workforce for comparison with the workforce requirements calculated in section 1. The model uses self-reported data from the SoWMy 2014 survey. In instances where a country responded "don't know", data were either identified from the WHO's Global Health Observatory or defaulted to evidence-informed modelling assumptions. This is implemented in three steps:

a. Determining the initial stock and age-distribution of each SRMNH cadre in the baseline year (2012). The SoWMy 2014 survey requested specific information on the composition, roles and age of the SRMNH workforce. These data were inputted into the model.

b. Estimating the changes over time (2013-2030). The model adopts the standard workforce logic of "stock-and-flow" [4,20,21]. It includes an advanced mathematical simulation procedure to calculate, per year, the net number of workers (full-time equivalents, FTEs) who are actively engaged in

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* As defined in the glossary, and including associate midwifery/nursing personnel, midwifery/nursing personnel, clinical officers and medical assistants, physicians (generalists), and obstetricians/gynaecologists.

providing SRMNH care. The simulation accounts for the annual outflows (from voluntary attrition, mortality and retirement) and the annual inflows (from new graduates entering the workforce). Total FTEs available per cadre are then converted into total hours of available working time.

c. Assigning the total hours of available working time to the provision of essential interventions. WHO guidelines (OneHealth and Optimize for MNH [22]) provide evidence-informed analysis of the competencies and roles of the SRMNH workforce in relation to the essential interventions. These evidence-based guidelines do not reflect the diversity of task allocation across and within countries, but are appropriate for global projections. Roles for each cadre were allocated using a sequential marginal time allocation procedure:

1. The SRMNH cadres are categorized according to the essential interventions (1–46) based on the WHO guidelines for their role and competencies in an integrated health workforce (from community to primary and specialized cadres).

2. The annual working time available from each cadre category (starting at 1 and rising to 46) is allocated on a marginal basis to match the time requirements for the essential interventions that this cadre is authorized and competent to perform. This is done in blocks of 48 hours,* starting with the first family planning intervention and finishing with the last postnatal intervention. This allocation procedure is iterative. Once the first round of time blocks is allocated, the time allocation starts again from the first intervention until either the working time requirements are met or the available working time from the cadre has been allocated.

3. The available working time from each of the other cadres is then allocated to match the remaining time requirements not met by the previous category. Crucially, each cadre's

available working time is allocated in increasing order of their roles and competencies. In practice, this means that although a GP could deliver family planning advice, the GP cadre's time will only be allocated to this intervention if the available working time from other cadres in previous categories (e.g. the midwife cadre) has already been "spent".

The procedure outlined above for allocating available working time is based on the economic principle of "productive efficiency" [23]. This economic principle is adopted within the Optimize 4 MNH guidelines, and encourages the distribution of tasks (interventions) across the integrated health workforce in relation to the cadre's education, licensing and competencies. Secondly the procedure assumes that no essential SRMNH intervention is prioritized for delivery: each intervention is afforded equal weighting.

3. Estimating the workforce surplus/deficit (2012-2030)
The third stage is a straightforward calculation. For each year between 2012 and 2030, the likely SRMNH workforce deficit in meeting women's and newborns' needs for SRMNH services is the difference between workforce requirements and the available working time.

4. Alternative scenarios and policy options
Finally, the model is designed to test scenarios and encourage multi-criteria decision-making in workforce planning for Universal Health Coverage. Four scenarios were developed to explore the impact of alternative policy options: 1) improved family planning to reduce the annual number of pregnancies and births; 2) the scale-up of graduate numbers to 2020; 3) efficiency gains in the existing workforce; and 4) a 50% reduction in voluntary attrition from the existing workforce. The impact of each scenario on the available working time and the resulting increase in met need is then calculated.

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* Ideally, the marginal time allocation to the essential interventions should be done in blocks of 1 hour, but for computational efficiency a larger unit of time allocation (48 hours) was used (except for Brazil, China, India and Nigeria, where due to population size blocks of 480 hours were used).

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Essential intervention (SRMNH)	Need (defined as number of contacts with a health care worker by the population in need)	Data requirements and sources
PRE-PREGNANCY		
1. **Family planning advice**	All WRA (i.e. women aged 15-49), one contact per year.	**Indicator:** Number of WRA (2012-2030). **Source(s):** United Nations population database, medium fertility, 2012 revision (available from: http://esa.un.org/wpp/unpp/panel_indicators.htm).
2. **Family planning methods – delivery**	All WRA who use one of the following contraception methods: condoms/ pills/ injectables/ IUD/ female sterilization. For each year y, need is defined for each method as follows: 1. Need for condoms (y) = WRA (y) x (CPR + unmet need) x condom method mix x 3. 2. Need for pills and injectables (y) = WRA (y) x (CPR + unmet need) x method mix (pills + injectables) x 3. 3. Need for IUD = [WRA (y) x (CPR + unmet need) x IUD method mix] / 5. 4. Need for female sterilization (y) = [WRA (y) – WRA (y-1)] x (CPR + unmet need) x sterilization method mix.	**Indicator:** CPR (latest available figure) **Source(s):** WHO Global Health Observatory (available from: http://apps.who.int/gho/data/node.main.531?lang=en). **Indicator:** Unmet need for family planning. **Source(s):** United Nations Statistics Division, Millennium Development Goals Indicators (latest year available); WHO Global Health Observatory (latest year available) (available from http://unstats.un.org/UNSD/MDG/Data.aspx); DHS StatCompiler (available from: http://www.statcompiler.com/); Partnership in Action 2012-2013 Report (available from: http://www.familyplanning2020.org/images/content/documents/FP2020_Partnership_in_Action_2012-2013.pdf); Angola, Botswana: Alkema L, Kantorova V, Menozzi C, Biddlecom A. National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. *Lancet* 2013; 381:1642–52. **Indicator:** Prevalence of contraceptive method mix. **Source(s):** Seiber E, Bertrand J, Sullivan T. Changes in contraceptive method mix in developing countries. *International Family Planning Perspectives 2007;* 33(3). (available from: http://www.guttmacher.org/pubs/journals/3311707.pdf). **Note:** Information in this source for our purposes is only available for the following methods: IUD/ pill/ injectable/ condom/ female sterilization. Implants are apparently excluded from method mix because they account, across countries, for less than 1% of all contraception methods.
3a. **Prevention and management of STIs and HIV in all WRA: prevention of STIs and HIV**	All WRA, one contact per year.	**Indicator:** Number of WRA (2012-2030). **Source(s):** United Nations population database, 2012 revision (available from: http://esa.un.org/wpp/unpp/panel_indicators.htm).
3b. **Prevention and management of STIs and HIV in all WRA: management of STIs**	All WRA with syphilis, gonorrhoea, chlamydia or trichomoniasis. For each year y, calculated as follows: 1. Need for management of syphilis (y) = WRA (y) x incidence of syphilis. 2. Need for management of gonorrhoea (y) = WRA (y) x incidence of gonorrhoea. 3. Need for management of chlamydia (y) = WRA (y) x incidence of chlamydia. 4. Need for management of trichomoniasis (y) = WRA (y) x incidence of trichomoniasis.	**Indicator:** Incidence of STIs in WRA. **Source(s):** WHO. Global incidence of selected curable sexually transmitted infections by region. Geneva: WHO, 2008 (available from: http://apps.who.int/iris/bitstream/10665/75181/1/9789241503839_eng.pdf?ua=1).
3c. **Prevention and management of STIs and HIV in all WRA: management of HIV**	All WRA needing ART, calculated as follows: Number of WRA needing ART in 2012 / WRA in 2012 x WRA (y).	**Indicator**: % of WRA needing ART (number of adults needing ART x % of HIV positive adults who are women). **Source(s):** Number of adults needing ART (available from: http://www.unaids.org/en/data-analysis/datatools/aidsinfo/); some countries' individual sources; % of HIV positive adults who are women (number of female adults who are HIV positive / number of all adults who are HIV positive) from UNAIDS AIDSinfo database (available from: http://www.unaids.org/en/dataanalysis/datatools/aidsinfo/); some countries' individual sources.
4. **Folic acid fortification/ supplementation**	All WRA, one contact per year.	
PREGNANCY		
5. **Iron and folic acid supplementation**	All PW, one contact per year.	
6. **Tetanus vaccination**	All PW, one contact per year.	
7a. **Prevention and management of malaria with insecticide-treated nets and antimalarials: prevention**	All PW living in areas of high malaria transmission, calculated as follows: Need for prevention of malaria (y) = PW (y) x % population in the country living in areas of high malaria transmission.	**Indicator:** % population living in high malaria transmission areas (number of people living in high risk areas (or if not available, used living in active foci)/total population). **Source(s):** WHO. Annex 6A of the World Malaria Report 2013. Geneva: WHO, 2013 (available from: http://www.who.int/malaria/publications/world_malaria_report_2013/en/).

ANC=antenatal care; ART=antiretroviral therapy; CPR=contraceptive prevalence rate; IUD=intrauterine device; PMTCT=preventing mother to child transmission; pPROM=pre-term premature rupture of membranes; PW=pregnant women; STIs= sexually transmitted infections; WRA=women of reproductive age.

Essential intervention (SRMNH)	Need (defined as number of contacts with a health care worker by the population in need)	Data requirements and sources
PREGNANCY (continued)		
7b. Prevention and management of malaria with insecticide-treated nets and antimalarials: management	All PW with presumed and confirmed malaria, calculated as follows: Need for malaria management (y) = PW (y) x incidence of presumed and confirmed malaria cases.	**Indicator:** Incidence of resumed and confirmed malaria cases in PW, (Number of presumed and confirmed malaria cases/Total United Nations population estimates). **Source(s):** WHO. Annex 6A of the World Malaria Report 2013. Geneva: WHO, 2013 (available from: http://www.who.int/malaria/publications/world_malaria_report_2013/en/).
8a. Prevention and management of STIs (as part of ANC): prevention of STIs and HIV	All PW, one contact per year.	
8b. Prevention and management of STIs (as part of ANC): management of STIs	All PW with gonorrhoea, chlamydia or trichomoni-asis (note syphilis is addressed separately below). For each year y, calculated as follows: 1. Need for management of gonorrhoea (y) = PW (y) x incidence of gonorrhoea. 2. Need for management of chlamydia (y) = PW (y) x incidence of chlamydia. 3. Need for management of trichomoniasis (y) = PW(y) x incidence of trichomoniasis.	**Indicator:** Incidence of STIs in PW. **Sources(s):** WHO. Global incidence of selected curable sexually transmitted infections by region. Geneva: WHO, 2008. (available from: http://apps.who.int/iris/bitstream/10665/75181/1/9789241503839_eng.pdf?ua=1).
8c. Prevention and management of STIs (as part of ANC): management of HIV	All PW needing ART to avoid mother-to-child transmission, calculated as follows: Need for management of HIV (y) = % (number of pregnant women needing ART for PMTCT in 2012/ PW in 2012) x PW (y).	**Indicator:** % of HIV positive PW needing effective ART for PMTCT. **Source(s):** For Africa: USAID AIDSinfo (available from: http://www.unaids.org/en/data-analysis/datatools/aidsinfo/); For other regions: UNAIDS. Global Report: UNAIDS report on the global AIDS epidemic 2013. (available from: http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2013/gr2013/UNAIDS_Global_Report_2013_en.pdf); Some countries' indi-vidual sources. **Note:** Where value is <500 or <1000, 500 and 1000 values were assumed, respectively; where value is not available for country, the following data were used: HIV positive PW needing ART for PMTCT {region} x (HIV infected females {country}/ HIV infected females {region}).
9. Calcium supplementation to prevent hypertension	All PW, one contact per year.	
10. Interventions for cessation of smoking	All PW who smoke, calculated as follows: Need for smoking cessation interventions (y) = PW x prevalence of smoking in women aged over 15 years.	**Indicators**: Current smoking of any tobacco product (age-standardized rate), all females **Source(s):** WHO Global Health Observatory (available from: http://apps.who.int/gho/data/node.main.1250?lang=en). **Note:** If no data were found for a particular country, used WHO regional average for the countries in the dataset.
11a. Screening for and treatment of syphilis: screening	All PW, one contact per year.	
11b. Screening for and treatment of syphilis: treatment	All PW with syphilis. For each year y, calculated as follows: 1. Need for management of syphilis (y) = PW (y) x incidence of syphilis.	**Indicator:** Incidence of syphilis in PW. **Sources(s):** WHO. Global incidence of selected curable sexually transmitted infections by region. Geneva: WHO, 2008 (available from: http://apps.who.int/iris/bitstream/10665/75181/1/9789241503839_eng.pdf?ua=1).
12+13: Antihypertensive drugs to treat high blood pressure (including low-dose aspirin to prevent pre-eclampsia)	All PW with raised blood pressure and all PW with pre-eclampsia, calculated as follows: Need for antihypertensive drugs (y) = [WRA x (incidence of pre-eclampsia)] + [live births x (incidence of pre-eclampsia)].	**Indicator:** Incidence of high blood pressure and pre-eclampsia in PW. **Source(s):** Dolea C, AbouZahr C. Global burden of hypertensive disorders of pregnancy in the year 2000. Evidence and Information for Policy. Geneva: WHO, 2003 (available from: http://www.who.int/healthinfo/statistics/bod_hypertensivedisordersofpregnancy.pdf). **Note:** Only half of all hypertensive disorders presented in Table 6.1 in the reference paper were considered for the analysis.
14. Magnesium sulphate for eclampsia	All PW with eclampsia and pre-eclampsia, calculated as follows: Need for magnesium sulphate (y) = live births x (incidence of eclampsia + incidence of pre-eclampsia).	**Indicator:** Incidence of pre-eclampsia and eclampsia in PW. **Source(s):** Dolea C, AbouZahr C. Global burden of hypertensive disorders of pregnancy in the year 2000. Evidence and Information for Policy. Geneva: WHO, 2003 (available from: http://www.who.int/healthinfo/statistics/bod_hypertensivedisordersofpregnancy.pdf); Regional rates used according to WHO regions. **Note:** Total eclampsia incidence rates calculated as percentage of pre-eclampsia. Regional rates by WHO regions.

(continued)

Essential intervention (SRMNH)	Need (defined as number of contacts with a health care worker by the population in need)	Data requirements and sources
PREGNANCY (continued)		
15. Antibiotics for pre-term premature rupture of membranes (pPROM)	All cases of pPROM, calculated as follows: Need for antibiotics for pPROM (y) = all births including stillbirths (y) x incidence of pPROM.	**Indicator:** Incidence of pPROM **Source(s):** WHO global survey on maternal and perinatal health, 2005 (available from: http://www.who.int/reproductivehealth/topics/best_practices/GS_Tabulation.pdf?ua=1). **Note:** Where country rate not available used regional rate; where regional rate not available used world total rate.
16. Corticosteroids to prevent respiratory distress	All preterm births (including stillbirths), calculated as: Need for corticosteroids (y) = all births, including stillbirths (y) x preterm birth rate.	**Indicators:** Prevalence of preterm births. **Source(s):** Healthy Newborn Network. Global and national newborn health data and indicators (available from: http://www.healthynewbornnetwork.org/resource/database-global-and-national-newborn-health-data-and-indicators).
17. Safe abortion	All safe abortions, calculated as follows: Need for safe abortions (y) = WRA (y) x rate of safe abortions.	**Indicator:** Rate of safe abortions. **Source(s):** Sedgh G, Singh S, Shah IH, et al. Induced abortion: incidence and trends worldwide from 1995 to 2008. *Lancet* 2012; 379:625 32 (available from: http://www.thelancet.com/journals/lancet/article/PIIS0140673611617868/table?tableid=tbl2&tableidtype=table_id&sectionType=red). **Note:** Where the value was <0.5 used 0.5.
18. Post-abortion care	All unsafe abortions, calculated as follows: Need for post-abortion care (y) = WRA(y) x rate of unsafe abortions.	**Indicator:** Rate of unsafe abortions. **Source(s):** Sedgh G, Singh S, Shah IH, et al. Induced abortion: incidence and trends worldwide from 1995 to 2008. *Lancet* 2012; 379:625–32 (available from: http://www.thelancet.com/journals/lancet/article/PIIS0140673611617868/table?tableid=tbl2&tableidtype=table_id&sectionType=red). **Note:** Where the value was <0.5 used 0.5.
19. Reduce malpresentation at birth with external cephalic version	All breech births (including stillbirths), calculated as follows: Need for external cephalic version (y) = all births, including stillbirths (y) x incidence of breech births (including stillbirths).	**Indicator:** Incidence of breech presentations. **Source(s):** WHO. Global survey on maternal and perinatal health. Statistics on breech presentations, 2005 (available from: http://www.who.int/reproductivehealth/topics/best_practices/GS_Tabulation.pdf?ua=1). **Note:** Where country rate not available used regional rate; where regional rate not available used world total rate.
20. Induction of labour to manage pre-labour rupture of membranes at term	All cases of pPROM, calculated as follows: Need for antibiotics for pPROM (y) = all births, including stillbirths (y) x incidence of pPROM.	**Indicator:** Incidence of pPROM. **Source(s):** WHO. Global survey on maternal and perinatal health. Statistics on breech presentations, 2005 (available from: http://www.who.int/reproductivehealth/topics/best_practices/GS_Tabulation.pdf?ua=1).
CHILDBIRTH		
23. Normal labour and delivery management and social support during childbirth	All births (including stillbirths), one contact.	
21+22+24. Active management of third stage of labour (to deliver placenta) to prevent post-partum haemorrhage (including uterine massage, uterotonics and cord traction)	All births (including stillbirths), one contact.	
26a. Screen and manage HIV during childbirth – screen if not already tested	All births (including stillbirths) except in those cases when there have been 4 ANC visits, calculated as follows: Need for screening for HIV during childbirth (y) = all births including stillbirths (y) x (1 - % of cases with 4 ANC visits).	**Indicator:** % of antenatal care coverage (4 visits). **Source(s):** United Nations Statistics Division. The official United Nations site for the MDG indicators (available from: http://mdgs.un.org/unsd/mdg/Default.aspx).
26b. Screen and manage HIV during childbirth – treat	All births (including stillbirths) of HIV positive women who have not had 4 ANC visits, calculated as follows: Need for screening for HIV during childbirth (y) = all births, including stillbirths (y) x (% of cases without 4 ANC visits) x % HIV prevalence in all adults.	**Indicator:** % of antenatal care coverage (4 visits) of HIV positive women. **Source(s):** United Nations Statistics Division. The official United Nations site for the MDG indicators (available from: http://mdgs.un.org/unsd/mdg/Default.aspx); UNAIDS AIDSinfo (available from: http://www.unaids.org/en/dataanalysis/datatools/aidsinfo/); some countries from individual sources.
27+28. C-section for maternal/ foetal indication (including prophylactic antibiotics for c-section)	All births, including stillbirths, which require c-section, calculated as follows: Need for c-section (y) = all births, including stillbirths (y) x fixed assumption on need for a c-section.	**Note:** Assumption = 0.05 x all births (including stillbirths).

Essential intervention (SRMNH)	Need (defined as number of contacts with a health care worker by the population in need)	Data requirements and sources
CHILDBIRTH (continued)		
29. **Induction of labour for prolonged pregnancy (midwife or nurse)**	All births including stillbirths that occur after 41 weeks, calculated as follows: Need for induction of labour (y) = pregnancies (y) x % of pregnancies which go beyond 41 weeks.	**Indicator:** % pregnancies terminated after 42 weeks. **Source(s):** OneHealth Model: Interventions treatment assumptions, 2013 (available from: http://futuresinstitute.org/Download/Spectrum/Manuals/Intervention%20 Assumptions%202013%209%2028.pdf). **Note:** Assumption = 0.05 x pregnancies.
30+25. **Management of post-partum haemorrhage (manual removal of placenta and/or surgical procedures and/or oxytocics)**	All births, including stillbirths, where there is post-partum haemorrhage, calculated as follows: Need for management of post-partum haemor-rhage (y) = WRA (y) x incidence of post-partum haemorrhage (per 1000 women aged 15-49).	**Indicator:** Incidence of post-partum haemorrhage cases. **Source(s):** Dolea C, AbouZahr C, Stein C. Global burden of maternal haemorrhage in the year 2000. Evidence and information for policy. Geneva: WHO, 2003 (available from: http://www.who.int/healthinfo/statistics/bod_maternalhaemorrhage.pdf).
POSTNATAL CARE		
31-34 and 36-38. **Postnatal preventive care**	All births (including stillbirths), 4 contacts.	
35. **Detect and treat post-partum sepsis (PPS)**	All cases of post-partum sepsis, calculated as follows: Need for detecting and treating post-partum sepsis (y) = WRA (y) x incidence of post-partum sepsis per 1000 WRA.	**Indicator:** Incidence of post-partum sepsis. **Source(s):** Dolea C, AbouZahr C, Stein C. Global burden of maternal sepsis in the year 2000. Evidence and information for policy. Geneva: WHO, 2003 (available from: http://www.who.int/healthinfo/statistics/bod_maternalsepsis.pdf).
39. **Neonatal resuscitation with bag and mask**	All newborns requiring resuscitation, calculated as follows: Need for neonatal resuscitation (y) = live births (y) x 0.01.	**Indicator:** % of newborns requiring resuscitation. **Source(s):** OneHealth Model: Interventions treatment assumptions, 2013 (available from: http://futuresinstitute.org/Download/Spectrum/Manuals/Intervention%20 Assumptions%202013%209%2028.pdf). **Note:** around 1% of newborns require resuscitation
40. **Kangaroo mother care**	All newborns with low birth weight, calculated as follows: Need for kangaroo mother care (y) = live births (y) x % of newborns with low birth weight.	**Indicator:** % of newborns with low birth weight. **Source(s):** UNICEF and WHO. Low birth weight: country, regional and global estimates. New York: UNICEF, 2004 (available from: http://www.unicef.org/publications/files/low_birthweight_from_EY.pdf).
41. **Extra support for feeding small and preterm babies**	All preterm births (including stillbirths), calculated as follows: Need for extra feeding support (y) = all births including stillbirths (y) x preterm birth rate.	**Indicators:** % of preterm birth. **Source(s):** Healthy Newborn Network. Global and national newborn health data and indicators. (available from: http://www.healthynewbornnetwork.org/resource/database-global-and-national-newborn-health-data-and-indicators).
42. **Management of newborns with jaundice**	All newborns with jaundice, calculated as follows: Need for management of jaundice (y) = live births (y) x % of newborns with jaundice requiring phototherapy.	**Indicator:** % of newborns with jaundice. **Source(s):** Teune MJ, Bakhuizen S, Gyamfi Bannerman C, et al. A systematic review of severe morbidity in infants born late preterm. *Am J Obstet Gynecol* 2011; 205:374.e1-9. **Note:** Uniform assumption. Sum of incidence in late preterm infants (1245/26,252) and in full-term infants (2033/150,700).
43. **Initiate prophylactic ART for babies exposed to HIV**	All births, including stillbirths (except when there have been 4 ANC visits) in women who are HIV positive, calculated as follows: Need for prophylactic ART (y) = all births including stillbirths (y) x (1 - % of cases with 4 ANC visits) x % HIV positive adults.	**Indicator:** % of newborns, born from a HIV positive woman, who received prophylactic ART. **Source(s):** United Nations Statistics Division. The official United Nations site for the MDG indicators (available from: http://mdgs.un.org/unsd/mdg/Default.aspx); UNAIDS AIDSinfo (available from: http://www.unaids.org/en/dataanalysis/datatools/aidsinfo/).
44. **Presumptive antibiotic therapy for newborns at risk of bacterial infections**	All newborns at risk of bacterial infection, calculated as follows: Need for presumptive antibiotic therapy (y) = live births (y) x incidence of bacterial infection in newborns.	**Indicator:** Incidence of bacterial infection in newborns. **Source(s):** Singh S, Darroch JE, Ashford LS. Adding it up: the need for and cost of maternal and newborn care – estimates for 2012. Guttmacher Institute, 2013 (available from: http://www.guttmacher.org/pubs/AIU-MNH-2012-estimates.pdf). **Note:** Uniform assumption of 20%.
45. **Surfactant to prevent respiratory distress syndrome in preterm babies**	All preterm births (including stillbirths), calculated as follows: Need for surfactant (y) = live births (y) x preterm birth rate.	**Indicator:** % of preterm births. **Source(s):** UNICEF and WHO. Low birth weight: country, regional and global estimates. New York: UNICEF, 2004 (available from: http://www.unicef.org/publications/files/low_birthweight_from_EY.pdf).
46. **Continuous positive airway pressure (CPAP) to manage babies with respiratory distress syndrome (RDS)**	All newborns with respiratory distress syndrome, calculated as follows: Need for surfactant(y) = live births (y) x incidence of respiratory distress syndrome in newborns.	**Indicator:** Incidence of respiratory distress syndrome in newborns. **Source(s):** Rodriguez RJ, Martin RJ, Fanaroff AA. Respiratory distress syndrome and its management – Chapter 19. In Fanaroff AA, Martin RJ. Neonatal-perinatal medicine: diseases of the fetus and infant. St Louis: Mosby, 2010. (available from http://www.thoracic.org/education/breathing-in-america/resources/chapter-19-respiratory-distress-syndr.pdf). **Note:** Uniform assumption of 1%

ANNEX 5. DECISION RULES

The 73 SoWMy countries provided new information on the midwifery workforce by: cadre, ISCO classification, number, age distribution, % time spent on MNH services, annual attrition (voluntary), retirement age, graduates and enrolments, years of education, and student attrition from education.

The values for each of these indicators informed the modelled projections of workforce availability in relation to women's and newborn need for the 46 essential SRMNH interventions.

In the case of missing or inconsistent data, the model applied a fixed set of decision rules, listed below.

Indicator used in the modelled projections	Example value	Decision rule (for missing or inconsistent data)
Country	A.N. Other	n/a
Name of cadre	Midwife	Apply the name of the category under which the country cadre was listed.
International Standard Classification of Occupation (ISCO) code	Code 2222	Assigned based on the roles and responsibilities specified, in the context of the cadre category selected.
Number of workers	1,515	Default to WHO Global Health Observatory (2014 version). If not in WHO Global Health Observatory, secondary source from government policy document. If neither, zero.
Age distribution	Aged under 30: 300 workers Aged 30-39: 510 workers Aged 40-49: 424 workers Aged over 50: 281 workers	Apply an equal distribution of the total number of workers across age groups.
% time spent on MNH	100%	Apply the sample median, across all countries, for that ISCO code: −2222 (midwifery professionals): 100% −2221 (nursing professionals): 85% −3222 (midwifery professionals, associates): 100% −3221 (nursing professionals, associates): 55% −2211 (medical practitioners, generalists): 30% −2212 (medical practitioners, specialists ob/gyn): 100% −2240 or 3256 (paramedical practitioners and medical assistants): 75%
Annual workforce attrition (voluntary)	10%	Apply 4% for all cadres.
Retirement age	62 years	Apply the retirement age of any cadre in the same country with the same ISCO code. If the former not available, retirement age of any other cadre in the same country, regardless of ISCO code. If retirement age not available for any cadre, default to 65.
Graduates in 2012	43 graduates	Apply 5% of the total number of workers in 2012, equivalent to a stable replacement rate of workforce turnover.
Enrolments each year from 2010 to 2015	2010: 52 students 2011: 50 students 2012: 54 students 2013: 48 students 2014: 55 students 2015: 60 students	Default to the last available enrolment figure from previous years. If not available, assume enrolment is equal to graduates from 2012.
Years of education	3 years	Apply the given years of education of any cadre with the same ISCO code in the same country. If former not available, assign the sample median, across all countries, for that ISCO code: −2222 (midwifery professionals): 3 years −2221 (nursing professionals): 3 years −3222 (midwifery professionals, associates): 2 years −3221 (nursing professionals, associates): 2 years −2211 (medical practitioners, generalists): 7 years −2212 (medical practitioners, specialists ob/gyn): 10 years −2240 or 3256 (paramedical practitioners and medical assistants): 3 years
Student attrition from education	20%	Apply student attrition from education for any cadre with the same ISCO code in the same country. If the former not available, assign the sample median, across all countries, for that ISCO code.

ANNEX 6. MAPPING OF SUBNATIONAL DISTRIBUTIONS OF POPULATIONS, WOMEN OF REPRODUCTIVE AGE, PREGNANCIES AND LIVE BIRTHS

The mapping methodology used in this report was developed and published by a group of partners (University of Southampton, ICS Integrare, USAID, Norad, UNFPA, WHO) working on the State of the Art in Mapping for MNH [1]. It includes new, innovative approaches to make the geography of MNH informative for policy and planning at country level. In particular, this report utilizes the increasing capacity of geographic information systems (GIS) to map women of reproductive age (WRA), pregnancies and live births [2]. The methodology follows a simple four-step process to disaggregate and estimate distributions of populations, WRA, pregnancies and live births by subnational boundaries. Each of the four steps is described below.

1. Construction of detailed and contemporary population distribution datasets

Construction of estimates of population distribution for Africa and Asia at approximately 100 metre spatial resolution has recently been completed (full details are available at www. worldpop.org.uk) [3-8]. Briefly, a GIS-linked database of census and official population estimate data was constructed, targeting the most recent and spatially detailed datasets available, given their importance in producing accurate mapping. Detailed 30 metre spatial resolution maps of settlement extents were derived from Landsat satellite imagery through either semi-automated classification approaches [6-8] or expert opinion-based analyses. These settlement maps were then used to refine land cover data. Local census data mapped at fine resolution by enumeration area level from sample countries across Africa and Asia were exploited to identify typical regional per-land cover class population densities. These were then applied to redistribute census counts by regional ecozones to map human population distributions at approximately 100 metre spatial resolution continent-wide. Where available, additional country-specific datasets providing valuable data on population distributions, not captured by censuses, such as internally displaced people or detailed national surveys, were incorporated into the mapping process. Population datasets for the Americas were being constructed at the time of analysis, and therefore population datasets from the Global Rural Urban Mapping Project (GRUMP) [9] were used for countries in the Americas.

2. Construction of future projection population distribution datasets

United Nations estimates of urban- and rural-specific growth rates [10] were compiled for all 73 countries participating in this report. These were applied to the datasets described above. For populations mapped as living within urban areas, as defined by Columbia University's Global Rural Urban Mapping Project urban extent map [9] the urban growth rates were applied. For all other populations the rural growth rates were applied. This approach was used to construct 2010, 2012, 2015, 2020, 2025 and 2030 population distribution datasets, which were adjusted to ensure that national population totals matched those estimated by the United Nations.

3. Construction of WRA distribution datasets

Following previously published methods [11], data on subnational population compositions were obtained from a variety of sources for as many countries as possible, principally from contemporary census-based counts broken down at a fine resolution administrative unit level. These were matched to corresponding GIS datasets showing the boundaries of each unit, and used to adjust the existing spatial population datasets described above to produce estimates of the distributions of populations by sex and 5-year age group. The datasets were then adjusted to ensure that national population totals by age group, specific city totals and urban/rural totals matched those reported by the United Nations [12]. A summation of the datasets representing females in the 15-49 year age groups was undertaken to produce WRA datasets.

4. Mapping pregnancies and live births

Following the previously published approach [2], in 73 countries, age-specific fertility rates by 5-year age groupings, disaggregated by subnational regions and urban versus rural, were derived from the most recent national household surveys conducted as part of the Demographic and Household Survey (DHS) programme (www.measuredhs.com). GIS datasets representing the boundaries of the subregions (http://spatialdata.dhsprogram.com/) and the urban extents within them were assembled [9], and the age-specific fertility rates were matched to these boundaries. These rates were then used to adjust each 5-year age grouped female population distribution dataset described above to produce gridded estimates of the distributions of live births across each country. At the national level, these totals were then adjusted linearly to ensure that their totals matched those estimated by the United Nations for the 2010-2030 period [12] to create the different year datasets. For countries where no recent DHS data existed (n= 25) the population datasets described above were simply adjusted to ensure that their totals matched those of the United Nations estimates. To convert the gridded datasets of numbers of live births to numbers of pregnancies, national level estimates of numbers of pregnancies in 2012 were obtained from the Guttmacher Institute (www.guttmacher.org) and the 2012 birth dataset totals were adjusted nationally to match these totals. For the other years, it was assumed that the national-level ratios between numbers of births and pregnancies in 2012 remained constant, and these country-specific ratios were used to convert each live birth dataset to a pregnancy dataset.

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ANNEX 7. TASKS WITHIN THE SCOPE OF MIDWIFERY PROFESSIONALS ACCORDING TO THE INTERNATIONAL STANDARD CLASSIFICATION OF OCCUPATIONS

The tasks for midwifery professionals are divided into eight categories as follows:

1. planning, providing and evaluating care and support services for women and babies before, during and after pregnancy and childbirth according to the practice and standards of modern midwifery care;

2. providing advice to women and families and conducting community education on health, nutrition, hygiene, exercise, birth and emergency plans, breastfeeding, newborn care, family planning and contraception, lifestyle and other topics related to pregnancy and childbirth;

3. assessing progress during pregnancy and childbirth, managing complications and recognizing warning signs requiring referral to a medical doctor with specialized skills in obstetrics;

4. monitoring the health status of newborns managing complications and recognizing warning signs requiring referral to a medical doctor with specialized skills in neonatology;

5. monitoring pain and discomfort experienced by women during labour and delivery and alleviating pain using a variety of therapies, including pain-killing drugs;

6. reporting births to government authorities to meet legal and professional requirements;

7. conducting research on midwifery practices and procedures and disseminating findings e.g. through scientific papers and reports;

8. planning and conducting midwifery education activities in clinical and community settings.

Claudia Martinez/World Vision

Now that you've read the report, please share the evidence, inform policy dialogue, take action, so that all women and newborns obtain quality midwifery care.

Every woman and her newborn have the right to quality care during pregnancy, childbirth and after birth **#SoWMy2014**

#Womenshealth and **#midwives** go hand in hand. Stand up for keeping women safe: **#SoWMy2014**

#Midwives can help avert two thirds of all maternal deaths. Send a heart for **#womenshealth #SoWMy2014**

Every woman and every child has the right to good-quality health care. **#SoWMy2014**

Sweden managed to drastically lower its maternal death ratio by using the services of midwives. **#SoWMy2014**

#Midwives help with the elimination of mother-to-child transmission of HIV

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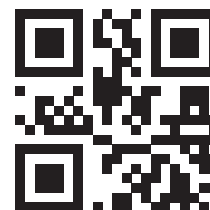
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