



www.igo.org

Contents lists available at [ScienceDirect](http://ScienceDirect.com)

## International Journal of Gynecology and Obstetrics

journal homepage: [www.elsevier.com/locate/ijgo](http://www.elsevier.com/locate/ijgo)

## SUPPLEMENT ARTICLE

## Scaling up high-impact interventions: How is it done?

Jeffrey Michael Smith <sup>a,\*</sup>, Joseph de Graft-Johnson <sup>b</sup>, Pashtoon Zyae <sup>c</sup>, Jim Ricca <sup>a</sup>, Judith Fullerton <sup>d</sup><sup>a</sup> *Jhpiego, Baltimore, MD, USA*<sup>b</sup> *Save the Children/MCHIP, Washington, DC, USA*<sup>c</sup> *International Confederation of Midwives, The Hague, Netherlands*<sup>d</sup> *Independent consultant, San Diego, CA, USA*

## ARTICLE INFO

## Keywords:

Helping Babies Breathe

Maternal and newborn health

Midwifery

Misoprostol

Scale-up

## ABSTRACT

Building upon the World Health Organization's ExpandNet framework, 12 key principles of scale-up have emerged from the implementation of maternal and newborn health interventions. These principles are illustrated by three case studies of scale up of high-impact interventions: the Helping Babies Breathe initiative; pre-service midwifery education in Afghanistan; and advanced distribution of misoprostol for self-administration at home births to prevent postpartum hemorrhage. Program planners who seek to scale a maternal and/or newborn health intervention must ensure that: the necessary evidence and mechanisms for local ownership for the intervention are well-established; the intervention is as simple and cost-effective as possible; and the implementers and beneficiaries of the intervention are working in tandem to build institutional capacity at all levels and in consideration of all perspectives.

© 2015 Published by Elsevier Ireland Ltd. on behalf of International Federation of Gynecology and Obstetrics. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

## 1. Introduction

As countries push to achieve Millennium Development Goals (MDGs) 4 and 5, increasing attention is being paid to the equitable scale-up of proven high-impact interventions for reproductive, maternal, newborn, and child health [1]. Experience has demonstrated that technical interventions that are known to be effective at a small scale under tightly controlled conditions cannot naturally be assumed to be widely adopted and scaled up to cover large segments of the population, despite scale being essential for population-level impact. Scale-up is challenging, and it is not always successful.

Over the past 40 years, Jhpiego and its partners have assisted various countries, through local efforts and global alliances, to achieve some level of scale-up of maternal and newborn health (MNH) interventions across the global development spectrum. Substantial scale-up activity has occurred over the last decade, particularly with support from USAID via its flagship Maternal and Child Health Integrated Program (MCHIP), which supported programmatic efforts in MNH in more than 40 countries from 2008 to 2014 [2] and which was led by Jhpiego in partnership with Save the Children, John Snow, Inc., Program for Appropriate Technology in Health, ICF International, Population

Services International, Broad Branch Associates, and the Johns Hopkins University's Institute for International Programs. While the specifics of Jhpiego's scale-up approach have differed depending on the local context, experience has allowed it to distill common, practice-based principles. As a result, Jhpiego now has a more refined and articulable approach to scale-up that we, as authors representing Jhpiego and partners who have worked closely with Jhpiego, aim to share for the benefit of other public health practitioners.

For the purposes of the present article, we derive our definition of scale-up from ExpandNet, a community of practice for global public health practitioners that is focused on developing and promoting best practices at scale [3]. ExpandNet's definition encompasses both the process and the objective of increasing coverage of an intervention: "deliberate efforts to increase the impact of health service innovations successfully tested in pilot or experimental projects so as to benefit more people and to foster policy and programme development on a lasting basis" [3]. Progress toward expanding levels of coverage for an intervention is sometimes termed "horizontal scale-up." The process of institutionalizing an intervention at all levels of a local implementing organization (usually the ministry of health), so that it can manage and sustain an intervention at a high level of horizontal scale-up, is sometimes termed "vertical scale-up." After stating the principles of scale-up that have emerged from our work, we will describe three illustrative cases in which Jhpiego's and its partners' deliberate efforts to assist vertical scale-up using these principles have led to successful horizontal scale-up.

\* Corresponding author at: Jhpiego, 1615 Thames Street, Baltimore, MD 21231, USA. Tel.: +1 410 537 1896.

E-mail address: [jeffrey.smith@jhpiego.org](mailto:jeffrey.smith@jhpiego.org) (J.M. Smith).

**Box 1**

The 12 principles of scale-up used by Jhpiego and partners.

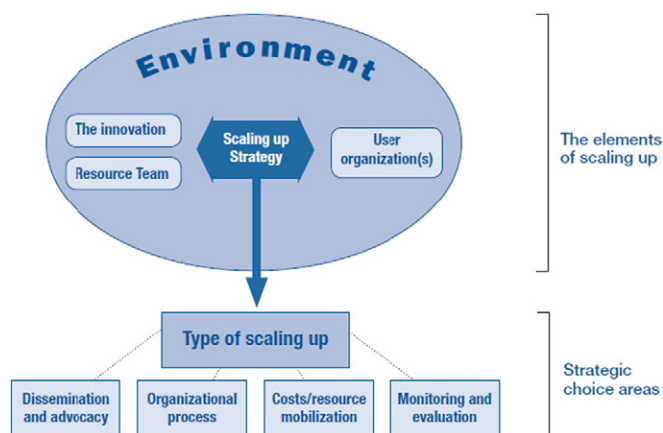
- |   |
|---|
| <p><b>A. Actions related to the STRATEGY for scale-up</b></p> <ol style="list-style-type: none"> <li>1. Build evidence and engage in <b>evidence-based advocacy</b> (globally and nationally)</li> <li>2. <b>Coordinate/partner</b> with other donors and technical agencies</li> <li>3. Mobilize <b>resources</b></li> <li>4. <b>Promote country ownership</b> by integrating and harmonizing intervention with current systems</li> </ol> <p><b>B. Actions related to the INTERVENTION to be scaled up</b></p> <ol style="list-style-type: none"> <li>5. <b>Simplify and standardize</b> intervention</li> <li>6. Make intervention <b>cheaper</b> (i.e. more cost-effective)</li> </ol> <p><b>C. Actions related to the IMPLEMENTING ORGANIZATION AND BENEFICIARIES of the scaled intervention</b></p> <ol style="list-style-type: none"> <li>7. Identify and work with <b>champions</b></li> <li>8. Advocate for and develop needed <b>policy/guideline</b> changes</li> <li>9. Build <b>capacity</b> of implementing organization(s) for training, management, and logistics</li> <li>10. <b>Use data</b> for management, including strengthening monitoring and evaluation</li> <li>11. Support institutions, such as pre-service education sites and professional organizations, that are agents of scale-up</li> <li>12. Engage and empower <b>clients and communities</b></li> </ol> |
|---|

### 1.1. The principles of scale-up

There is a large body of literature discussing the variety of frameworks that have been developed to guide the effort to scale-up health interventions [4–6]. The scale-up principles that Jhpiego and partners have crystalized for the purposes of their collective implementation efforts in global MNH are presented in Box 1. These principles are based on the logic of the ExpandNet framework shown in Fig. 1 [7] but contain modifications that have been adapted from insights in other frameworks [8–10].

The ExpandNet framework links five interacting pieces: the “resource team” (in this case, a group of technical assistance organizations led by Jhpiego or a partner), works in concert with the “user organization(s)” (i.e. the ultimate implementer, usually a ministry of health) to help scale-up an “innovation,” or intervention, through a “scaling-up strategy” within the relevant “environment,” or context.

Scale-up tends to happen in phases similar to that of product introduction [11], as shown in Fig. 2, beginning with the *introduction* of an intervention, during which the intervention is piloted by the resource



**Fig. 1.** ExpandNet framework for scale-up. Reproduced with permission from WHO, ExpandNet [7].

team and health system managers learn the factors necessary for its successful local application and contextualization. As ministries of health increase geographic coverage of the intervention, scale-up moves to an *early expansion* phase. In this phase, the resource team works with the ministry of health to identify needs for capacity-building, and to continue to refine the intervention based on evidence from pilot experiences. As the ministry of health attains coverage of national scope, or enters the *mature expansion* phase, issues of institutionalizing the intervention and maintaining quality and fidelity become the most crucial considerations.

A common understanding in the process of scale-up, which is implied in the 12 scale-up principles, is that no organization or agency works independently or in isolation. In fact, Jhpiego has always worked in an environment characterized by the leadership of relevant ministries, alliances with partners, and multilateral networks that address the specific actions required for expansion of coverage within complex health systems.

The three recent illustrative case examples of the scale-up principles are outlined in Table 1 and described in further detail below. Each case involves a key MNH problem, and each is in a different phase of scale-up.

## 2. Managing newborn asphyxia: Ensuring newborn resuscitation through the *Helping Babies Breathe* approach

Almost three million newborns die each year, and the majority of these deaths occur within 24 hours of birth. Globally, 23% of newborn deaths, or 700 000 annually, are due to birth asphyxia [12]. Thus, birth asphyxia has been targeted by the global public health community as a priority issue. As described in Box 2, *Helping Babies Breathe* (HBB), a methodology developed by the American Academy of Pediatrics (AAP) in 2009 to address birth asphyxia [13], expands upon time-tested clinical guidelines using simple, focused learning tools and approaches for newborn resuscitation. This new methodology and training package has proven instrumental in moving toward effective implementation because of its emphasis on mastery and consistent application of the initial steps of resuscitation, which are respiratory support through stimulation and use of a self-inflating bag and mask when necessary. HBB focuses on prompt resuscitation during the Golden Minute (APP, Elk Grove Village, IL, USA) after childbirth as an integral component of essential newborn care (ENC). The HBB approach adheres to a simple assessment and intervention pathway, and development and maintenance of skills through simulation, using a low-cost, lifelike anatomic model, both in the learning venue and at the workplace. The HBB training package can be used alone or integrated into existing national training materials for ENC, emergency obstetric and newborn care, or integrated management of newborn and childhood illness. The desired output is to have at least one person who is skilled in newborn resuscitation at every birth [14].

MCHIP embraced the HBB approach for the management of asphyxiated newborns and included it in all of its neonatal programs. Both directly and as a member of the HBB Global Development Alliance (GDA), which was established in June 2010, MCHIP worked with USAID missions, other technical agencies (most significantly AAP and Laerdal Global Health), host country governments, professional associations, and nongovernmental organizations to facilitate the scale-up of HBB in 54 countries as of April 2013 [15].

The MCHIP strategy for scaling up proven interventions was to galvanize action at both the global and the country level. MCHIP's direct support for implementation included: regional training of trainers in Asia and Africa; partnership with AAP for development of an HBB training video and implementation guide; in-country mentorship through a variety of GDA members; and HBB website maintenance. MCHIP's breadth allowed cost efficiencies, such as the waiver of copyright fees and access to training models at cost.

Facilitating collaboration among partners, the GDA achieved progress to scale more rapidly than any partner alone because each partner could take on specific roles. For example, AAP developed the technical evidence base, Laerdal provided initial training materials for national

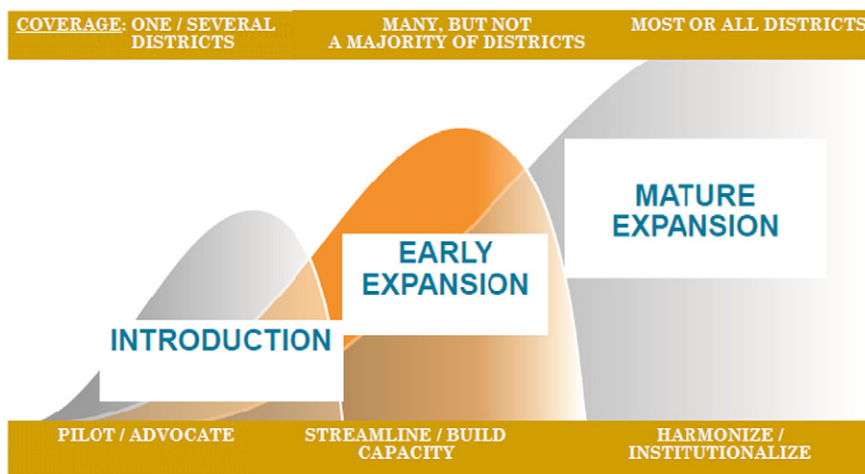


Fig. 2. Phases of the scale-up process. Adapted with permission from PATH [11].

and regional training events, and MCHIP supported implementation in some countries, and policy changes in others. A large trial in Tanzania, led by AAP, demonstrated the mortality impact of HBB [16]. In parallel, MCHIP used implementation science approaches in Malawi and Bangladesh to document processes for scale-up at the country level, evidence that was used to support training, mentorship, and quality assurance in other countries, including Kenya, Mozambique, and Zambia.

At the country level, a key scale-up principle for MCHIP was to support governments and their in-country partners to build on existing platforms to introduce or expand HBB. In line with this principle, consultative advocacy and planning meetings were held with relevant divisional heads within ministries of health regarding the potential role that HBB could play in reducing newborn deaths due to birth asphyxia, focusing on the ministries' decisions to endorse the introduction/expansion of HBB. This initial planning served to ensure country ownership, coordinate approaches, and mobilize multiple resource channels. During the planning process, decisions were made about: (1) the level of the healthcare system at which the intervention would be delivered; (2) the cadre of healthcare worker to train, especially midwives, and the selection of master trainers, particularly those working in the maternity or neonatal unit; (3) service delivery strategies to meet each country's needs, be it vertical (as in Bangladesh and Malawi) or integrated (as in Ethiopia); (4) a resource mobilization strategy for training, supervision, and service delivery of supplies; (5) a strategy for wide geographic coverage, phased in based on resource availability; and (6) an ongoing monitoring and evaluation component, using selected indicators. Most countries mobilized adequate resources to initiate HBB-related activities in selected regions, provinces, or districts while advocating for additional resources to scale nationwide. A few countries—for example, Bangladesh—were able to mobilize the needed resources for a nationwide scale-up at the start.

Bangladesh is an example of a country in which the decision to pursue national scale-up was reached because of use of local evidence

generated through HBB implementation. Annually, approximately 30 000 newborn deaths in Bangladesh are due to birth asphyxia. To reduce this burden, MCHIP, in partnership with AAP, committed modest funding to study the feasibility and impact of introducing HBB in Bangladesh. In collaboration with the Ministry of Health and Family Welfare (MOHFW), Bangabandhu Sheikh Mujib Medical University (BSMMU), the International Centre for Diarrheal Disease Research, Bangladesh, and Save the Children's Saving Newborn Lives project, MCHIP supported the introduction of HBB in selected public sector hospitals and clinics. An HBB champion emerged at BSMMU to lead the study, which showed that HBB, within the context of ENC, was feasible for all skilled birth attendants (SBAs) at both the facility and community levels. The study data and demonstration of learning materials allowed the HBB champion to foster local ownership of the intervention by engaging other stakeholders to discuss national scale-up. At a national conference in September 2010, the Minister for Health instructed his directorate heads to scale-up HBB across the country. This leadership and commitment, in the presence of stakeholders and donors, became a pivotal point for mobilization of resources for a nationwide HBB scale-up. The scale-up process is ongoing, led by the MOHFW, with BSMMU as the technical implementation leader. Through this coordinated and locally championed effort, HBB services have been rolled out to 55 districts in Bangladesh, involving over 21 000 health workers, since 2013 [17].

**3. Addressing maternal mortality in Afghanistan: Rapidly expanding midwifery education to overcome human resource shortages**

The expansion of midwifery education in Afghanistan exemplifies application of the principles of scale-up to a larger health system component—human resource development—at a national level. Among the biggest challenges facing the Ministry of Public Health (MoPH) in Afghanistan in 2002, after 23 years of conflict and isolation, was the alarmingly high maternal mortality ratio, estimated at

Table 1  
Illustrative case examples.

Intervention	Health problem	Location	Phase of scale-up	Lead technical organization
Helping Babies Breathe (targeted newborn resuscitation package)	Birth asphyxia	Multiple countries	Early to mature expansion, in various countries	Save the Children
Training and deployment of midwives	Low rates of skilled attendance at birth and limited human resources	Afghanistan	Mature expansion	Jhpiego
Advanced distribution of misoprostol for self-administration at home births	Postpartum hemorrhage	Multiple countries	Introduction to early expansion	Multiple, sometimes Jhpiego

**Box 2****Helping Babies Breathe.**

Helping Babies Breathe (HBB) is an evidence-based educational program, based on the International Liaison Committee on Resuscitation's (ILCOR) consensus on scientific conclusions that have undergone a WHO scientific technical review. HBB has the following elements:

- Culturally sensitive, pictorial-based learning materials, including a learner workbook, action plan wall poster, and facilitator flip chart.
- Realistic newborn simulator (NeoNatalie, developed by Laerdal Medical) with the ability to imitate an umbilical pulse, bag-mask ventilators, and penguin suction bulb that can be disinfected. All equipment has been tested for durability in a variety of climates and teaching conditions and is made available at cost to the Millennium Development Goal countries.
- An ongoing mentorship program to provide expert assistance, implementation guidance, knowledge exchange, integration and evaluation support, and continuous quality improvement for sustained practice outcomes and decreased infant mortality.

1600–2200 per 100 000 live births [18]. At that time, national prenatal care and SBA rates were 16% and 14%, respectively, and in rural areas the rates were even lower, at 8% and 7% [19]. The Afghan MoPH recognized the urgent need to comprehensively revitalize the health system for the provision of maternal health services but also recognized the limitations inherent in a postconflict environment; therefore, it focused early and intensively on building human resource capacity.

According to the MoPH, in 2002 only 467 midwives were available in the country to serve an estimated population of 24.5 million people [20]. Midwifery education in the country's five schools had been suspended by the Taliban, and no new graduates had emerged in more than seven years. Nevertheless, midwives were acknowledged as the preferred providers of maternity services, given cultural preferences for female providers [21,22].

The MoPH and its international development partners quickly identified the education of new midwives, who would be preferentially recruited from and immediately deployed back to the refurbished health centers in their home communities in rural areas, as a logical response to the need to sustainably increase access to maternal health services, especially among the rural poor [23]. Global evidence [24,25] guided decision makers away from training traditional birth attendants and toward the competency-based education of women as health workers who would fulfill the criteria of SBAs [26]. This created a clear and compelling narrative for building partnerships and securing donor support. The clarity of this vision united groups in the development of an integrated and harmonized strategy in line with other components of the health system, and across all areas of the country. Initially, in 2002, funding for midwifery education was provided by USAID and UNICEF; by 2012, funding came from at least 12 different sources, including the embassies of Denmark, the Netherlands, Norway, Sweden, and Turkey; the European Commission; the World Bank; USAID; WHO; UNFPA; UNICEF; and the Government of Afghanistan.

Drawing on lessons learned in other Asian countries (specifically, Indonesia and Nepal), where Jhpiego supported the retraining of large numbers of midwives who had a limited skill set, an effort was made early on to develop a structured educational process that would ensure student skill progression was central and that they had

attained certain competencies prior to graduation. The process of developing educational standards that are now in alignment with current international guidelines [27], as well as a standards-based management and accreditation methodology, allowed common and transparent conversation among all implementing partners and clear leadership by the government [28,29]. Two educational pathways were identified, one through the existing Institutes of Health Sciences for students with secondary school credentials, and the other through newly established provincial-level community midwifery schools, which initially admitted students with a minimum ninth class educational achievement until 2009 when the curriculum was updated and the admission requirement was advanced to a tenth class education minimum [30].

Despite the two pathways, educators and MoPH human resource managers agreed on a common core educational curriculum and similar expected outcomes of learning (e.g. core competencies demonstrated prior to entry into the workforce). Standardization and systematization made the approach conceptually simple and programmatically achievable. Initially, for example, quarterly meetings called by the MoPH were held in Kabul for all organizations implementing a midwifery education program in order to benchmark progress and collectively address challenges.

The formal cultivation of champions of midwifery was a critical part of the process that ultimately scaled up the intervention to 33 out of 34 provinces in the country. In 2005, the Afghan Midwifery Association (AMA) was formed not only for continuing professional support to midwives in the country, but also to promote the professionalization of the concept of midwifery [21]. Success of the revived concept of midwifery in Afghanistan, and indeed the system of service delivery of maternal health services, was known to be intricately linked to the demand for services. Increasing demand was necessary to help new, relatively young graduates gain experience and demonstrate to their communities that their skill-focused, professional education made them more valuable than traditional providers. Formation of the AMA, with branches in almost every province of the country, promoted respect for the profession and an understanding of the responsibilities that come from being a member of a profession. New graduates were asked to recite the midwifery oath upon graduation, which formally conferred on them a mantle of responsibility. For many young women in Afghanistan, membership in the AMA was the first time that they had been members of any group outside their own family networks. All of these components created numerous champions not only at a national level, but also at the community level, which promoted respect for the educational programs and the graduates, fostered demand for admission, and, theoretically, promoted sustainability.

The results of adherence to these scale-up principles were remarkable. Between 2002 and 2004, the five government midwifery schools reopened, and 17 new community midwifery schools were established at the provincial level. By 2012 the country's accredited midwifery education programs had graduated 3827 new midwives. More recently, in response to the results of targeted evaluation studies and government strategic planning for the midwifery profession, the nationally approved curriculum has been revised and program length expanded [30–33]. Some schools have also ceased operation in response to changing community characteristics and needs. In 2013, there were 970 students enrolled in midwifery education in the remaining 24 schools in the country [33]. A number of private midwifery schools have also opened, although their adherence to the guiding principles is less clear. Graduates have entered both the public and private sectors, and while there are several constraining factors [34], retention of graduates in the workforce remains high [35]. Recent data indicate that 96% of women educated through the community midwifery program remained in their home communities, and 74% of women educated through the government midwifery programs in the larger cities continued in their urban workplace [36].



#### 4. Preventing postpartum hemorrhage with misoprostol: Three pills that can save a life

Postpartum hemorrhage (PPH) remains the leading cause of maternal mortality globally [37]. It is a major public health problem, and prevention has emerged as a priority under MDG 5 [38]. Misoprostol was first studied by El-Refaey in 1997 for its clinical ability to prevent PPH [39]; its clinical efficacy has been further refined in subsequent trials [40–45].

Advance distribution of misoprostol for self-administration (ADMSA) has the appeal of a classic public health intervention: it can be implemented at the moment of need, regardless of whether the practitioner is present; and it has the potential to reach a large segment of the vulnerable population. Misoprostol for PPH prevention is empowering, effective, and pro-poor, preferentially impacting those with limited resources [45]. The attractiveness of a simple message that a pill could prevent a woman from dying in childbirth at home helped to attract the attention and interest of the global community as a potentially scalable intervention. In addition, the intervention addresses a classic public health reality: the clinical practitioner cares for the patient who reaches the facility, while the public health practitioner must care for the client who does not.

The first programmatic effort to use misoprostol for the prevention of PPH at home birth was made by Jhpiego in 1999 in Indonesia [46]. This experience was notable because it focused on a comprehensive approach to PPH reduction by addressing births in a facility as well as births at home.

Only a single program, in the Gambia, had adopted this approach [47] until a randomized controlled trial in India demonstrated that the administration of misoprostol reduced the rate of acute PPH at home birth from 12.0% to 6.4% compared with the placebo [48]. This additional

evidence fostered greater global enthusiasm and accelerated programmatic activity.

Even more evidence was needed; however, to generate additional resources and willingness by countries to explore whether prevention of PPH at home birth using misoprostol was applicable to their context. Jhpiego and partners therefore adapted the program from Indonesia for two operations research studies—one in Afghanistan [49] and the other in Nepal [45]—to refine the model and focus on ADMSA immediately after birth. With the support of multiple funders, numerous research and programmatic organizations took up the issue of implementation to expand the use of misoprostol for PPH prevention. Between 2006 and 2012, an additional 15 programs were started in 11 countries [50]. The sheer level of activity in the area may have influenced other countries to consider registering misoprostol for the PPH indication in order to establish similar programs for their own populations (Fig. 3) [51].

Despite enthusiasm within the global health community, WHO felt that the evidence for ADMSA remained incomplete [52]. The PPH prevention guidelines issued in 2007 and 2009 specifically restricted use of misoprostol to facility settings [52,53], which tempered progress at the country level. National ministries of health and other donors were reserved in their adoption of the approach, awaiting WHO's firm endorsement. In a 2012 survey, although 16 countries had piloted the ADMSA approach, only five were scaling it up [54].

In light of this, or perhaps because of this, champions and a global community of practice have emerged to advocate for the ADMSA approach and bring supporting evidence within the reach of key stakeholders. Since 2005, when the Nepal and Afghanistan programs were initiated, Jhpiego has assisted in the initiation or expansion of PPH prevention programs using misoprostol in an additional 12 countries (Bangladesh, Ethiopia, Guinea, Liberia, Madagascar, Malawi,

### Global Misoprostol Registration by Indication

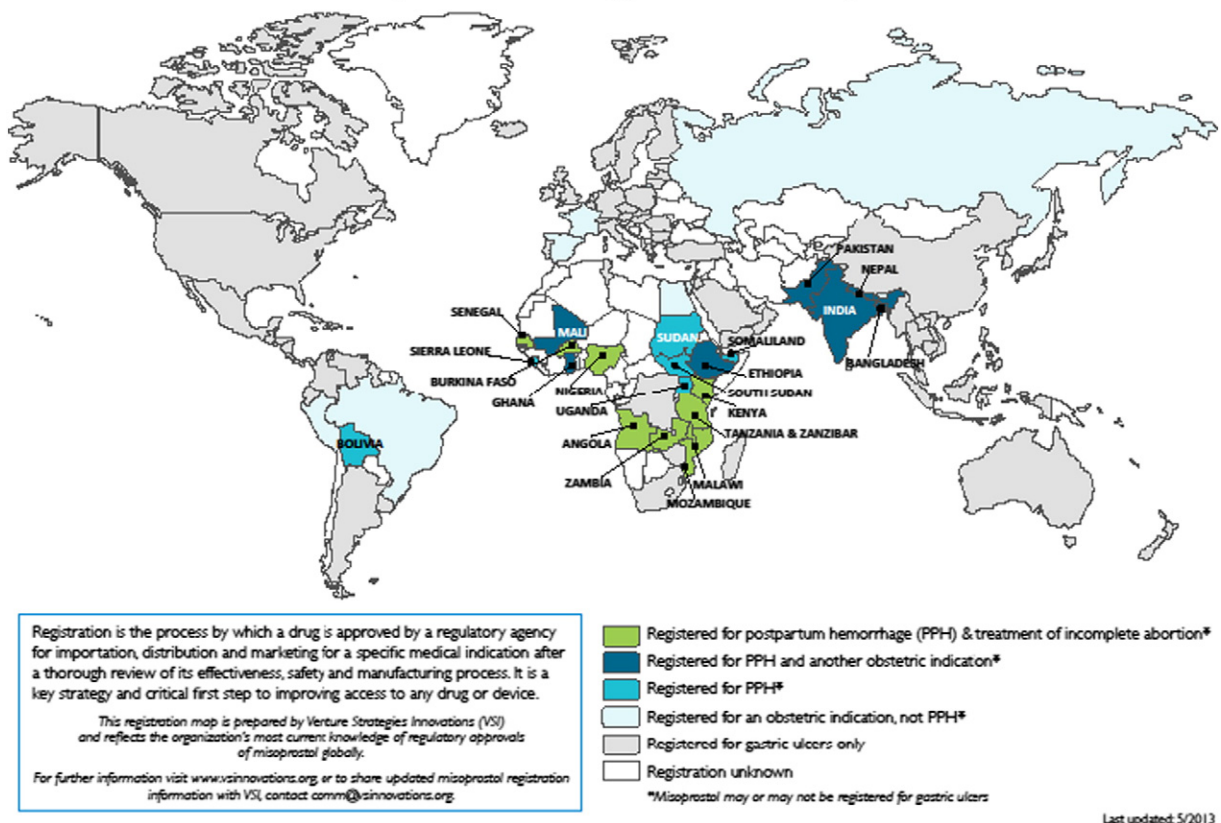


Fig. 3. Global regulatory approvals for misoprostol as of May 2013. Reprinted with permission from Venture Strategies Innovations [51].

Mozambique, Nigeria, Pakistan, Philippines, Rwanda, South Sudan) [55,56], and other partners have done the same in another eight countries (Burma, Ghana, Kenya, Senegal, Somaliland, Tanzania, Uganda, Zambia) [50,57]. Jhpiego has supported widespread dissemination of its findings from these programs to ensure that discussion of ADMSA has remained prominent at numerous regional and global meetings, including the International Federation of Gynecology and Obstetrics' (FIGO) conferences in Cape Town and Rome in 2009 and 2012, the Postpartum Hemorrhage Prevention meeting in Bangkok in 2005, and MCHIP regional conferences in Addis Ababa and Dhaka in 2011 and 2012. These strategic engagement opportunities have contributed to calls for providers from Asia and Sub-Saharan Africa to scale up the intervention [58]. Misoprostol is now recognized by the global health community as an essential commodity, and its availability is being enhanced through the UN Commission on Life-Saving Commodities for Women's and Children's Health [59].

## 5. Discussion

Although the ultimate goal of scale-up (i.e. high, effective coverage) is similar across all programs, there is no single route to scale-up. Basic research and practical experimentation with several pathways to scale-up have, nevertheless, generated a number of lessons learned, particularly in low- and middle-income countries [2,60]. Country ownership, including the engagement of both program-level champions and the community, is key [10,61].

The rapid expansion of a technical intervention—be it a clinical or educational one—is facilitated by simplicity and standardization, clear evidence of effectiveness, dedicated champions, local capacity, adequate resources, and national or global ownership. Compelling messages, whether about simplified techniques for the resuscitation of newborns or medications to prevent PPH in home births, make the intervention understandable. Better comprehension likely encourages partners to accept and promote the intervention and push it beyond the trial or pilot stage.

As seen with the use of misoprostol for PPH prevention, clinical and programmatic evidence is necessary to build technical consensus for an intervention. Clinicians, professional associations, governments, and global advocates need data on feasibility and effectiveness to justify the promotion of one intervention over another or the use of a selected intervention where previously none was available. There will be countries who are early adopters, willing to initiate programs based on clinical evidence alone, while other countries need programmatic evidence, cost-effectiveness data, or population impact data to adopt new and innovative approaches. For this reason, new programs must publish their findings, and ongoing programs must continue to monitor and evaluate and share their lessons learned. Furthermore, new research and modeling approaches, such as that used to quantify the impact of scaling up midwifery, can help to develop new interest or to sustain commitment to scale up strategies [62].

Yet even with data, programs sometimes cannot gain the necessary foothold without dedicated champions who present the case time and again to the cautious and the skeptical. The success of the Afghanistan midwifery experience required champions at all levels: in the MoPH and its multiple departments; among the development partners, both as leaders and implementers; within professional associations, such as the AMA; and among the population of young women being educated and mothers being served. The same can be said for the HBB resuscitation approach and the use of misoprostol for prevention of PPH. The role of a champion must not be undervalued, for champions are the ones who repeat the message, craft the approach, navigate the barriers, and motivate the masses.

Finally, adequate resources, combined with national ownership and global technical consensus, have enabled the interventions profiled to be taken further and deeper into health systems, achieving institutionalization and sustainability. The HBB GDA is a collection of dedicated

and experienced professionals, organizations, donors, and implementers who mobilize and direct resources toward global impact for newborn resuscitation. It has helped increase and direct donor funds, ensured resources for evaluation, and untangled the logistics of commodity security. Donors in Afghanistan generously supported the midwifery education environment, in part due to the MoPH's demonstrated commitment to its vision and the structured pathway pursued by Jhpiego and its partners.

Constraints abound, however [63–65]. Continued expansion requires that all the principles of scale-up are adhered to for a substantial period of time. Moving from pilots to expansion to scale requires the development of systems and the collection of data. Institutionalization of the intervention requires drafting and adhering to new policies and human resource procedures, modifying pre-service education curricula, and updating faculty. Data on the extent of coverage and achievement of scale can come only after the development of appropriate indicators and the modification of health information systems. Achievement of scale requires the development of systems, often in places where the systems themselves are barriers to scale. Sustaining scale-up and maximizing equity at scale are critical challenges going forward.

## 6. Conclusion

Achievement of coverage at scale of certain fundamental interventions is both necessary and achievable. By identifying and adhering to principles and processes, Jhpiego, over its 40-year history and with its numerous partners, has laid a path for moving from innovation to scale. As demonstrated by the three case examples, programs are advised to focus on the essence of the intervention to be scaled; to plot a willful strategy built on evidence and informed through local ownership; and to engage and mobilize both implementers and beneficiaries in the capacity-building and institutionalization processes necessary to achieve national coverage.

## Conflict of interest

The authors have no conflicts of interest.

## References

- [1] UNICEF, World Health Organization. Fulfilling the Health Agenda for Women and Children. The 2014 Report. Countdown to 2015: maternal, newborn and child survival. <http://www.countdown2015mnch.org/reports-and-articles/2014-report>. Published 2014.
- [2] Larson A, Raney L, Ricca J. Lessons learned from a preliminary analysis of the scale-up experience of six high-impact reproductive, maternal, newborn, and child health (RMNCH) interventions. Baltimore, MD: Jhpiego; 2014.
- [3] World Health Organization, ExpandNet. Practical guidance for scaling up health service innovations. Geneva: WHO; 2009. [http://www.expandnet.net/PDFs/WHO\\_ExpandNet\\_Practical\\_Guide\\_published.pdf](http://www.expandnet.net/PDFs/WHO_ExpandNet_Practical_Guide_published.pdf).
- [4] Cooley L, Kohl R. Scaling up—from vision to large-scale change: a management framework for practitioners. Washington, DC: Management Systems International; 2006.
- [5] Mangham L, Hanson K. Scaling up in international health: what are the key issues? *Health Policy Plan* 2010;25(2):85–96.
- [6] Subramanian S, Naimoli J, Matsubayashi T, Peters D. Do we have the right models for scaling up health services to achieve the Millennium Development Goals? *BMC Health Serv Res* 2011;11:336.
- [7] World Health Organization, ExpandNet. Nine steps for developing a scaling-up strategy. Geneva: WHO; 2010. [http://whqlibdoc.who.int/publications/2010/9789241500319\\_eng.pdf](http://whqlibdoc.who.int/publications/2010/9789241500319_eng.pdf).
- [8] Levine R. Case studies in global health: millions saved. 2nd ed. Burlington, MA: Jones and Bartlett Learning; 2007.
- [9] Yamey G. Scaling up global health interventions: a proposed framework for success. *PLoS Med* 2011;8(6):e1001049.
- [10] Bryce J, Victora CG, Boerma T, Peters DH, Black RE. Evaluating the scale-up for maternal and child survival: a common framework. *Int Health* 2011;3(3):139–46.
- [11] Program for Appropriate Technology in Health. PATH's framework for product introduction. [http://www.path.org/publications/files/TS\\_product\\_intro\\_framework.pdf](http://www.path.org/publications/files/TS_product_intro_framework.pdf). Published 2007. Accessed April 30, 2014.
- [12] Save the Children. Surviving the first day: state of the world's mothers 2013. <http://www.savethechildrenweb.org/SOWM-2013/>. Published 2013. Accessed April 19, 2014.

- [13] American Academy of Pediatrics. Helping Babies Breathe training significantly reduces newborn deaths. <http://www.aap.org/en-us/about-the-aap/aap-press-room/pages/Helping-Babies-Breathe-Training-Significantly-Reduces-Newborn-Deaths.aspx>. Published 2012. Accessed April 19, 2014.
- [14] Van Heerden C, Cur B, Cur M. An introduction to Helping Babies Breathe: the "Golden Minute" is here for South African newborn babies. *Prof Nurs Today* 2012;16(3):6–7.
- [15] Helping Babies Breathe: a global public-private alliance status report 2013. <http://www.helpingbabiesbreathe.org/docs/HBB%20broch%20low.pdf>. Published 2013. Accessed April 19, 2014.
- [16] Msemo G, Massawe A, Mmbando D, Rusibamayila N, Manji K, Kidanto H, et al. Newborn mortality and fresh stillbirth rates in Tanzania after Helping Babies Breathe training. *Pediatrics* 2013;131(2):e353–60.
- [17] United Nations, Office of the United Nations Secretary-General Special Envoy for Financing the Health Millennium Development Goals and for Malaria. MDG success stories: Save The Children's "Helping Babies Breathe.". <http://www.mdghealthenvoy.org/mdg-success-stories-save-the-childrens-helping-babies-breathe>. Published 2014. Accessed April 19, 2014.
- [18] Bartlett L, Mawji S, Whitehead S, Crouse C, Dalil S, Ionete D, et al. Where giving birth is a forecast of death: maternal mortality in four districts of Afghanistan, 1999–2002. *Lancet* 2005;365(9462):864–70.
- [19] Afghanistan MoPH, Johns Hopkins School of Public Health, Indian Institute of Health Management Research. Afghanistan Health Survey 2006: estimates of priority health indicators for rural, Afghanistan. [http://s3.amazonaws.com/zanran\\_storage/www.moph.gov.af/ContentPages/171062486.pdf#page=61](http://s3.amazonaws.com/zanran_storage/www.moph.gov.af/ContentPages/171062486.pdf#page=61). Accessed April 19, 2014.
- [20] Islamic Republic of Afghanistan, Ministry of Public Health. Afghanistan National Health Resources Assessment. Kabul: MoH; 2002.
- [21] Currie S, Azfar P, Fowler RC. A bold new beginning for midwifery in Afghanistan. *Midwifery* 2007;23(3):226–34.
- [22] Mayhew M, Hansen PM, Peters DH, Edward A, Singh LP, Dwivedi V, et al. Determinants of skilled birth attendant utilization in Afghanistan: a cross-sectional study. *Am J Public Health* 2008;98(10):1849–56.
- [23] Herberg P. Nursing, midwifery and allied health education programmes in Afghanistan. *Int Nurs Rev* 2005;52(2):123–33.
- [24] Koblinsky M, Matthews Z, Hussein J, Mavalankar D, Mridha MK, Anwar I, et al. Going to scale with professional skilled care. *Lancet* 2006;368(9544):1377–86 Erratum in 2006;368(9554):2210.
- [25] Koblinsky MA, Campbell O, Heichelheim J. Organizing delivery care: what works for safe motherhood? *Bull World Health Organ* 1999;77(5):399–406.
- [26] World Health Organization. Making pregnancy safer: the critical role of the skilled attendant. A joint statement by WHO, ICM and FIGO. Geneva: WHO; 2004. <http://whqlibdoc.who.int/publications/2004/9241591692.pdf?ua=1>.
- [27] International Confederation of Midwives. Essential competencies for basic midwifery practice. <http://www.internationalmidwives.org/assets/uploads/documents/CoreDocuments/ICM%20Essential%20Competencies%20for%20Basic%20Midwifery%20Practice%202010,%20revised%202013.pdf>. Published 2013. Accessed April 19, 2014.
- [28] Smith JM, Currie S, Azfar P, Rahmanzai AJ. Establishment of an accreditation system for midwifery education in Afghanistan: maintaining quality during national expansion. *Public Health* 2008;122(6):558–67.
- [29] Bogren MU, Wiseman A, Berg M. Midwifery education, regulation and association in six South Asian countries—a descriptive report. *Sex Reprod Healthc* 2012;3(2):67–72.
- [30] Islamic Republic of Afghanistan, Ministry of Public Health. National Policy and Strategy for nursing and midwifery services 2011–2015. <http://moph.gov.af/en/documents/category/strategies-and-policies?page=2>. Accessed January 28, 2015.
- [31] Turkmani S, Currie S, Mungia J, Assefi N, Javed Rahmanzai A, Azfar P, et al. "Midwives are the backbone of our health system": lessons from Afghanistan to guide expansion of midwifery in challenging settings. *Midwifery* 2013;29(10):1166–72.
- [32] Zainullah P, Ansari N, Yari K, Azimi M, Turkmani S, Azfar P, et al. Establishing midwifery in low-resource settings: guidance from a mixed-methods evaluation of the Afghanistan midwifery education program. *Midwifery* Oct 2014;30(10):1056–62.
- [33] Afghan Midwives Association. <http://iawg.net/2011/Slides/Session%209/Sabera%28AMA%29%20Presentation-ST-final.pdf>. Published 2011. Accessed July 23, 2014.
- [34] Rosskam E, Pariyo G, Hounton S, Aiga H. Increasing skilled birth attendance through midwifery workforce management. *Int J Health Plann Manage* 2013;28(1):e62–71.
- [35] Wood M, Mansoor GF, Hashemy P, Namey E, Gohar F, Ayoubi S, et al. Factors influencing the retention of midwives in the public sector in Afghanistan: a qualitative assessment of midwives in eight provinces. *Midwifery* 2013;29(10):1137–44.
- [36] Mansoor G, Hill PS, Barss P. Midwifery training in post-conflict Afghanistan: tensions between educational standards and rural community needs. *Health Policy Plan* 2012;27(1):60–8.
- [37] Khan KS, Wojdyla D, Say L, Gülmezoglu AM, Van Look PF. WHO analysis of causes of maternal death: a systematic review. *Lancet* 2006;367(9516):1066–74.
- [38] United Nations. The Millennium Development Goals Report 2012. <http://www.un.org/en/development/desa/publications/mdg-report-2012.html>. Published 2012. Accessed April 21, 2014.
- [39] El-Refaey H, O'Brien P, Morafa W, Walder J, Rodeck C. Use of oral misoprostol in the prevention of postpartum haemorrhage. *Br J Obstet Gynaecol* 1997;104(3):336–9.
- [40] Hundley VA, Avan BI, Sullivan CJ, Graham WJ. Should oral misoprostol be used to prevent postpartum haemorrhage in home-birth settings in low resource countries? A systematic review of the evidence. *BJOG* 2013;120(3):277–85.
- [41] León W, Durocher J, Barrera G, Pinto E, Winikoff B. Dose and side effects of sublingual misoprostol for treatment of postpartum hemorrhage: what difference do they make? *BMC Pregnancy Childbirth* 2012;12:65.
- [42] Soltan MH, El-Gendi E, Imam HH, Fathi O. Different doses of sublingual misoprostol versus methylergometrine for the prevention of atonic postpartum haemorrhage. *Int J Health Sci (Qassim)* 2007;1(2):229–36.
- [43] El-Refaey H, Nooh R, O'Brien P, Abdalla M, Geary M, Walder J, et al. The misoprostol third stage of labour study: a randomized controlled comparison between orally administered misoprostol and standard management. *BJOG* 2000;107(9):1104–10.
- [44] Hofmeyr GJ, Nikodem VC, de Jager M, Gelbart BR. A randomized placebo controlled trial of oral misoprostol in the third stage of labour. *Br J Obstet Gynaecol* 1998;105(9):971–5.
- [45] Rajbhandari S, Hodgins S, Sanghvi H, McPherson R, Pradhan YV, Baqui AH. Expanding uterotonic protection following childbirth through community-based distribution of misoprostol: operations research study in Nepal. *Int J Gynecol Obstet* 2010;108(3):282–8.
- [46] Sanghvi H, Wiknjastro G, Chanpong G, Fishel J, Ahmed S, Zulkarnain M. Prevention of postpartum hemorrhage study: West Java, Indonesia. [https://www.k4health.org/sites/default/files/10%20MNH%20PPH%20study%20West%20Java%202004\\_0.pdf](https://www.k4health.org/sites/default/files/10%20MNH%20PPH%20study%20West%20Java%202004_0.pdf). Published 2004. Accessed April 21, 2014.
- [47] Walraven G, Blum J, Dampha Y, Sowe M, Morison L, Winikoff B, et al. Misoprostol in the management of the third stage of labour in the home delivery setting in rural Gambia: a randomised controlled trial. *BJOG* 2005;112(9):1277–83.
- [48] Derman RJ, Kodkany BS, Goudar SS, Geller SE, Naik VA, Bellad MB, et al. Oral misoprostol in preventing postpartum haemorrhage in resource-poor communities: a randomized controlled trial. *Lancet* 2006;368(9543):1248–53.
- [49] Sanghvi H, Ansari N, Prata NJ, Gibson H, Ehsan AT, Smith JM. Prevention of postpartum hemorrhage at home birth in Afghanistan. *Int J Gynecol Obstet* 2010;108(3):276–81.
- [50] Smith JM, Gubin R, Holston MM, Fullerton J, Prata N. Misoprostol for postpartum hemorrhage prevention at home birth: an integrative review of global implementation experience to date. *BMC Pregnancy Childbirth* 2013;13:44.
- [51] Venture Strategies Innovations. Global misoprostol registration by indication. <http://www.vsinnovations.org/assets/files/Resources/VSI%20Global%20Miso%20Reg%20Map%202013%2005%2021F.pdf>. Published 2013. Accessed April 29, 2014.
- [52] World Health Organization. WHO statement regarding the use of Misoprostol for postpartum haemorrhage prevention and treatment. Geneva: WHO; 2009. [http://whqlibdoc.who.int/hq/2009/WHO\\_RHR\\_09.22\\_eng.pdf?ua=1](http://whqlibdoc.who.int/hq/2009/WHO_RHR_09.22_eng.pdf?ua=1).
- [53] World Health Organization. WHO recommendations for the prevention of postpartum hemorrhage. Geneva: WHO; 2007 Accessed April 22, 2014.
- [54] Smith JM, Currie S, Cannon T, Armbruster D, Perri J. Are national policies and programs for prevention and management of postpartum hemorrhage and preeclampsia adequate? A key informant survey in 37 countries. *Glob Health Sci Pract* 2014;2(3):275–84.
- [55] Smith JM, Baawo SD, Subah M, Sirtor-Gbassie V, Howe CJ, Ishola G, et al. Advance distribution of misoprostol for prevention of postpartum hemorrhage (PPH) at home births in two districts of Liberia. *BMC Pregnancy Childbirth* 2014;14:189.
- [56] Smith JM, Dimiti A, Dwived V, Ochieng I, Dalaka M, Currie S, et al. Advance distribution of misoprostol for the prevention of postpartum hemorrhage in South Sudan. *Int J Gynecol Obstet* 2014;127(2):183–8.
- [57] Fujioka A, Smith JM. Prevention and management of postpartum hemorrhage and pre-eclampsia/eclampsia: national programs in selected USAID program-supported countries. [http://www.mchip.net/sites/default/files/mchipfiles/PPH\\_PEE%20Program%20Status%20Report.pdf](http://www.mchip.net/sites/default/files/mchipfiles/PPH_PEE%20Program%20Status%20Report.pdf). Published 2011. Accessed April 22, 2014.
- [58] Karanja J, Muganyizi P, Rwamushajja E, Hodoglugil N, Holm E. Regional Experts' Summit Group. Confronting maternal mortality due to postpartum hemorrhage and unsafe abortion: a call for commitment. *Afr J Reprod Health* 2013;17(2):18–22.
- [59] United Nations Commission on Life-Saving Commodities for Women's and Children's Health. Commissioners' Report. <http://www.unfpa.org/publications/un-commission-life-saving-commodities-women-and-children>. Published 2012. Accessed April 22, 2014.
- [60] Knippenberg R, Lawn JE, Darmstadt GL, Begkoyian G, Fogstad H, Walelign N, et al. Systematic scaling up of neonatal care in countries. *Lancet* 2005;365(9464):1087–98.
- [61] Prata N, Passano P, Sreenivas A, Gerdtts CE. Maternal mortality in developing countries: challenges in scaling-up priority interventions. *Womens Health (Lond Engl)* 2010;6(2):311–27.
- [62] Homer CS, Friberg IK, Dias MA, Ten-Hooper-Bender P, Sandall J, Speciale AM, et al. The projected effect of scaling up midwifery. *Lancet* 2014;384(9948):1146–57.
- [63] Hanson K, Ranson MK, Oliveira-Cruz V, Mills A. Expanding access to priority health interventions: a framework for understanding the constraints to scaling-up. *J Int Dev* 2003;15(1):1–14.
- [64] Hofmeyr G, Haws R, Bergström S, Lee AC, Okong P, Darmstadt GL, et al. Obstetric care in low-resource settings: what, who and how to overcome challenges to scale up? *Int J Gynecol Obstet* 2009;107(Suppl. 1):S21–45.
- [65] Moran AC, Kerber K, Pfitzer A, Morrissey CS, Marsh DR, Oot DA, et al. Benchmarks to measure readiness to integrate and scale up newborn survival interventions. *Health Policy Plan* 2012;27(Suppl. 3):iii29–39.