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A Process Documentation of the Scale-Up of the Helping Babies Breathe Initiative in Bangladesh



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Abbreviations

AAP	American Academy of Pediatrics
BSMMU	Bangabandhu Sheikh Mujib Medical University
CMSD	Central Medical Storage Depot
CSBA	Community Skilled Birth Attendant
DGFP	Directorate General of Family Planning
DGHS	Directorate General of Health Services
ENC	Essential Newborn Care
FHA	Female Health Assistant
FWC	Family Welfare Clinic
FWV	Family Welfare Visitor
GDA	Global Development Alliance
HBB	Helping Babies Breathe
HMIS	Health Management Information System
HPNSDP	Health Population Nutrition Sector Development Program
icddr,b	International Centre for Diarrheal Disease Research, Bangladesh
MCHIP	Maternal and Child Health Integrated Program
MCWC	maternal child welfare clinic
MDG	Millennium Development Goal
MOHFW	Ministry of Health and Family Welfare
MNH	Maternal and Newborn Health
NCC	Neonatal Core Committee
NCSS	Newborn Care Surveillance System
NGO	Nongovernmental Organization
NTWC-NBH	National Technical Working Committee for Newborn Health
PD	Process Documentation
PSE	Pre-Service Education
SBA	Skilled Birth Attendant
SUP	Scale-Up Plan
TOT	Training of Trainers
UHC	Upazila Health Complex
USAID	United States Agency for International Development
UNICEF	United Nations Children's Fund
VAT	Value-Added Tax

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MCHIP is the USAID Bureau for Global Health flagship maternal, neonatal and child health (MNCH) program. MCHIP supports programming in MNCH, immunization, family planning, malaria and HIV/AIDS, and strongly encourages opportunities for integration. Cross-cutting technical areas include water, sanitation, hygiene, urban health and health systems strengthening.

Executive Summary

With great strides made in reducing child mortality over the past two decades, the international public health community is now focusing attention on newborn mortality and its causes. Almost one-quarter of newborn deaths occur as a result of birth asphyxia. Helping Babies Breathe (HBB) is an intervention that provides guidance to health care providers regarding how to care for a newborn during the first minute of life and how to assist babies who are experiencing difficulty breathing. Researchers have demonstrated in controlled field trials that HBB can reduce newborn mortality due to asphyxia. More than 60 countries have introduced HBB at some level, but relatively few have attempted a national rollout. Interventions such as HBB must be implemented at scale in order to achieve impact at the population level, but implementing at scale involves system-related challenges that often are not faced during small-scale trials. Thus, improved knowledge of the science of scale-up is crucial to achieving population-level impact. This report aims to increase understanding of how HBB can best be scaled up by documenting the processes that the Bangladesh Ministry of Health and Family Welfare (MOHFW) and its partners followed during the national rollout of HBB between 2011 and 2013.

HBB currently holds limited potential to reduce newborn mortality in Bangladesh because only 32 percent of deliveries are attended by skilled attendants and only one-third of attended deliveries take place in MOHFW facilities. The MOHFW led the effort to launch the HBB initiative and has received support from the Maternal and Child Health Integrated Program (MCHIP), Save the Children, the Bangabandhu Sheikh Mujib Medical University (BSMMU), professional societies, and other partner organizations. Implementation of the HBB initiative has benefited from a well-funded, centrally driven, uniform approach to scale-up due to a large grant from USAID and generous support from other partners.

The HBB program in Bangladesh developed a standardized approach to introducing HBB in a new district, which centers on (1) training senior delivery attendants from all major health care facilities to be HBB trainers, (2) conducting a one-day advocacy and micro-planning meeting at the district level, and (3) conducting in-service HBB training of all skilled birth attendants (SBAs) in the district. The field-level implementation of HBB in Bangladesh has focused most strongly on conducting in-service training and providing resuscitation equipment; both of these activities have been implemented smoothly. HBB stakeholders in Bangladesh have tried to address supervision, mentoring, and monitoring HBB-related performance through the routine MOHFW health system. Most providers manage few actual cases of asphyxia and do not receive effective worksite supervision or mentoring in their practice of HBB. Very few providers practice resuscitation skills at their worksites using the NeoNatalie mannequin, a key activity that is designed to maintain providers' skills in asphyxia management. HBB managers did not introduce a health management information system (HMIS) for HBB and instead focused on incorporating indicators of resuscitation management in the national HMIS over time. As a result, the program has had limited access to objective quantitative data to monitor providers' performance of HBB procedures during the scale-up. New initiatives have recently been designed to strengthen supervision, mentoring, and monitoring of HBB. Medical schools and nursing colleges have incorporated HBB into the curriculum for all cadres of SBAs in Bangladesh, although challenges remain to ensure that students will be able to practice HBB effectively at graduation. The HBB evaluation in Bangladesh conducted by the International Centre for Diarrheal Disease Research, Bangladesh (icddr,b) did not find evidence that the first two years of the HBB initiative have resulted in notable improvement in providers' performance of newborn resuscitation.

The first phase of the HBB scale-up in Bangladesh will be completed by March 2014. This report documents lessons learned during this initial phase and presents consensus-based

recommendations to guide the implementation of HBB in Bangladesh in the coming years. These recommendations include the following:

1. Identify partners and secure inputs for the consolidation phase of the scale-up
2. Create expanded opportunities for operations and implementation research
3. Strategically increase the potential for impact through in-service training
4. Assess quality and effectiveness of pre-service education
5. Develop and field-test approaches to strengthen worksite-based learning and mentoring
6. Ensure future supplies of HBB equipment
7. Determine and experiment with how supervision can best contribute to program performance
8. Help facilities self-monitor their HBB performance

Introduction

The global drive to reduce under-five mortality and meet Millennium Development Goal (MDG) 4 has achieved considerable success.¹ However, achievements in lowering infant and child mortality have outpaced gains in reducing newborn mortality. The international public health community is now focusing on neonatal survival and is making extensive efforts to decrease newborn mortality.

It is ironic that a human being is at greatest risk of death at the time of his or her birth. Five to 10 percent of newborns require assistance to begin breathing immediately after delivery.² Among the 135 million babies who are born every year, more than 700,000 die at birth and another 1.2 million are stillborn due to complications during delivery. Most of these deaths are due to birth asphyxia, which is estimated to cause 23 percent of newborn mortality globally.³ Many of these deaths are avoidable; improving the quality of facility-based intrapartum care, including neonatal resuscitation, may prevent up to 30 percent of intrapartum-related neonatal mortality.⁴

Effective interventions must be implemented at scale in order to achieve impact at the population level. While many interventions have been shown to reduce mortality under controlled conditions, attempts to scale up these interventions in order to save a significant number of lives have met with system-related challenges. Improved understanding of the science of scale-up is crucial to achieving population-level impact.

Helping Babies Breathe: Strengthening management of newborn resuscitation: Improved management of resuscitation holds great potential to reduce newborn mortality in low-resource settings. In the past decade there has been a global effort to develop effective interventions that prevent mortality due to birth asphyxia. A leading example of this effort is the Helping Babies Breathe (HBB) program developed by the American Academy of Pediatrics (AAP). The United States Agency for International Development (USAID), in partnership with AAP, Save the Children, the Laerdal Foundation, and the Eunice Kennedy Shriver National Institute of Child Health and Human Development, launched a Global Development Alliance (GDA) in 2010 to support the adoption and implementation of HBB in countries around the world. More than 60 countries have introduced HBB, and 18 countries have national HBB plans coordinated by their government. The USAID flagship maternal and newborn health (MNH) project, Maternal and Child Health Integrated Program (MCHIP), has played a significant role in the global spread of HBB. In the case of Bangladesh, USAID worked with its GDA partner, AAP, to catalyze the scale-up efforts by encouraging MCHIP to provide in-country support for HBB. USAID also rallied support for the Bangladesh scale-up among other HBB GDA members.

Bangladesh's adoption of HBB: In line with the global trend, gains in reducing newborn mortality in Bangladesh have not matched achievements in lowering infant and child mortality. A team of committed Bangladeshi professionals conducted a pilot test of HBB in 2010, which demonstrated that after participating in the two-day HBB training course, all levels of skilled birth attendants in Bangladesh markedly increased their knowledge and skills in simulated

¹ MDG 4 is to reduce the under-five mortality rate by two-thirds between 1990 and 2015.

² Wall SN et al. 2009. Neonatal resuscitation in low-resource settings: What, who, and how to overcome challenges to scale up? *International Journal of Gynecology & Obstetrics* 107:S47–S64.

³ Lawn J, Shibuya K, Stein C. 2005. No cry at birth: global estimates of intrapartum stillbirths and intrapartum-related neonatal deaths. *Bulletin of the World Health Organization* 83:409–417.

⁴ Ibid, 2.

resuscitation.⁵ Building on the results of this pilot test, Bangladesh secured funding and began scaling up HBB nationally in 2011.

Purpose of the report: This report documents the processes followed in Bangladesh while taking HBB to scale. It examines elements of the scale-up and distills the findings into a set of conclusions and recommendations. The report is a companion to a report on the scale-up process in Malawi. A third report synthesizes, compares, and contrasts HBB scale-up efforts in Malawi and Bangladesh in order to develop broader conclusions to share with countries that are considering introducing or rolling out HBB.

Structure of the report: The structure of this report reflects the process of scaling up an intervention, building on a model proposed by Bergh et al.⁶ After a description of the background to the HBB scale-up and the methodology of the process documentation, the first part of the report describes **preparation for scale-up**, including policy development, building partnerships and securing funding, planning for the scale-up, and adapting HBB for the local context. The second part focuses on the **implementation** of the scale-up and describes how the scale-up planning document was used in implementation, HBB training, equipment and logistics systems, supervision and monitoring, and referral systems. The third part documents progress toward the **institutionalization** of HBB and explores issues such as integration of HBB, sustainability, and the assessment of the implementation status of HBB. The report concludes with a set of recommendations. Overarching observations and lessons learned, based on Yamey's model of determinants of successful scale-up efforts, can be found in the appendix.

⁵ Helping Babies Breathe Initiative. 2010. Building Skill in Birth Asphyxia Management in Bangladesh: Process Documentation and Final Report. Save the Children Federation, Inc. and Bangabandhu Sheikh Mujib Medical University.

⁶ Bergh AM, Arsalo I, Malan AF, Patrick M, Pattinson RC, Phillips N. 2005. Measuring implementation progress in kangaroo mother care. *Acta Paediatrica* 94:1102–1108.

Background

The People's Republic of Bangladesh is in the Bengal delta of South Asia and has a population of approximately 150 million people. Bangladesh's Human Development Index ranks 146th out of 187 countries listed, and its gross domestic product per capita ranks 156th out of 187 countries for which data are available.^{7,8} Bangladesh is segmented administratively into seven divisions, which in turn are divided into 64 districts.

The health system in Bangladesh is complex, with services provided by the MOHFW, nongovernmental organizations (NGOs), and private-sector health care workers, in addition to traditional providers at the community level. The MOHFW is divided into two directorates, each of which delivers health services. The Directorate General of Health Services (DGHS) focuses on curative services and oversees tertiary care facilities at the medical colleges, secondary care at district hospitals, and some primary care services—both at sub-district health centers and at the community level. Female health assistants (FHAs) are a



HBB Team in Pirgonj Upazila Health Complex

community-based cadre that works under the DGHS. FHAs who have taken a supplemental six-month training course in midwifery are considered to be community skilled birth attendants (CSBAs), and they provide delivery services at the community level. The Directorate General of Family Planning (DGFP) focuses more on preventive health care and is responsible for most of the skilled care at delivery at the community level. The DGFP manages facilities and providers, including maternal child welfare clinics (MCWC) in each district's headquarters and family welfare clinics (FWCs) at the community level. FWCs provide delivery services through family welfare visitors (FWVs). Additional skilled birth attendant (SBA) services managed by the DGFP at the community level are provided by those family welfare assistants (FWA) who have taken the six-month course in midwifery that certifies them as CSBAs. The two directorates function quasi-independently at the national level and in some districts as well. From the sub-district level downward, the services of the two directorates are more intertwined. Bangladesh has a vibrant civil society that includes NGOs such as BRAC and Red Crescent, which have established health clinics and provide delivery services. Other donor-funded programs, such as the Smiling Sun Franchise Program, support local NGOs in providing health services. The private health sector in Bangladesh is large and growing; many physicians and nurses work at government jobs during the day and in private clinics during the evening.

Maternal and delivery care in Bangladesh: Women in Bangladesh make modest use of maternal and child health services. Fifty-five percent of pregnant women receive antenatal care from a medically trained provider at least once during pregnancy. Twenty-nine percent of births take

⁷ United Nations Development Programme. Human Development Reports. Accessed March 12, 2014, at: <http://hdrstats.undp.org/en/countries/profiles/BGD.html>

⁸ International Monetary Fund. World Economic Outlook Database: October 2013. Accessed March 12, 2014, at: <http://www.imf.org/external/pubs/ft/weo/2013/02/weodata/index.aspx>

place in a health facility—12 percent in public (MOHFW) facilities, 15 percent in private facilities, and 2 percent in NGO facilities. Among the 12 percent of births occurring at MOHFW facilities, 2 percent take place at tertiary hospitals, 6 percent at district-level facilities (either the district hospital or the MCWC), and 4 percent at upazila (sub-district) health complexes. Less than 0.5 percent of births occur at FWCs. Thirty-two percent of births are assisted by an SBA; this estimate includes the 3 percent of home deliveries that are attended by SBAs. Seventeen percent of all deliveries are performed by cesarean section. Thus, 59 percent (17/29) of all facility deliveries are cesarean sections; anecdotally, this percentage is much higher for deliveries in the private sector.⁹ The 2010 (adjusted) estimate of the maternal mortality ratio in Bangladesh is 240 deaths per 100,000 deliveries, according to the United Nations Children’s Fund (UNICEF), and 193 deaths per 100,000 deliveries, according to the 2010 Bangladesh Maternal Mortality Survey.^{10,11}

Newborn mortality in Bangladesh and its causes: Bangladesh is one of relatively few countries on track to achieve MDG 4. Recent estimates (from 2012) of under-five, infant, and newborn mortality are 41, 33, and 24 deaths per 1,000 live births, respectively.¹² As such, neonatal deaths make up 59 percent of all under-five deaths. The major causes of neonatal mortality in Bangladesh include possible serious infections, birth asphyxia, pneumonia, and pre-term birth. Asphyxia accounts for an estimated 21 percent of newborn deaths.¹³

Skilled birth attendants: In Bangladesh, an SBA is defined as a qualified doctor, nurse, midwife, paramedic, FWV, or CSBA. Among the 32 percent of deliveries attended by SBAs in Bangladesh, qualified physicians, nurses/midwives, and other SBAs attend 22 percent, 9 percent, and 1 percent, respectively. In MOHFW facilities, nurses and midwives play the leading role in conducting natural deliveries, while physicians are generally involved in cases with complications and in cesarean deliveries.

Quality of management of newborns not breathing at birth: The Bangladesh HBB pilot test provides information on providers’ knowledge and skills regarding resuscitation management in Bangladesh in 2010.¹⁴ The 259 providers who participated in the HBB pilot test included physicians, nurses, paramedics, and CSBAs. Participants’ scores on the knowledge test increased from 85 percent pre-training to 99 percent following the HBB training. The average number of correct bag-and-mask skills demonstrated by participants during simulated resuscitation increased from 1.7 (out of 7) before training to 6.7 during the post-training evaluation. These findings provided evidence both that providers’ knowledge and skills (in simulations) regarding management of birth asphyxia were unacceptably low and that the HBB training could effectively improve them. The HBB pilot test was not a full-scale field-level pilot test of HBB at the district level, nor was it designed to measure changes in outcomes as a result of introducing HBB.¹⁵

⁹ NIPORT, Mitra and Associates, and ICF International. 2013. Bangladesh Demographic and Health Survey 2011. Dhaka, Bangladesh, and Calverton, Maryland: NIPORT, Mitra and Associates and ICF International.

¹⁰ UNICEF. Bangladesh statistics. Accessed March 12, 2014, at:

http://www.unicef.org/infobycountry/bangladesh_bangladesh_statistics.html

¹¹ NIPORT, MEASURE Evaluation, and icddr,b. 2012. Bangladesh Maternal Mortality and Health Care Survey 2010. Dhaka, Bangladesh: NIPORT, MEASURE Evaluation, and icddr,b.

¹² UNICEF, WHO, World Bank, UN. 2013. Levels and Trends in Child Mortality: Report 2013. Estimates developed by the UN Inter-agency Group for Child Mortality Estimation. UNICEF, WHO, World Bank, UN.

¹³ Ibid, 9.

¹⁴ Ibid, 5.

¹⁵ “Full-scale field-level pilot” is intended to mean a pilot effort where HBB is introduced throughout one or more districts and the routine health system is used to provide support during to components that include training, provision of equipment, supervision, monitoring, and worksite training and mentoring over an extended period so that the capability of the system to support a scale-up effort is well understood.

Potential for effectiveness of HBB given country context: The low rate of births attended by SBAs, coupled with the broad range of facilities (public, private, NGO) where SBAs attend births, limits the potential effectiveness of HBB to reduce mortality due to birth asphyxia in Bangladesh. As noted above, only 32 percent of births are attended by SBAs, and among those, less than half are attended by MOHFW SBAs. While HBB in Bangladesh is an MOHFW program and MOHFW SBAs are required to follow HBB protocols, it has less influence in the private and NGO sectors. The low rate of facility births also means that many SBAs have a relatively low delivery caseload and have limited opportunities to identify and manage newborns with birth asphyxia, with the result that it can be challenging to build and maintain resuscitation skills through clinical practice.

Methods

In order to bring a critical external perspective to the process documentation (PD), an independent consultant was chosen to lead the effort. The consultant was supported by MCHIP and Save the Children staff members in Bangladesh and Washington, DC. The MCHIP Newborn Health Advisor from the Washington, DC, office accompanied the consultant on a visit to Bangladesh, participated in all interviews, and supported data analysis. Other staff members from MCHIP and Save the Children provided support, information, and feedback on various drafts of the report. The consultant and the Newborn Health Advisor traveled to Bangladesh from September 14 to September 26, 2013, to gather information for the PD. The content of this report represents the consultant's findings and analysis of the information that was collected.

Interview guides and process: Guides were prepared for all interviews. The consultant and the Newborn Health Advisor conducted all interviews and took comprehensive computerized notes. All interviews were conducted in confidentiality, and members of the Save the Children and MCHIP country teams were not present.

Respondent categories: The respondents who were interviewed for the process documentation included the following: MOHFW officials at the national, district, and sub-district levels (n=13); representatives from regulatory and academic institutions, including nursing and midwife councils and medical colleges (n=11); health workers and administrators currently providing services at various levels of the health system in government, NGOs, and private facilities (n=52); representatives from partner organizations, including MCHIP and Save the Children (n=12); and researchers serving as principal investigators in the ongoing HBB evaluation in Bangladesh (n=2). Respondents were selected through consultations between the consultant, the MCHIP Newborn Health Advisor, and staff members of the Save the Children country office.

Facility visits: The consultant and the Newborn Health Advisor visited the Pirojgunj Upazilla Health Complex in Tangail district; the district hospital and a FWC in Gaibandha district; and the MCWC, Rangpur Medical College, and Smiling Sun Clinic, in Rangpur district. The districts and facilities that were visited were chosen by Save the Children staff members in consultation with the consultant and the MCHIP Newborn Health Advisor.

Audits: The consultant and the Newborn Health Advisor conducted structured audits of the availability and condition of resuscitation equipment and examined facility records of newborns with birth asphyxia during visits to health facilities.

Document review: The consultant reviewed a wide range of reports and documents pertaining to HBB at the global and country levels as part of the PD.

Phase One: Preparing for the Scale-Up

Preparation for the scale-up is the first phase of the process of rolling out HBB. This is the formative period preceding actual implementation, when leaders of the scale-up initiative create awareness, foster ownership, and develop a commitment among partners to implement HBB. This phase includes developing policy, constructing partnerships, obtaining funding, drawing up detailed plans for the scale-up, and adapting HBB for the local context.

POLICY AND STRATEGY DEVELOPMENT LEADING TO ADOPTION OF HBB IN BANGLADESH

The HBB initiative in Bangladesh was conceived by a small group of visionary public health specialists in Bangladesh who have a strong grasp of the barriers to improved newborn survival and who have been searching, over the past decade, for appropriate interventions to save newborn lives. These newborn health leaders—based in MCHIP/Bangladesh, Save the Children, UNICEF Bangladesh, academic institutions, and professional societies in Bangladesh—have long sought a strategic opening for action at the national level to confront preventable newborn deaths due to asphyxia. The 2009 request for proposals to pilot-test HBB presented such an opening. The leaders responded to the request and submitted a proposal that was funded with MCHIP core funds, resulting in the HBB pilot test in Bangladesh in 2009–2010. USAID subsequently provided a substantial grant to fund the HBB scale-up.

Building awareness and developing leadership for HBB: Newborn health leaders in Bangladesh decided to use the HBB pilot test and its dissemination to inform stakeholders of the need for improved resuscitation management and the suitability of HBB to address this problem. Professor Mohammad Shahidullah from Bangabandhu Sheikh Mujib Medical University (BSMMU)—widely regarded as a key local champion for HBB—was the Principal Investigator for the HBB pilot test. Professor Shahidullah’s endorsement of HBB was critical to ensuring the credibility of HBB among members of professional bodies, including the top echelons of the MOHFW. The encouraging results of the pilot test were presented in a carefully planned dissemination event that resulted in the Minister of Health and Family Welfare’s declaration of support for HBB and a decision to scale up HBB directly, without first conducting an operational-level pilot test. The adoption of HBB as official MOHFW newborn policy in Bangladesh was thus founded on strong political commitment at the highest level, both from the ministry and from other key development partners, including United Nations agencies. The generation and use of local research data played a key role in building awareness and developing leadership for HBB.

Developing consensus: The groundwork for developing consensus regarding HBB was laid through early planning that aimed to bring all key actors on board. The HBB pilot test demonstrated that, after participating in the HBB training, all health cadres, from hospital-based physicians to community-based skilled birth attendants, improved their skills and knowledge in newborn resuscitation. These results, along with the influence of the Minister of Health, Professor Shahidullah, and other key partners who championed the HBB initiative, contributed to consensus among stakeholders to adopt HBB as national policy.

Policy development process: The MOHFW’s newborn health policy is officially drafted by the Neonatal Core Committee (NCC). The Joint Secretary (Public Health & WHO) of the MOHFW chairs the NCC, which includes a wide range of members from the MOHFW, professional societies, UN agencies, and development partners. The NCC has a workgroup known as the National Technical Working Committee for Newborn Health (NTWC-NBH), led by Professor Shahidullah, which discusses and develops newborn health policy. The NTWC-NBH includes representatives from public health and clinical professional groups, UNICEF, WHO,

international NGOs, external development partners (EDPs), and the MOHFW. They draft strategic documents and policy briefs for newborn-related issues and submit them to the NCC for consideration and approval. The NCC then submits proposed policy to the MOHFW for endorsement, where it is signed by the Secretary or Minister of Health and Family Welfare.

Inclusion of HBB in official policy documents: The MOHFW decided to incorporate HBB into policy, strategy, and planning documents when the documents are developed or revised periodically. The MOHFW has already included HBB in documents such as the *Health Population Nutrition Sector Development Program (HPNSDP) 2011–2016*, the *MNCAH Operational Plan* (part of the HPNSDP), and the *Newborn Standard Operating Procedures*. Efforts are currently under way to include HBB in the *Maternal Health Strategy*, and HBB will be included in the *Neonatal Health Strategy* when that document is next revised.

MACRO-LEVEL PLANNING: DEVELOPMENT OF THE HBB SCALE-UP PLAN

The MOHFW and its partners developed the initial plan to scale up HBB in Bangladesh in late 2010. The planning document—*Scaling Up of Helping Babies Breathe Initiative (HBB) to Strengthen Newborn Resuscitation in Bangladesh: Draft National Plan* (also known as the “HBB Scale-Up Plan” or “SUP”)—describes the HBB Pilot Study and policy development issues and presents plans for activities and time frames, institutional arrangements, roles and responsibilities of implementing agencies, monitoring and evaluation activities, resource mobilization, a budget overview, and a draft work plan that is updated periodically. The plan was fully funded and it proposed to train 20,221 MOHFW and NGO providers in HBB by 2013. Later the program timeline was extended by one year and revised to train 30,000 providers, including an estimated 7,000 health workers from the private sector.

Key elements of the HBB SUP

Leadership roles in the scale-up: The MOHFW, MCHIP, Save the Children, BSMMU, and UNICEF assumed the primary leadership roles in designing and implementing the HBB scale-up. The Minister of Health has been a key advocate for HBB from the early stages of the initiative. At the national level the MOHFW supported developing policy and provided direction, while at the district and sub-district levels MOHFW health care providers and administrators have been the primary implementers of the initiative, maintaining the health facilities and providing HBB services to asphyxiated newborns. Building on the visionary leadership that Save the Children specialists have provided over the years, which led to the conceptualization and establishment of the HBB initiative, Save the Children has provided technical and organizational leadership to the scale-up initiative through its three-person HBB team while at the same time managing the USAID grant that has funded most of the on-the-ground scale-up activities. Save the Children subcontracted the implementation of the HBB training to BSMMU, a leading medical university and hospital located in Dhaka, as recommended by the Minister of Health. Professor Shahidullah is the Pro-Vice Chancellor and Head of the Department of Neonatology of BSMMU; under his leadership, BSMMU established an HBB team, which is composed of 20 staff members, including a program officer and Dhaka-based support staff, 10 field officers, and four surveillance officers. UNICEF provided technical support during the design phase of the HBB initiative and the policy development process that supported scale-up.

Provision of HBB practice and service equipment: There are two types of resuscitation equipment that are relevant to the implementation of HBB: **practice equipment** to be used for simulated practice and training at worksites (i.e., not on live newborns), which consists of a NeoNatalie mannequin, a penguin sucker, an ambu bag, and two masks (size 0 and 1); and **service equipment** used in the delivery ward or operating theater to resuscitate distressed

newborns. Service equipment is the same as practice equipment minus the mannequin. The SUP documents the commitments of three partners to provide funding for the procurement of HBB equipment. USAID and UNICEF committed to providing funds for equipment for 40 and 24 districts, respectively, and the MOHFW committed to paying the value-added tax (VAT) and other taxes for all off-shore procurement of the HBB equipment.

Cascade training design: Initial HBB training efforts were to focus on using a cascade training design to develop a pool of 15 HBB core trainers and 225 master trainers, who in turn would conduct Training of Trainers (TOTs) for district trainers in each new district over the duration of the SUP. In actuality, 14 core trainers and 68 master trainers were trained. Some of the core trainers were involved in preparing the master trainers, and a majority of the master trainers remain actively involved in HBB training activities.

Facilities or modalities where MOHFW SBAs will be trained: Within each district, SBAs from all levels of the MOHFW health system were to be trained in HBB, including those who provide delivery services in the following facilities or modalities:

- Tertiary hospitals associated with medical colleges
- Secondary hospitals at the district level (both district hospitals and MCWCs)
- Upazila (sub-district) health centers (UHCs)
- Community-level health facilities (family welfare clinics)
- Homes (by CSBAs, whose primary responsibility is to attend home-based deliveries in the community)

Cadres trained in MOHFW facilities: The HBB training in Bangladesh targets all SBA providers of facility-based delivery care, including staff nurses who work in delivery rooms, operating theaters, and other wards; pediatricians; anesthetists; and other specialist physicians. At the community level, all CSBAs and FWCs providing delivery services at homes and in the FWC also are trained.

Sequencing districts: The SUP divided the 64 districts in Bangladesh into 11 groups, where HBB was to be sequentially introduced in 11 steps (this was later revised to 12 steps). Initial plans were for HBB to be introduced in six districts during each step. The six districts were to be taken from different divisions (there are seven divisions in Bangladesh) so that divisional health managers could more easily supervise training at the district and upazila levels. A second priority in sequencing the districts for scale-up was to include districts participating in the UNICEF-supported Maternal, Neonatal and Child Health (MNCH) and Maternal, Neonatal and Child Survival (MNCS) programs during the early steps of the scale-up. A third priority that influenced sequencing was to include districts that served as controls in the cluster-randomized HBB evaluation study conducted by International Centre for Diarrheal Disease Research, Bangladesh (icddr,b) in the last steps in late 2013.

Training providers from different types of facilities: The original SUP documented the decision to train SBAs from MOHFW and NGO facilities but not from the private sector.

HBB FUNDING, INPUTS, AND PARTNERSHIPS

USAID's large grant, along with direct financial contributions from other partners, including the MOHFW, the Laerdal Foundation, and UNICEF, enabled Bangladesh to develop a well-funded, centrally driven, uniform effort to scale up HBB. The approximate amounts of direct funding from each partner are US\$2,380,000 from USAID, US\$665,000 from MOHFW,

US\$440,000 from the Laerdal Foundation, and US\$245,000 from UNICEF. The direct inputs financed by each organization are listed below:

- USAID: all training costs for all 64 districts; HBB equipment for 40 districts
- MOHFW, Government of Bangladesh: VAT and tax for all HBB equipment
- Laerdal Foundation: full funding for the HBB evaluation; provision of HBB equipment at subsidized price
- UNICEF: HBB equipment for 29 districts¹⁶

Inputs: HBB has not been formally costed in Bangladesh in terms of the total direct and indirect costs and inputs required to scale up HBB. However, the amounts listed above represent a reasonably accurate estimate of the direct financial costs of the scale-up effort. Categories of inputs and their providers are detailed below.

Categories of inputs (direct and indirect) to the HBB initiative in Bangladesh

- Infrastructure and facilities: MOHFW
- Equipment and supplies: USAID has provided equipment in 40 districts; the MOHFW has paid VAT and other taxes for all equipment; UNICEF has provided equipment in 29 districts; and the Laerdal Foundation has made equipment available at a reduced price.
- Recurrent staff costs: MOHFW
- Routine district supervision: MOHFW
- Staff per diems for training: USAID
- Training and refreshers: USAID has provided all direct financial support; MOHFW has arranged for training venues and provided administrative support.
- Local project support: Support to date has been provided through the USAID-funded project Scaling Up of HBB Initiative to Strengthen Newborn Resuscitation in Bangladesh, implemented by MCHIP in collaboration with its sub-grantee BSMMU (i.e., the project funded by USAID's initial grant of US\$2,380,000). The USAID-funded MaMoni health system strengthening project will provide support to the HBB initiative from March 2014 to September 2014.
- Technical support and management: BSMMU, MCHIP/Bangladesh (funded by USAID), and UNICEF

Future funding: Ongoing HBB scale-up activities in December 2013 are focused on introducing HBB into the 15 districts where HBB has not yet been rolled out. These activities will be completed by March 2014, using existing funds. From April to September 2014, under the USAID-financed MaMoni health system strengthening project, USAID will provide an additional US\$450,000 to support the HBB Revisit Program and the Newborn Care Surveillance Program (described in Section 10). HBB stakeholders believe that the HBB effort will need to be supported for several more years to ensure its long-term viability and effectiveness, and they are currently seeking funding to continue support through 2017.

HBB partners in Bangladesh: Roles and contributions: One of the key success stories of the HBB initiative in Bangladesh has been the development of broad and inclusive partnerships to take HBB implementation forward. Listed below are the significant partners in the HBB initiative in Bangladesh and their roles in the HBB scale-up:

MOHFW: The MOHFW has overall responsibility for scaling up HBB; develops and guides policy; provides and maintains facilities, human resources, and infrastructure; conducts supervision and management at the national, district, and community levels; guides and conducts pre-service education (which includes HBB) for all health worker cadres; provides venues and related utility

¹⁶ Some districts were provided with HBB equipment by both USAID and UNICEF.

and management support for in-service training; pays VAT and other taxes for all off-shore procurement of HBB equipment; and other health system functions.

USAID: USAID has played a catalytic role at the global level through its co-leadership role with AAP in founding the HBB GDA, bringing other partners on board, and rallying support for the HBB scale-up effort in Bangladesh. USAID provided funding to support all HBB training costs for 64 districts and HBB equipment for 40 districts. USAID has provided funding to date via a dedicated grant managed by Save the Children through MCHIP and (from April to September 2014) the MaMoni health system strengthening project led by Save the Children.

MCHIP and Save the Children: Together with MOHFW, MCHIP has assumed overarching responsibility for and support to the implementation of HBB. Key senior-level public health experts at Save the Children have provided vision and direction during the establishment, planning, and ongoing management of the HBB initiative. MCHIP has dedicated three full-time staff members to supporting HBB over the duration of the HBB initiative. MCHIP provides overall support for supervision and equipment procurement as well as monitoring and evaluation efforts. Support provided by Save the Children has been funded by USAID via MCHIP and through the Saving Newborn Lives (SNL) program.

BSMMU: BSMMU was subcontracted by Save the Children to review and adapt HBB curricula; conduct Master Training of Trainers (MTOT) and Training of Trainers (TOT) to prepare a cadre of qualified HBB trainers at the national and district levels; provide administrative, supervision, and monitoring support to district-level HBB trainings; ensure the timely procurement of HBB equipment and facilitate its delivery to the district and facility level; and provide other support to the HBB initiative as required.

UNICEF: UNICEF provided technical assistance during the design and planning phase of the HBB initiative and supported the process of developing policy to encompass the HBB scale-up. UNICEF also provided financial support for the procurement of HBB equipment in 29 districts.

Laerdal Foundation: The Laerdal Foundation provided funding for the evaluation of the HBB scale-up and also made HBB equipment available at a reduced price.

Professional societies: Professional societies and bodies, including the Bangladesh Neonatal Forum, the Bangladesh Perinatal Society, and the Obstetrical and Gynecological Society of Bangladesh have served as key partners in the HBB initiative by actively participating in discussions about the introduction of HBB, reviewing and adapting HBB materials, and contributing core and master trainers to the HBB training effort.

NGOs: NGOs that provide childbirth services in Bangladesh and that have collaborated with the HBB initiative to train their delivery staff to provide HBB services include the Bangladesh Red Crescent Society, BRAC, the Urban Primary Health Care Program, the Smiling Sun Franchise Program, and participating NGO partners of the NGO Health Service Delivery Project.

icddr,b: icddr,b conducted the evaluation of the HBB scale-up through a grant provided by the Laerdal Foundation and managed by Save the Children.

AAP: AAP developed the HBB curriculum and materials and has catalyzed the establishment of the HBB GDA at the global level through co-leadership with USAID. AAP has provided and continues to provide technical assistance to the HBB initiative in Bangladesh through Dr. Nalini Singhal.

ADAPTATION OF HBB FOR BANGLADESH

AAP developed a copyrighted core set of materials to support the implementation of HBB, including guidelines, training materials, and job aids. AAP revises the core HBB materials every five years. Countries are encouraged to adapt the HBB materials for local circumstances, but all proposed changes must be approved by AAP in order to maintain the technical integrity of the HBB methodology.

AAP was supportive of revisions and additions to the core HBB materials that were proposed by the HBB Team in Bangladesh, but would not allow the essential methodology outlined in the core materials to be revised. The Bangladesh team was told to use the core HBB materials in their original form, include any supplementary materials developed in Bangladesh as annexes, and then propose any revisions and additions for AAP to consider during the next revision cycle in 2016.

A local consultant led the effort to adapt the HBB materials for use in Bangladesh. The consultant translated the HBB materials and, in collaboration with HBB stakeholders, drafted proposed additions and revisions and presented them for discussion and approval. HBB materials were field-tested in an upazila health complex near Dhaka.

Adaptations and additions that the team made to the HBB materials are listed below:

- The key HBB materials, including the *HBB Flip Chart*, the *HBB Action Plan*, and the *HBB Learner's Book*, were translated into the Bangla language. AAP arranged to check the translation, supported a back translation, and approved the final translation.
- The Bangladesh team wanted to adapt the core HBB materials to place them more in the context of comprehensive essential newborn care (ENC). This was not approved by AAP, so supplemental ENC materials were appended to the core HBB materials as an annex.
- The Bangladesh team proposed to modify the standard HBB approach to cord cutting due to local practices and history. AAP agreed to the modification.
- The Bangladesh team felt that one limitation of the HBB educational module was the section that describes how to clean resuscitation equipment. This gap was identified, HBB materials were adapted (placed in an annex), and the training design was modified to include practice cleaning the equipment.
- The design of the HBB educational module was slightly modified in order to adapt the HBB approach for inclusion in the pre-service education (PSE) curricula for various medical cadres.
- The Bangladesh team adapted the MOHFW resuscitation protocols for the tertiary level (i.e., advanced management of asphyxia following the Golden Minute®) and developed draft HBB materials to guide training for these protocols. The protocols for advanced management were included in the referral section of the *Newborn Standard Operating Procedures* for tertiary facilities.
- The Bangladesh team developed several supplementary HBB materials to be used during the HBB Refresher Training, such as a checklist for the service provider to use as a job aid/recording instrument.

CONCLUSIONS: PREPARING FOR SCALE-UP

Policy and strategy development: The incorporation of HBB into official MOHFW policy and strategy documents in Bangladesh was achieved through an efficient consultative process among key stakeholders. Several factors contributed to this achievement. Local leadership was strong—the MOHFW led the process, working hand in hand with key partners. Leaders of the HBB initiative built awareness and developed commitment through a consensus-based approach that was catalyzed by the HBB pilot test and its highly visible dissemination event. Strong, respected champions advocated successfully for the adoption of HBB as national policy.

Planning for the scale-up: The planning process for the HBB scale-up in Bangladesh was a model of realistic planning that has been implemented without notable deviations or problems. Planning was facilitated by the large grant provided by USAID and the single-team approach to scaling up HBB. The SUP document makes no mention of how the HBB initiative would approach supervision, mentoring, or monitoring, and in retrospect, these are three areas where the scale-up effort faced shortcomings. A criticism of the SUP might be that it failed to address key systemic elements of the scale-up that, if dealt with more effectively in the planning process, might have had a positive impact on the scale-up.

Partnerships and inputs: One of the strengths of the HBB initiative in Bangladesh is its broad support from a wide variety of partners. The initiative has been funded by large grants from USAID, the MOHFW, the Laerdal Foundation, and UNICEF—all of whom delivered upon their commitments—and this has facilitated its implementation. Partnerships and inputs have been a trouble-free aspect of scale-up, a testament to the strong planning and coalition-building activities that preceded its implementation.

Adaptation of HBB for local use: Local authorities' ability to tailor an intervention before scale-up is often associated with effective scale-up efforts. The AAP encourages countries to identify aspects of HBB that might be modified based on the local context, although the AAP reserves the right to reject any proposed changes. The Bangladeshi HBB team carefully reviewed the core HBB materials and proposed a number of revisions and additions, some of which were accepted and others of which AAP decided should remain as supplements to the materials. Overall, the Bangladesh team made a thoughtful effort to suggest modifications that they felt would strengthen the effectiveness of the intervention. AAP's willingness to consider all modifications and allow some of them is a sign of the strength of the collaborative partnership between AAP and host countries.

Phase Two: Implementation of the scale-up

Once ownership has been fostered and broad plans have been made, planned activities are carried out and providers begin to practice HBB. This section of the report includes a description of how the Scale-Up Plan was used to guide implementation, how HBB training was implemented, how equipment was procured and distributed, how supervision and monitoring activities were carried out, and how issues regarding referral were managed.

IMPLEMENTATION OF HBB ON THE BASIS OF THE SCALE-UP PLAN

The HBB Scale-Up Plan was developed in the pre-implementation phase of the HBB initiative and was envisioned as a guide. Plans for a complex scale-up effort such as HBB change over time. This section describes the extent to which the original SUP has been followed during implementation of the HBB initiative and how and why the SUP has been modified.

Provision of HBB equipment: MCHIP procures HBB equipment for 40 districts, and BSMMU manages the logistics of the equipment order and collaborates with the MOHFW to have it delivered to districts where HBB will be introduced. UNICEF provides equipment to 29 districts while the Bangladesh MOHFW pays all required VAT and other taxes. MCHIP provides administrative support to the procurement process.

Cascade training design: The cascade training design documented in the SUP has been implemented as planned throughout the scale-up. Core trainers prepared a pool of master trainers who in turn prepare district trainers as new districts initiate HBB training.

Training providers from different types of facilities—MOHFW, NGO, and private: During the early stages of the scale-up, the HBB program trained selected SBAs in large MOHFW facilities and all SBAs who worked in smaller MOHFW facilities or in the community. Service providers from participating NGOs were trained, but private practitioners were not trained. In order to increase the potential impact of the HBB initiative, the decision was made to (1) universally train all SBAs at all MOHFW facilities within the district, and (2) train private providers of delivery services who meet qualifying criteria. Private providers who are eligible to participate in HBB training include physicians who have an MBBS degree and are employed by a private hospital and nurses who hold a diploma nursing certificate and are registered by the Bangladesh Nursing Council. The HBB program is considering relaxing the eligibility criteria for nurses in order to ensure adequate coverage.

The HBB program provides MOHFW participants and facilities with training, equipment, and per diem/transport allowances during training. Participating NGO providers and facilities receive training and equipment free of cost, but no allowances. Private practitioners also are trained at no cost but receive neither equipment nor allowances.

The HBB Revisit Program: During the HBB scale-up, stakeholders realized that effective worksite-based coaching and support would be needed to help providers maintain their post-training skill levels in resuscitation, and this support was not being provided through the standard MOHFW supervisory systems. As a result, the HBB Revisit Program was designed mid-rollout to provide additional support to strengthen district-level performance of HBB through four activities: (1) establishing the HBB Refresher Training at district and sub-district facilities to strengthen supervision and mentoring of resuscitation skills and support HBB training at providers' worksites; (2) monitoring the status of HBB equipment; (3) training untrained providers from MOHFW facilities as well as selected qualifying providers from the private sector in HBB; and (4) bringing district stakeholders together in a one-day meeting to review progress on HBB in the district and plan for future activities. The HBB Revisit Program

was initially conducted in 22 districts from February 2013 through July 2013. It will be conducted in the remaining 42 districts from March 2014 to September 2014, following the initial scale-up of HBB in all 64 districts.

Rescheduling timeline for scale-up due to funding cycles and the HBB Revisit Program: One major change that has been made in the original SUP resulted from (1) the introduction of the HBB Revisit Program and (2) the transition (in March 2014) of USAID funding from the original HBB grant to the USAID-funded MaMoni health system strengthening project. The HBB Revisit Program was introduced in 2013 and was conducted in 22 districts where HBB training had already been completed. It was introduced at the same time that the initial HBB scale-up training was being conducted in new districts. However, once it was determined that USAID funding for HBB would be channeled through the MaMoni project beginning in March 2014, a decision was made to accelerate the initial scale-up training so as to complete the introduction of HBB in all districts by March 2014. The HBB Revisit Program will be conducted in the remaining 42 districts between March 2014 and September 2014.

Scale-up timeline: In general the scale-up has adhered to the timeline in the SUP. The work plan, which is an annex of the original SUP, has been revised occasionally to reflect changes in the overall approach to scale-up, including changes in the providers who will be trained and the recently developed HBB Revisit Program.

Technical support from AAP: AAP provides technical inputs and assistance to the HBB scale-up in Bangladesh through its representative, Dr. Nalini Singhal. Dr. Singhal visits Bangladesh periodically to provide technical assistance and to provide support from her country of residence. This arrangement was possible as a result of the HBB GDA through which volunteer neonatologists from AAP provide technical support to HBB initiatives pro bono. Funding for their international travel is provided through the global MCHIP project.

Newborn Care Surveillance System (NCSS): The NCSS was introduced in October 2013. Further details regarding this initiative are provided in Section 10.

District orientation: Although it was not documented in the SUP, one of the most important aspects of the HBB initiative is the coordinated, standardized approach that is followed to involve district health staff and raise their awareness regarding the HBB initiative when HBB is introduced in a new district. The first step is for HBB master trainers in Dhaka to train key providers from district-level and upazila health facilities in the district to become district trainers. The district trainers and other district health officials then participate in a one-day advocacy and micro-planning meeting at the district level that informs all participants about the HBB initiative and provides a forum for participants to plan the HBB rollout in their district.

HBB EDUCATION: IN-SERVICE AND WORKSITE TRAINING AND PRE-SERVICE EDUCATION

HBB educational activities can be divided into three broad categories: in-service training, worksite training, and pre-service education. Each of these is described below.

In-service training

The HBB approach: The two-day competency-based HBB educational module is at the core of the HBB approach. HBB is a framework for organizing and prioritizing a provider's actions during the first minute of a newborn's life (known in HBB as the "Golden Minute"), with the focus on ensuring that the newborn is breathing properly and providing basic assistance if the baby is not breathing. Advanced resuscitation techniques such as cardiac massage are not taught under HBB and providers are instructed to not take an Apgar score in the first minute after delivery. The HBB training uses an interactive, participatory approach in a structured environment, where participants become proficient with equipment and job aids. Key equipment includes the NeoNatalie mannequin, the ambu bag and two sizes of masks, and the penguin suction device for clearing the newborn's airway. Key tools and job aids used during the training include the *HBB Facilitator Flip Chart*, the *HBB Action Plan*, and the *HBB Learner's Workbook*. A trainer-to-participant ratio of 1:4 or 1:6 is recommended. Facilitators of the HBB in-service training in Bangladesh follow all aspects of the recommended training approach.

HBB approach to birth asphyxia management versus pre-HBB approach in Bangladesh: HBB stakeholders in Bangladesh all stated that the HBB approach is very similar to the approach to resuscitation management that they had been taught previously. They said that HBB provides a clear, standard approach for managing a newborn during the Golden Minute and simplified resuscitation procedures for newborns requiring assistance. The HBB approach puts the focus on the newborn during this crucial moment and directs the provider to first check that the newborn is breathing properly and only then proceed to other tasks such as cutting the cord.



HBB in-service training in Pirgonj Upazila Health Complex

All of the health providers and administrators who were interviewed in Bangladesh as part of the process documentation were enthusiastic about the HBB approach and felt that it strengthened their ability to provide basic newborn care during the Golden Minute and to resuscitate asphyxiated newborns when necessary. Providers also noted that the new resuscitation equipment provided as part of the HBB initiative was of significantly higher quality than what they used previously (many providers reported previously using mouth-to-mouth resuscitation on newborns because they did not have an ambu bag) and makes it easier to resuscitate newborns.

Preparation of trainers: In Bangladesh a team of 14 HBB core trainers (senior influential doctors) and 68 HBB master trainers have been trained to lead Training of Trainers for district trainers. All TOTs are conducted in the HBB unit at BSMMU, where Professor Dr. Md. Abdul Mannan provides oversight. District trainers are trained in batches before the introduction of HBB in their districts, and thereafter are responsible for training all relevant staff at the district level and below. All district trainers are MOHFW employees, and most of them are SBAs who are actively providing delivery services in the districts where they are based.

Orientation of district health officials: In-service training in every district is initiated through a one-day District Advocacy and Micro-Planning Meeting. BSMMU field officers play a key role in supporting this meeting. The District Civil Surgeon and the District Deputy Director of Family Planning lead the meeting, which is attended by health administrators and providers from district and sub-district health facilities. Participants learn about the HBB initiative during the meeting and develop plans for the HBB rollout in the district.

Training SBAs in HBB: Sections 2 and 6 of this report describe the HBB Scale-Up Plan, including the approach used in Bangladesh to select SBAs for participation in HBB training.

Evaluation of participants in HBB training: Participants in the HBB training are required to achieve a score of 80 or above in the practical evaluation exercise that is conducted at the conclusion of the training. Almost all participants are able to pass the first time they are evaluated; those who do not are coached until they can achieve a passing score.

Management of district HBB training program: HBB trainings in the districts are supported administratively by the BSMMU field officers. One or two field officers (depending on the number of HBB trainings being conducted concurrently) remain in the district for the duration of the training activities and fulfill a critical role in ensuring the smooth management of multiple trainings within a limited time period.

Strengthening the quality of HBB training: The elements of the HBB training module that help ensure training quality include comprehensive instructional materials, a standardized facilitator, participant ratio, checklists for assessing participant performance, physical space requirements, and the practical evaluation exercise. In addition, in Bangladesh, master trainers attend and support more than 50 percent of HBB trainings conducted at district and sub-district levels. During such visits the master trainers observe the training conducted by the district trainers, clarify questions and problems on the spot, and provide feedback where necessary. The master trainers also use a checklist to assess the quality of the training. After the training the checklist is submitted for compilation in a data base at BSMMU.

Worksite training

Newborn resuscitation is a vital lifesaving skill, but it is practiced relatively rarely by individual providers, especially in countries such as Bangladesh that have low levels of facility deliveries. For this reason, all providers who are trained in HBB are expected to practice resuscitation using the NeoNatalie mannequin at their worksites in order to maintain their ability to resuscitate newborns when required. The provision of the mannequin is designed to encourage the practice of resuscitation under circumstances that approximate real situations to the greatest extent possible. This issue is particularly problematic for CSBAs, who have a low caseload that does not include many asphyxiated newborns and who do not have a mannequin on which to practice resuscitation management.

Leaders of the HBB initiative in Bangladesh considered different approaches to encouraging worksite training at the beginning of the scale-up. They noted that in one published field trial in which HBB was found to have a positive impact on birth asphyxia outcomes, the worksite training was highly structured (each provider practiced resuscitation at the beginning of every shift)—an approach that the HBB initiative leaders considered to be too high-intensity to sustain in a countrywide scale-up through the MOHFW.¹⁷ Another option was to have workers sign registers to verify that they had practiced resuscitation periodically, but this also did not seem to be a practical approach. It is not clear how much worksite practice is required for SBAs

¹⁷ Msemo G, Massawe A, Mmbando D et al. 2013. Newborn mortality and fresh stillbirth rates in Tanzania after Helping Babies Breathe training. *Pediatrics* 131(2).

in Bangladesh to maintain and further develop their skills in resuscitation management. Ultimately, the decision was made to tell providers who had been trained in HBB that they should periodically join with their coworkers at their worksites and take turns practicing resuscitation using the NeoNatalie.

Providers' reports on practicing HBB at their worksites: A few providers in the facilities visited by the process documentation team reported that they had practiced HBB techniques at their worksite outside of the delivery ward, although this did not appear to be a well-established routine. In facilities where the delivery caseload was relatively high, some providers stated that they get adequate practice on resuscitation techniques from actual cases and do not need to practice on the mannequin. They also stated that they have oriented new (i.e., untrained in HBB) colleagues in the labor room to resuscitation techniques using HBB methods. None of the providers mentioned participating in paired learning for HBB after their training, and no service providers reported regular systematic practice of resuscitation at set times in the facilities, even though this is a key learning methodology that is promoted by the HBB training approach.¹⁸ The HBB team in Bangladesh realizes that worksite practice is not adequate, and they have tried to address this through the HBB Revisit Program. In addition, paired learning is being emphasized during the initial HBB training in districts where HBB is being newly introduced.

Availability of HBB equipment dedicated to practice: The provision of training equipment immediately after HBB training to all facilities where participants provide services is a prerequisite to providers being able to share their skills with untrained providers and maintain their resuscitation skills through worksite practice. In Bangladesh the process documentation team found that all facilities they visited that were supposed to be provided with practice equipment had received it immediately or shortly after training. In some places the practice equipment was provided to senior health providers who had not made it available for junior providers (who were conducting most of the deliveries) for practice.

An effort in progress to strengthen worksite training—the HBB Refresher Training: HBB program managers realize that worksite training and practice are weak aspects of the HBB initiative in Bangladesh. As a result, they have tried to develop innovative ways to strengthen these activities within the normal MOHFW system. An HBB Refresher Training approach has been developed that is to be implemented on a monthly basis at district-level and sub-district-level health facilities. With this approach, at the regular monthly meeting attended by all health providers who work under the health facility, one-third of the health providers participate in a 60- to 90-minute session during which key aspects of HBB resuscitation management are reviewed and practiced. Each provider theoretically can participate in a refresher training activity every quarter, although the effectiveness of the training will be challenged by the large number of participants and competing agenda items. The HBB program has faced challenges in implementing the HBB Refresher Training, and it is not clear if it can be effectively implemented at scale.

Pre-service education (PSE)

The inclusion of HBB in PSE for all medical and nursing cadres trained as SBAs is a key step toward ensuring the long-term sustainability of HBB. With HBB as part of PSE, as SBA coverage increases over time in Bangladesh, the percentage of newborns delivered by a provider capable of providing HBB resuscitation services also will increase.

¹⁸ The paired learning model is a technique through which two HBB training participants pair up to practice resuscitation using a mannequin so that they can learn from and teach each other. During this technique, learners work together in pairs, with one learner taking the role of the birth attendant and the other learner controlling the newborn simulator. Learners then switch roles and practice again. In this way, learners become teachers, providing feedback on skills to one another.

Including HBB in PSE: The *Guide for Implementation of HBB*, developed by the AAP, does not present a set approach to adapting the HBB educational module for inclusion in PSE. HBB has been included in MBBS, nursing, midwifery, CSBA, private CSBA, and FWV pre-service education curricula in Bangladesh. In some of these curricula the standard two-day in-service HBB training package/model has been included as is, while in others the package has been slightly modified prior to inclusion.

Key partnerships: The formation of a partnership with the Nursing and Midwifery Council of Bangladesh was key to ensuring ownership and endorsement of HBB in PSE for nurses and midwives.

PSE skills labs: PSE programs have skills labs where students can practice the skills they need to master. Under the HBB initiative, strengthening skills labs for instruction in HBB is need-based, depending on the capacity and workload of the center. In centers where only a single training batch is conducted at any one time, the HBB program provides four HBB training sets to conduct the training for up to 20 participants. Centers that are capable of running more than one batch at a time or that include more than 20 participants in a single batch are provided with HBB equipment accordingly. The HBB program provides training to three or more trainers in each training institute as required. Instructors use the paired learning technique during the training period.

Challenges to inclusion of HBB in PSE: The operationalization of HBB within pre-service education will be the key to its future effectiveness. Incorporating HBB into the curriculum for a given cadre is an important first step, but this does not ensure that HBB will be taught effectively. Although faculty from medical colleges and institutions have been prepared to be HBB trainers, PSE is much less under the control of the HBB program than in-service training is, and PSE takes place out of view of the HBB program. For example, inclusion of HBB in lesson plans is important for ensuring the quality of HBB training. While the curriculum for nursing cadres uses lesson plans—and HBB has been incorporated into those lesson plans—the MBBS curriculum in Bangladesh does not lesson plans.

An effective clinical practice environment should have staff members who have HBB knowledge and skills, who themselves deliver babies and practice resuscitation according to HBB protocols, and who have correct equipment available. Medical colleges in Bangladesh and the teaching hospitals they are associated with serve as clinical practice sites for nursing and medical students. The teaching hospitals have been included in the HBB initiative, and their providers have been trained in HBB. For example, the HBB program currently trains three or more nursing instructors in HBB at each of the PSE nursing institutes. While the framework is in place for effective clinical practice of HBB during PSE, serious efforts will be required to develop and maintain the quality of this practice. It remains to be seen how effectively HBB is taught during PSE in Bangladesh.

Evaluation of PSE students in HBB: During their clinical practicum, members of all medical and nursing cadres are assessed for competency in a specific set of skills. Skills that are formally assessed are perceived by students as more important than skills that are not assessed. HBB is not currently included among the skills that are assessed and scored during clinical practice in Bangladesh. As a result, nursing and medical students show less interest in it than they do in learning other higher-priority skills.

HBB EQUIPMENT AND LOGISTICS SYSTEMS

SBAAs from all cadres in Bangladesh have always been trained in newborn resuscitation techniques during their pre-service education and have been expected to resuscitate newborns

suffering from birth asphyxia. Before HBB, however, the availability of resuscitation equipment was less than optimal and the equipment was often not of high quality. Some health facilities had ambu bags and masks, but the norm for many providers was to resuscitate newborns using mouth-to-mouth resuscitation. The standard equipment for clearing airways was the old-style rubber bulb suction device.

Policies in Bangladesh regarding provision of HBB equipment: All facilities in which HBB-trained providers work receive one or more sets of HBB service equipment, and larger facilities also receive a set of HBB practice equipment.¹⁹ Equipment is provided immediately after the provider completes the HBB training. Community-based SBAs who have been trained in HBB receive a personal set of HBB service equipment. In Bangladesh, both types of resuscitation equipment have been supplied in a timely manner in all districts. Equipment is given to the different types of providers and facilities as outlined Table 1. HBB service equipment in health facilities is stored in a clear Plexiglas® box that is mounted on the wall in the delivery ward or operating theater for easy access (see photo). Facilities can replace broken or missing HBB equipment as a recurring cost. Requests are sent from the districts to the DGHS, and from there a request is sent to the BSMMU HBB team to replace the equipment.

Table 1. Type and amount of HBB equipment provided to institutes, facilities, and providers

Facility / Cadre	Service Equipment	Practice Equipment
Training institutes	N/A	3 or 4 sets for nursing training institutes or other regional training centers
Medical college hospital	1 set for labor room or as per required 1 set for each operating theater 1 set for pediatric ward	2 sets to head of department of pediatrics 2 sets to head of department gynecology
District hospital	1 set for labor room 1 set for operating theater 1 set for pediatric ward	1 set to the resident medical officer/sister-in-charge in the labor room or to HBB trainer
Maternal child welfare clinic	1 set for labor room 1 set for operating theater	1 set to HBB trainer
Upazila health center	1 set for labor room 1 set for operating theater	1 set to the Upazila Health and FP Officer 1 set to the Upazila Family Planning Officer or 1 for each trainer from each department
FWC	1 set	N/A
Community clinic	N/A	N/A
Trained CSBAs (FWA, FHA)	1 set per person	N/A
NGOs	1 set for operating theater 1 set for labor room	As per requirements of NGO

The requirements for equipment within a given district are calculated with support from the BSMMU field officer during the one-day District Advocacy and Micro-Planning Meeting. The request for equipment according to the calculated requirement is sent to the BSMMU HBB team by the BSMMU field officer in close coordination with district and sub-district health managers.

¹⁹ Service and practice equipment are defined in Section 2 of this report.

Procurement and distribution of HBB equipment: HBB equipment is procured through funding from USAID for 40 districts and UNICEF for 29 districts.²⁰ The MOHFW has supported the purchase of equipment by paying the VAT and other taxes for equipment procured. The process for procuring HBB equipment and supplying it to the districts is as follows: The equipment is purchased from an international supplier and shipped to Bangladesh. Once the equipment arrives in Bangladesh and clears customs, the equipment is deposited in the MOHFW's Central Medical Storage Depot (CMSD), and from there it is taken to the BSMMU. Even though the equipment is procured using donor funds, having CMSD receive the equipment immediately upon its arrival allows for it to be considered an MOHFW procurement for which the MOHFW pays concerned taxes on the shipment. The BSMMU HBB project team is thereafter responsible for delivering equipment to all concerned districts. The BSMMU team dispatches the equipment through the courier system, and once it is received in the district, the equipment is entered into the MOHFW district stores for distribution. Equipment—both practice and service—is thereafter distributed to facilities and providers at the end of training. BSMMU follows up and checks whether the equipment has been distributed as per plan. BSMMU, MCHIP, and Save the Children work together to play a supportive and catalytic role at all stages of the equipment distribution process. Overall, the equipment procurement and distribution process has proceeded smoothly in Bangladesh and is a good example of how extra support provided by partners (in this case, BSMMU and Save the Children) can ensure that an unpredictable system will deliver as envisioned.



HBB Plexiglas box

SUPERVISION OF HBB SERVICES

HBB stakeholders in Bangladesh acknowledge that effective supervision is important if the HBB initiative is to achieve impact. The purpose of supervision of HBB is the same as the rationale for worksite training or practice of HBB—to maintain or improve SBAs' skills in resuscitating asphyxiated newborns, while instilling in providers the attitude that they can and should identify and manage cases of asphyxia. Supervision can be performed by somebody from outside a provider's facility or by a senior colleague who works in the same facility.

Structure of supervision of maternal and newborn health (MNH) activities in Bangladesh: The supervision of MNH (including HBB) in Bangladesh generally takes place through district-level and facility-level activities. District-level officials make supervisory visits to both district and sub-district facilities, but these visits are relatively infrequent, cover many technical and administrative areas, and are not an effective way to supervise the development of HBB skills. The district hospital and MCWC have their own internal supervisory systems and monthly meetings. The UHCs (sub-district health complexes) have a similar system and also hold monthly meetings that are attended by their own staff as well as various community-level cadres that are administratively supervised by the UHC. These meetings occur regularly, primarily for reporting data and conducting administrative tasks, not for technical supervision. An SBA in the Bangladesh MOHFW health system thus normally receives relatively little technical supervision of his or her work.

²⁰ There are 64 districts in Bangladesh. Some districts have received equipment from both USAID and UNICEF.

HBB supervision tools: The HBB program in Bangladesh developed two HBB monitoring and supervision checklists. The first is a short checklist that is used by MOHFW health and family planning managers at the district and upazila levels to monitor HBB training activities during their visits to training events. The second is a more detailed checklist that is used by master trainers and other trainers from BSMMU and Save the Children during HBB monitoring and supervision visits in the field. The HBB program has also developed an *HBB Refresher Checklist* for use by BSMMU field officers during the HBB Revisit Program. This tool is more focused on logistics review than on refresher training and other components of the revisit program.

Management of information gathered during supervision visits: Data from the monitoring and supervision activities described in the preceding paragraph are collected in paper (soft copy) format. The HBB Documentation Officer enters the data into a database and generates periodic reports and graphs that describe aspects of program quality.

Supervision of HBB in Bangladesh: During interviews with the process documentation team, health providers and officials acknowledged that MNH supervision systems are not strong in Bangladesh. Almost all of the SBAs who have been trained in HBB in Bangladesh are providers who for years had been practicing some form of neonatal resuscitation that usually included outdated and at times harmful practices. The HBB training appears to have been successful in convincing providers to accept the need for newer methods of resuscitation. However, providers may revert to former practices if these skills are not reinforced by mentoring and supervision during the post-training period.

HBB program managers have developed a new approach (the HBB Refresher Training, described in Section 7) to supervision and worksite-based practice of HBB that they hope will prove effective and be implemented in a sustainable manner through the MOHFW system. The HBB Refresher Training will be relatively infrequent (each provider will attend once every three months) and will be attended by a large number (30–40) of providers. Given the large number of participants and the short duration (60–90 minutes) of the monthly meeting, it is not clear how effectively this forum will help SBAs maintain their skills or how enthusiastic providers will be to participate.

MONITORING IMPLEMENTATION AND SCALE-UP OF HBB IN BANGLADESH

One of the key issues discussed during the planning stages of the HBB initiative was how to monitor providers' performance of HBB. HBB managers initially considered trying to introduce new indicators into the national Health Management Information System (HMIS) that would measure providers' performance of resuscitation and other ENC practices that are part of the HBB approach. However, due to competing priorities, the HBB team decided to focus on other aspects of the scale-up. The HBB team subsequently made a conscious decision not to introduce a vertical HBB information system parallel to the HMIS. The rationale for this decision was that project-driven parallel information systems are difficult to sustain, are often resented by the provider community as a project-imposed burden, and generally produce low-quality data that cannot be used reliably to guide project management.

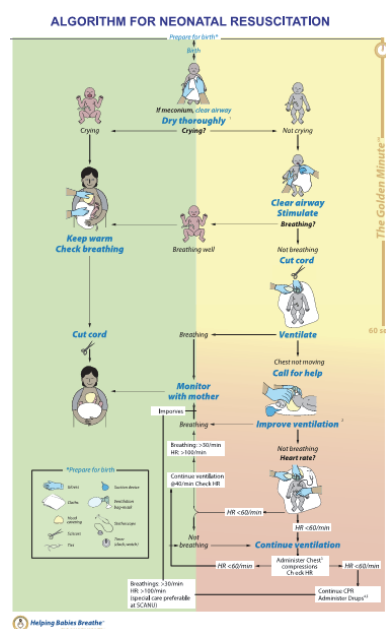
The Bangladesh HBB initiative is now in its third year and is moving forward without a reliable source of performance monitoring data. HBB program stakeholders acknowledge that the program's monitoring component is weak and program managers have not been able to adjust the program's direction based on performance data. Some of the district and facility-level managers and providers who spoke with the process documentation team regretted the lack of information about HBB performance in their own facilities, especially regarding how many newborns have been resuscitated and how they have responded to resuscitation management.

Nurses in several facilities that the PD team visited had independently begun to record data on resuscitation cases, and one facility developed its own HBB register.

Introducing HBB-related indicators into the national HMIS: There is currently no standard indicator in the HMIS that measures providers' performance of birth asphyxia management. The HBB program plans to work with the MOHFW to incorporate one or more resuscitation-related indicators into the HMIS in the near future. At the facility level, the HMIS is paper-based; thus, introducing HBB-related indicators requires a revised set of formats and registers in the health facilities. The HBB program has worked with the DGFP to develop a new format for the standard maternity register (the DGFP and DGHS have separate registers and information systems) that includes a place to record use of resuscitation techniques for asphyxiated newborns (i.e., if a provider uses a suction device to clear the airways or uses the bag and mask, he or she ticks a box in the register). This new format is currently being pilot-tested in Tangail district in order to inform future plans to include indicators of asphyxia management in the HMIS.

Establishment of the Newborn Care Surveillance System: The HBB program initially did not collect monitoring data regarding performance of resuscitation management. Responding to the need for performance data to guide implementation of the scale-up, the NCSS was introduced in October 2013 through funding provided by the USAID-financed MaMoni health system strengthening project. Under this new initiative, district surveillance officers hired by BSMMU support the collection of data by SBAs in selected facilities in eight districts. The NCSS will generate information about HBB performance as well as other aspects of ENC. HBB managers acknowledge that the quality of the data will be a concern, but they feel that it is important to begin efforts to monitor program performance.

Assessing HBB program performance from the HBB evaluation: icddr,b has recently conducted a performance evaluation of the HBB program in Bangladesh. Data from this effort were being analyzed at the time that this process documentation was conducted. Given the lack of monitoring data described above, the HBB evaluation represents the best opportunity to assess the performance of the HBB program at this time. Data from this evaluation are summarized elsewhere in this report (see Phase Three, below).



Advanced algorithm for neonatal resuscitation

REFERRAL SYSTEMS FOR HBB

HBB is an approach to managing the first minute of a newborn's life, which includes specific, sequential guidance on steps to take to resuscitate a baby who cannot breathe. HBB protocols specify that newborns who do not begin breathing after stimulation, clearing of the airways, and use of the bag and mask should be declared dead after 10 minutes. Babies still breathing but with some difficulty should be referred to a higher-level facility for more advanced treatment. HBB does not provide further guidance for the management of newborns who do not respond completely to these basic resuscitation measures, other than to recommend referral. In Bangladesh, district and medical college hospitals have newborn intensive care units with secondary and tertiary levels of care, respectively. Within district and sub-district health facilities, asphyxiated newborns who do not respond to interventions by the nurses or other medical personnel on duty are referred, if possible, to pediatricians or anesthetists. UHCs (sub-district health centers) may refer cases to the district hospitals or medical college hospitals, if they are accessible.

While the Bangladesh HBB team has not introduced any specific referral protocols for birth asphyxia to complement HBB, it has expanded on the basic HBB action plan by developing a more detailed algorithm for managing newborns with birth asphyxia who do not begin breathing within 1 minute after birth (see Photo).

12. CONCLUSIONS: IMPLEMENTATION OF SCALE-UP

Implementation of the Scale-Up Plan (SUP): The plans laid out in the original SUP document have been implemented as envisioned, with only minor variations. The stable funding situation for the key aspects of the rollout, coupled with the centralized, uniform approach to scaling up HBB across the country, have been crucial to the effort to move forward according to the original plan. The main adjustments to the plan during scale-up have been the addition of supplementary activities to address omissions in the plan. These additions include initiating the HBB Revisit Program (including the refresher training and the training of private providers) as well as launching the Newborn Care Surveillance System.

In-service training, worksite-based learning, and pre-service education

- **In-service training:** The two-day HBB training module is the centerpiece of the HBB package, and it has been conducted successfully through in-service training in Bangladesh. Perhaps the most notable locally designed aspect of the model in Bangladesh has been the involvement of district officials and providers in the orientation for the rollout and conduct of the in-service training in their districts. The District Advocacy and Micro-Planning Meeting facilitates participatory planning, and developing HBB district trainers from facilities throughout the district engenders local support and leaves in place a framework of skilled providers for follow-up and mentoring. BSMMU's intensive support (through field officers and master trainers) has ensured the high quality of in-service training.
- **Worksite-based learning and mentoring:** Worksite-based learning and mentoring is strongly emphasized in HBB methodology and is arguably one of the most important aspects of the HBB initiative. Indeed, it may very well be necessary to achieve measurable impact in scaling up HBB. It is difficult to establish the routine worksite-based practice of almost any skill among public sector employees in most developing countries, especially at scale. In Bangladesh, practicing and reinforcing resuscitation skills at the worksite has been one of the weakest areas of the HBB initiative. HBB planners in Bangladesh have tried to implement scale-up through sustainable approaches, and current efforts to strengthen worksite-based learning and mentoring (i.e., the refresher training) are largely conducted using system resources. It is worthwhile to consider whether this approach will be sufficient and to experiment with other options as well. Given the importance of worksite-based learning, there is a strong argument that unsustainable resources should be devoted to nurturing a short-/medium-term strategy to strengthen worksite-based learning—such as an intensive mentoring program—especially in light of the finding that HBB practice equipment has not been used (or even taken out of boxes) in many facilities and is not accessible to the providers who need it in other facilities.
- **Pre-service education:** Incorporating HBB into the curriculum for all cadres of SBAs in Bangladesh was a key initial step toward ensuring the long-term sustainability of HBB. Ensuring that providers are routinely and effectively practicing HBB at graduation is a huge challenge that will require significant support in terms of maintaining the quality of classroom teaching; preparing clinical practice sites that are effective learning environments for HBB; including HBB in the clinical practicum scoring system; and transitioning graduates to facilities where HBB is the accepted and routine way to deliver babies.

HBB equipment: Three key partners—USAID, the MOHFW, and UNICEF—have collaborated to procure equipment for the HBB initiative, while BSMMU has worked with the MOHFW to move equipment from the Central Medical Storage Depot to district-level facilities. The lack of problems in this process is a testament to solid funding, partners delivering on their commitments, a strong procurement process, and excellent planning. The storage of HBB equipment in a Plexiglas box in the delivery wards and operating theaters is an excellent innovation that facilitates the use of the equipment and elevates the profile of HBB. The problems with HBB equipment pertain to its utilization (i.e., providers making minimal use of practice equipment) and not its supply.

Supervision: While HBB training is the necessary first step in strengthening a provider's resuscitation skills, effective supervision (i.e., assessing, teaching, and mentoring) is needed for a provider to become truly proficient. HBB stakeholders in Bangladesh agree that supervision of HBB is not effective, and they recognize this as a major barrier to achieving an impact on newborn mortality. Although the pending introduction of the HBB Refresher Training is intended to strengthen supervision of HBB, it is not clear how effective it will be or even if it can be implemented as designed. Program planners often view supervision as an aspect of programming that should be done through the system. However, it might require a creative approach outside the system that is funded through an unsustainable source in order to establish an effective model for supervision and mentoring of HBB.

Monitoring: When rolling out HBB, health program managers face a choice with regard to monitoring. They want information that allows them to understand how the intervention is performing, but the current HMIS usually offers little or no information that they can use. Programmers must therefore choose either (1) to introduce a parallel information system—outside of the HMIS—that generates the data that they want, or (2) to scale up the intervention without the benefit of monitoring data. Each approach has its advantages and disadvantages. If the choice is made to develop a parallel information system, the advantages are that data will be under the control of the program, and the data collection activities should heighten the profile of the intervention. The disadvantages are that (1) the data quality will almost certainly be low (health workers are not enthusiastic about collecting extra, unofficial data) and (2) the data may be misinterpreted, used ineffectively, or not used at all.

HBB managers in Bangladesh made a conscious choice to not introduce a parallel HBB-HMIS and instead to introduce resuscitation indicators over time in the main HMIS. The HBB program eventually decided that some monitoring information was required to guide the program as it moves past the initial scale-up. As a result, the NCSS has been initiated two years after the start of the HBB rollout. The NCSS is, perhaps, a compromise between the two approaches outlined above—that is, a limited, externally driven effort that will focus on data quality and provide information about the overall initiative. It might have been preferable to introduce the NCSS a year earlier, and care will still be needed to ensure that it generates data of sufficient quality to be useful. The NCSS will only be conducted in eight out of the 64 districts in Bangladesh; thus, the majority of districts and facilities are left without specific information for monitoring their own performance. Personnel in some facilities have demonstrated interest in gathering information about their own performance of HBB. Guidance from the HBB program would be useful and appropriate.

Phase Three: Institutionalization of HBB

Institutionalization is the third phase of rolling out HBB. Although it is presented as a discrete, sequential phase, in reality the foundation for the institutionalization of an intervention is laid during the first phase (preparation for scale-up) and continues to be strengthened during implementation. This final phase of the scale-up model looks toward the future of the intervention and includes issues such as the assessment of the implementation status of HBB, the integration of HBB into existing systems, and sustainability.

ASSESSING IMPLEMENTATION STATUS OF HBB IN BANGLADESH

Many aspects of the implementation of the HBB initiative in Bangladesh have been assessed in the process documentation and the HBB evaluation conducted by icddr,b. The latter assessment provides valuable information about the performance of the HBB initiative during its first two years. Some observations by HBB stakeholders are noted below:

Planning for geographic coverage of HBB, as documented in the HBB Scale-up Plan, was well-conceived and has proceeded according to schedule—a substantial achievement in a country as large as Bangladesh, especially given the compact implementation timeline.

There is a very important difference between (1) geographic coverage of HBB training and equipment provision and (2) coverage of asphyxiated newborns with effective performance of resuscitation. The latter measure is much more important because it drives reduction in newborn mortality. Although it is relatively easy to measure and achieve coverage of training and equipment—and Bangladesh has certainly performed well on this indicator—it is much more difficult to meaningfully measure and achieve coverage of effective performance of resuscitation. The icddr,b evaluation provides some information about the degree to which coverage of effective resuscitation has been achieved, although absolute coverage of all asphyxiated newborns in Bangladesh is minimal due to the low percentage of births that are attended by SBAs.

Stakeholders also noted that HBB appears to have improved the quality of resuscitation practice and ENC at the observational level in the following ways:

- There is an improved focus on prioritizing actions during the Golden Minute. The *HBB Action Plan*, which shows how to manage newborns during the first minute of life, has been well received by Bangladeshi SBAs.
- Providers have found the penguin sucker to be useful and much easier to use than the rubber bulb suction device that was used previously.
- HBB emphasizes skin-to-skin practice immediately following birth and thereby has enhanced this component of standard ENC.
- The availability of the ambu bag and mask was previously low in district and sub-district hospitals in Bangladesh but has greatly improved following the introduction of HBB. Providers who used to resuscitate newborns using mouth-to-mouth respiration are now making regular use of the ambu bag.

Key Findings from the Evaluation of the HBB Initiative in Bangladesh

Under a sub-contract from Save the Children, the Centre for Child and Adolescent Health at icddr,b conducted an independent system evaluation of the HBB initiative in Bangladesh.²¹ The evaluation assessed various aspects of the HBB program in Bangladesh in terms of inputs, coverage, and quality of care during the first two years of the rollout, from August 2011 to July 2013. The evaluation was based on a randomized controlled cluster design and consisted of two components—health facility and community. Data were collected for one year in each component, before and after the provision of HBB training and equipment. Data collectors were non-clinicians who were trained to observe and record key provider actions during labor and delivery. A baby who was not crying at birth was considered to be in need of assistance. Seventy-four percent of observed newborns did not cry at birth. Key evaluation indicators were calculated using this group as a denominator.

Among the facility-based providers who were observed, hand washing practices before delivery did not improve after HBB training. The availability of resuscitation equipment was high in intervention facilities at baseline and increased slightly over the study duration. The practice of drying babies at birth was high in both study groups (i.e., intervention and control) at baseline and was maintained throughout the evaluation period. Among babies who did not cry at birth, the percentage who were suctioned or stimulated increased over the study duration in both groups; the percentage who were managed with the bag and mask declined slightly in both groups. The percentage who were managed in correct sequence according to the HBB protocol within 60 seconds of birth increased in both groups over the duration of the evaluation, but was less than 10 percent at all stages following the HBB training.²² Nurses practiced higher rates of stimulation, suctioning, and bag-and-mask ventilation compared to other types of providers. Higher rates of resuscitation management were also observed in high-volume hospitals (>100 deliveries per month) compared to lower-volume facilities.

Overall, the evaluators concluded that the observed changes in newborn resuscitation practices following the introduction of HBB were not significant. The evaluation team postulated that the lack of improvement in quality of care may have been due to the lack of systemic support of the HBB initiative and noted the limitations of a programmatic strategy such as the HBB initiative (as implemented to date in Bangladesh), which relies primarily on training. The evaluation was conducted at an early stage of the HBB rollout and preceded the introduction of supervisory checklists and the HBB Refresher Training. These systemic inputs are now considered necessary to strengthen skills and practices, given that the HBB initiative is being implemented within the MOHFW's MNH program, where routine supervision systems are not considered to be strong. Some HBB stakeholders believe that the evaluation results can be explained by the fact that a new intervention such as HBB must be institutionalized before it can achieve impact. They note that the work environment was not changed as part of the HBB initiative, that there are no concrete incentives for providers to change their practice of resuscitation management, and that the intervention will begin to show impact in the near future.

²¹ System evaluation of scaling-up of Helping Babies Breathe (HBB) intervention in facility and community settings in Bangladesh. Centre for Child and Adolescent Health, icddr,b. December 2013.

²² The increase in correct and timely management was slightly higher in the intervention facilities as compared to control facilities among babies not delivered by cesarean section.

Status of Horizontal and Vertical Aspects of Scale-Up of HBB in Bangladesh

One nontraditional way to assess the status of a scale-up initiative—no matter whether the scale-up is vertical and/or integrated—is to think of scale-up as having horizontal and vertical characteristics. Horizontal scale-up means achieving coverage and reaching facilities and providers; key features include in-service training and pre-service education, equipment, and supervision/mentoring. Vertical scale-up involves making progress in establishing the intervention in less quantifiable areas of the health system, such as in policy, monitoring, and financing. Progress through October 2013 in both aspects of the HBB scale-up is summarized in Table 2.

Table 2. Status of horizontal and vertical aspects of the HBB scale-up in Bangladesh

Scale-Up Feature	Status Through December 2013
Horizontal	
In-service training	More than 95 % of MOHFW SBAs had been trained in 55 of 64 districts through December 31, 2013. Providers in some NGO facilities had been trained, but the extent to which they effectively practice HBB techniques is not clear. Plans to train a limited number of SBAs in private facilities have not yet been realized.
Pre-service education	HBB has been included in PSE curricula for all relevant cadres. It is unclear what percentage of current students is participating in effective HBB educational activities that include both theoretical and practical components in classroom and hospital settings. The HBB program does not conduct supportive supervision at the PSE sites.
Equipment	Both practice equipment and service equipment have been provided as planned immediately following HBB training in all facilities where providers have been trained. Some practice equipment is not easily accessible to those who should use it to practice.
Supervision and mentoring	Very little effective supervision and mentoring of HBB appear to have taken place during the first two years of the scale-up. Current efforts are under way to strengthen this aspect of the HBB initiative through the HBB Refresher Training program.
Vertical	
Policy	HBB has been incorporated into policy and strategies and is included in relevant policy documents as they are periodically revised.
HMIS	The HBB program in Bangladesh chose not to develop a parallel information system for HBB. The inclusion of resuscitation indicators in the HMIS is being pilot-tested by the DGFP. HBB program managers require monitoring information that can be used to guide the HBB initiative; this has led to the development of the Newborn Care Surveillance System, which was introduced in October 2013.
Financing	The MOHFW has not provided dedicated funding for recurrent HBB expenses.

INTEGRATION OF HBB

The AAP developed the HBB intervention to improve management of birth asphyxia in order to reduce high rates of neonatal mortality due to asphyxia. HBB is thus vertical by design, although the HBB approach does encompass other aspects of ENC. Countries that adopt HBB are expected to integrate HBB into the broader continuum of ENC/MNH systems and services, as appropriate based on in-country considerations.

Although HBB was introduced as a vertical intervention, in order to accelerate its adoption Bangladesh has sought to integrate HBB into existing MNH systems. The current status of the integration of HBB into key components of the health system is described below.

Inclusion of HBB in MOHFW policy and strategic documents

- HBB has been adopted as official MOHFW policy and has (or will be) included in all relevant policy and strategic documents.

Integration of HBB in pre-service and in-service training

- HBB has been integrated into PSE for physicians, nurses, midwives, FWVs, and CSBAs.
- ENC content has been added to the HBB training materials as a supplement, strengthening providers' understanding of newborn resuscitation as an element of ENC.
- HBB has not yet been included in in-service training curricula for physicians and nurses, although there is a plan to incorporate it into training for emergency obstetric care, integrated management of childhood illness, and other aspects of newborn health. The Emergency Triage Assessment and Treatment course curriculum has recently been revised and HBB has been included.

Integration of HBB in monitoring and supervision

- Pilot efforts are under way to integrate HBB into MOHFW monitoring and supervision systems.
- The DGFP is conducting a field test of a newly developed maternity register to collect information on a provider's performance of resuscitation with the potential to scale it up eventually into the permanent HMIS.
- The NCSS was established to collect information about HBB performance and other aspects of ENC. This is a short-term initiative that is not related to nor integrated into the MOHFW HMIS.
- The HBB Refresher Training is being promoted through the HBB Revisit Program as an attempt to strengthen supervision of HBB through the MOHFW supervisory system.

Integration of HBB into routine delivery services

Physicians, nurses, midwives, FWVs, and CSBAs who have been trained in HBB are the main providers of maternity services in Bangladesh, demonstrating the integration of HBB into routine maternal service delivery.

Integration of HBB into procurement and logistic systems

At the national level, once the donor-procured HBB equipment is delivered to the Central Medical Storage Depot, it enters the MOHFW's nationwide distribution system. However, from there the equipment is transferred to BSMMU, which handles the distribution to districts through its own channels. District health authorities then distribute the equipment to facilities and providers in the district. The distribution of HBB equipment is thus partially but not fully integrated into existing MOHFW distribution channels.

Integration of HBB into MOHFW funding mechanisms

USAID funds the entire cost of training for the HBB rollout in Bangladesh. USAID and UNICEF fund all HBB equipment costs except for taxes. The MOHFW has been responsible for payment of the VAT and other taxes for equipment and also has provided venues and local human resources for management of training at the district and UHC levels. Up to this stage of the scale-up, the MOHFW had not integrated routine funding for HBB into its financial and planning systems. However, the MOHFW's inclusion of HBB in the Maternal Neonatal Child and Adolescent Health Operational Plan indicates its intention to integrate HBB into its financial systems in the future.

SUSTAINABILITY OF HBB IN BANGLADESH

No aspect of sustainability is as important as the sustainability of positive change. In the case of HBB, this means sustaining improved management of non-breathing newborns. As noted above, there is no evidence at this time that management of asphyxia has improved in Bangladesh following the scale-up of HBB.

Other aspects of the sustainability of HBB are intertwined with and supported by its integration into the MNH service framework and the overall health system. Increased integration of an intervention such as HBB contributes to its becoming an accepted, sustainable approach to providing a service. As such, the status of HBB with respect to the system elements that were discussed in the preceding section on integration—policy, medical education and training, monitoring and supervision, routine services, and procurement and logistic systems—contributes to (or detracts from) the long-term sustainability of HBB.

For HBB to be truly sustainable it will need to be included in all training courses for skilled attendants and midwives, and the public health community will need to consider it an indispensable part of the ENC package. Long-term sustainability of HBB will also require dedicated, recurrent funding through the MOHFW budget. Given the nature of the HBB intervention, funding will be required for periodic in-service training, provision of new and replacement equipment, and mentoring and supervision. At this time, donors fund HBB training and most of the costs associated with procurement of HBB equipment, and while the MOHFW supports supervision, this activity is not being performed effectively at present. It is unclear when the MOHFW will be able to provide adequate funding to ensure the sustainability of HBB.

CONCLUSIONS: INSTITUTIONALIZATION OF HBB IN BANGLADESH

Implementation status of HBB through December 2013: The HBB evaluation in Bangladesh conducted by icddr,b did not find evidence that the first two years of the HBB initiative resulted in notable improvement in providers' performance of resuscitation management for newborns. This result mirrors a finding of “no change” from the evaluation of the HBB scale-up in Malawi.²³ The result is also similar to results of a recent study in Tanzania that found that HBB training resulted in improvements in provider performance of simulated newborn care and resuscitation but not improved clinical practice.²⁴ Although efforts have been made to incorporate HBB into many aspects of the health system in Bangladesh, to date the HBB initiative has focused primarily on training and equipment. It seems that this is not enough to achieve the impact on newborn mortality for which HBB was designed. It appears that taking HBB to scale introduces systemic factors that, if not effectively addressed, may inhibit achievement of the goals of the intervention—at least during the early stages of scale-up. In the context of the HBB scale-up effort in Bangladesh, overcoming these factors may require providing post-training support to providers to ensure that they practice their skills regularly, making sure that providers are ready to apply their skills whenever needed, and generating accurate and useful monitoring data.

A summary assessment of horizontal and vertical components of the HBB scale-up in Bangladesh reveals notable gains in in-service training, equipment provision, and policy development. The incorporation of HBB into pre-service education and financial systems is a work in progress, and much work remains to be done to develop structures—in the context of an

²³ Gupta S et al. 2013. Evaluation of the Helping Babies Breathe (HBB) Initiative in Malawi: Results from the first round of data collection: July 2013. JHPIEGO and Malawi MOH.

²⁴ Ersdal HL, Vossius C, Bayo E, Mduma E et al. 2013. A one-day “Helping Babies Breathe” course improves simulated performance but not clinical management of neonates. *Resuscitation* 84: 1422–27.

overall weak health system—for effectively monitoring HBB and mentoring and supervising the SBAs who have been trained in its procedures. The HBB program has perhaps achieved slightly more in terms of horizontal scale-up than in terms of vertical scale-up. Overall, the HBB program has made strong progress—albeit progress that does not appear to have resulted in impact—after only two years of a massive scale-up effort. HBB managers have identified weak points in the program and are attempting to strengthen them.

Integration: The integration of an intervention such as HBB into different components of the health system contributes to its long-term sustainability. For an important intervention like HBB, which holds potential for immediate impact, a vertical rollout supported by efforts to integrate the intervention within the health system is a sound approach. In Bangladesh, there has been significant progress integrating HBB into policy, education and training, routine services, and funding mechanisms. Progress integrating HBB into MOHFW monitoring and supervision systems has been limited, but current efforts in these areas could strengthen the integration of HBB in the near future. Further efforts are also required to integrate HBB into in-service training materials.

Integrating a lifesaving intervention into a health system that has limited functionality raises a question for programmers: is it preferable to integrate all aspects of the intervention in order to achieve sustainability, or might it be preferable at times to implement the intervention vertically while simultaneously supporting the strengthening of the health system? Pursuing concepts such as integration and sustainability as ends unto themselves can work against the short- and long-term effectiveness of the intervention.

Sustainability: HBB program managers in Bangladesh note that achieving the ultimate goal related to sustainability—sustainability of widespread high-quality performance of neonatal resuscitation among health workers—might require trade-offs between classic definitions of sustainability and approaches to its achievement. It might not be possible to develop high levels of competency without short- and medium-term inputs from outside the routine MOHFW health system to help providers develop and retain skills. Given the finding from the HBB evaluation that shows no improvement in asphyxia management between intervention and control districts, one might ask what there is to sustain at this point. Sustaining process or systemic elements of the intervention makes little sense if impact is not being achieved.

Another issue with regard to the long-term sustainability of HBB in Bangladesh is MOHFW funding. It is unclear whether (or when) the MOHFW will be able to provide dedicated funding to support the key activities that underpin HBB, such as equipment provision, district-level supervision, and in-service training. The provision of MOHFW funding dedicated to HBB would be an important component of long-term sustainability.

Recommendations

This report describes a carefully planned, well-coordinated, and commendably implemented initiative to improve the management of resuscitation of asphyxiated newborns through the scale-up of the HBB approach in Bangladesh. By far the most intensive inputs have been in the design and implementation of a national training effort and the provision of high-quality equipment to facilitate providers' performance of resuscitation. Additional inputs have been made in intervention components such as supervision, monitoring, and curriculum development.

Despite the best efforts of HBB stakeholders, it does not appear that the implementation of the HBB initiative, as implemented in Bangladesh to date, has or will result in major improvements in the management of resuscitation leading to reduced newborn mortality. The driving assumption of the HBB initiative during its rollout phase—that a strong training component and timely provision of equipment, supported by the MOHFW management system, will result in strengthened resuscitation management—has not proven true. HBB program managers in Bangladesh are well aware that additional strategies and program activities are required for the initiative to achieve impact, and they are working to strengthen the design and implementation of the initiative. Although some stakeholders have noted that the program needs to mature before it can be expected to achieve impact, it is not likely that such maturing will happen on its own. Indeed, it could equally be argued that any progress achieved to date could attenuate over time, as the initial enthusiasm from the introduction of HBB wanes. Basic assumptions need to be examined to determine what must be done to instill in birth attendants a drive to apply their new knowledge and skills. Issues for programmers to consider may include how to encourage providers to believe that their efforts in resuscitation matter; how to help them achieve the required competence to provide high-quality resuscitation; and how to instill in them the confidence that they can do what is necessary to achieve desired outcomes in most cases. Many of these inputs will need to come from within the workplace, as they are not factors that can be influenced effectively by external sources.

HBB is an intervention that will require continued nurturing and strengthening well past the initial scale-up if it is to achieve its intended impact. While the process documentation of the HBB scale-up in Bangladesh described in this report is not intended to be an evaluation, the findings of the PD provide a strong basis for developing and presenting recommendations to guide the next phase of the HBB scale-up. The recommendations below reflect the views of stakeholders and the consultant regarding what the HBB program in Bangladesh should focus on in the near future.

OVERARCHING RECOMMENDATIONS

- 1. Identify partners and secure inputs for the consolidation phase of the scale-up.** HBB will have been introduced in all 64 districts of Bangladesh by March 2014. The HBB scale-up will then enter its second phase, during which it will consolidate its gains and address its weaknesses. HBB program activities are currently funded through September 2014. The HBB program should identify new partners and sources of funding to support an ambitious plan to enhance the effectiveness of the HBB intervention during its second phase (over the coming two to four years) while maintaining broad support for HBB among local stakeholders.
- 2. Create expanded opportunities for operations and implementation research.** The HBB program in Bangladesh should leverage the strong execution of the scale-up and the wealth of in-country research expertise to conduct operations and implementation research on scale-up strategies for HBB, including mentoring and supervision. Positioning the HBB rollout in Bangladesh as a learning laboratory for scaling up clinical interventions will generate important findings—for HBB and scale-up efforts in general—that will have global applications. Funding should be readily available for well-conceived research initiatives.

3. **Target resources strategically.** Following the initial rollout, the HBB program will need to become increasingly strategic in its determination of where to focus inputs and efforts in order to achieve maximum impact with limited resources. Resource allocation should be based in part on a pragmatic assessment of the potential for HBB to achieve impact on newborn mortality in various sub-sectors of the delivery milieu, including NGO and private clinics and public-sector CSBAs. Costs of different strategic approaches should be weighed against factors such as the anticipated caseload of asphyxiated newborns and the quality of the asphyxia management provided.
4. **Secure dedicated MOHFW funding.** The sustainability of HBB is strengthened notably when the MOHFW commits funds to meet recurrent costs for its implementation. Partners should work with the MOHFW to develop a mechanism for the MOHFW to gradually take responsibility for recurring program costs.
5. **Sharing data and generating enthusiasm for HBB.** The results of the Bangladesh HBB evaluation will soon be published. In addition, the NCSS will soon begin to generate data on a regular basis that describe the status of the program. The HBB program should find a way to share the results of these efforts with all concerned stakeholders. One option would be to publish a newsletter on a bimonthly or quarterly basis that shares findings from monitoring and evaluation activities and highlights other program activities. Such a newsletter could be distributed to all district and sub-district offices and facilities and would help to maintain its profile while generating enthusiasm for further strengthening the initiative.

COMPONENT-SPECIFIC RECOMMENDATIONS

1. **Strategically increase the potential for impact through in-service training.** Because of the relatively high proportion of SBA-attended deliveries conducted in private and NGO clinics, the HBB program offered training to selected providers from these facilities. The HBB program should assess how effectively these providers practice HBB after they are trained and base future investments in these providers on the benefits that result. HBB should also be integrated into any appropriate MOHFW in-service training curricula that are used to train public-sector SBAs on a recurrent basis.
2. **Assess the quality and effectiveness of pre-service education.** The HBB program has taken initial steps to integrate HBB into PSE for different cadres of SBAs. The program should assess the quality of HBB education during the various stages in the PSE process and determine which stages need to be strengthened to produce providers who can practice HBB effectively. The assessment might focus on tasks such as describing the current status of activities within the PSE sector, determining the adequacy of the skills laboratory, describing the learning techniques that are being used (with an additional focus on the use of paired learning), and determining the HBB training status of preceptors who support students during their clinical tour. Based on the findings of the assessment, the HBB program should take action to support strengthening the PSE component.
3. **Develop and field-test approaches to strengthened worksite-based learning and mentoring.** Developing an effective approach to worksite-based learning and mentoring for HBB will be one of the most difficult yet most important tasks to pursue in the next phase of the scale-up. The HBB program should develop and test several approaches in order to learn more about what does and does not work. Experimentation and careful measurement are called for; this is a perfect area to pursue through operations research. The program should consider approaches that are sustainable as well as those that require unsustainable resources from outside the system.
4. **Ensure future supplies of HBB equipment.** The end of the first phase of the scale-up also marks the end of the mass distribution of HBB equipment to all participating providers

and facilities. The MOHFW should now begin to take increased responsibility for providing HBB equipment to MOHFW facilities, as the majority of future equipment needs will be for the replacement of nonfunctional equipment. The HBB program should also work with private suppliers of medical equipment to ensure that a steady supply of HBB equipment is available in the market for purchase by private and NGO facilities.

5. **Determine how supervision can best contribute to program performance.** SBAs who have been trained in HBB must be effectively supervised in their performance of HBB-related activities. There is some overlap between supervision and worksite training and mentoring. HBB managers should determine how these activities can best be implemented and how they reinforce each other, and strategize accordingly. The potential roles of BSMMU and/or the MOHFW in this activity should be considered. Based on these decisions, a monitoring and supportive supervision plan should be developed for the next phase of the rollout.
6. **Help facilities self-monitor their HBB performance.** The HBB program is focusing most of its current monitoring efforts on the NCSS, with a parallel initiative to incorporate resuscitation indicators into the HMIS. In addition to these ongoing activities, the HBB program should offer guidance and technical assistance to facilities that show an interest in monitoring their own performance of HBB. Such guidance could include a template for an HBB register (or how to adapt the existing maternity register to record information about resuscitation management), a simple spreadsheet that could be used to calculate basic indicators of resuscitation management, and instructions for how to analyze and interpret the data. Alternatively, the NCSS could be adapted for use by health facilities that show an interest in independently monitoring their own performance.

Appendix: Overarching Observations and Lessons Learned

The following observations and lessons learned are framed on the model of determinants of successful scale-up efforts proposed by Yamey.²⁵

CHARACTERISTICS OF THE INTERVENTION

1. **Simplicity of the intervention:** Many stakeholders in Bangladesh noted that HBB is a straightforward intervention and that it simplifies and orders the tasks that a health provider should perform during the first minute of a newborn's life. The structure of the HBB training—user-friendly, competency-based—makes it easy even for inexperienced trainers to train others in resuscitation. In addition, the short, focused nature of the HBB training course facilitates its implementation and effectiveness. The simplicity of the HBB intervention contrasts sharply with the complexity of rolling it out effectively. The multiple systemic components of the HBB rollout that must be considered transform a relatively simple intervention into a complicated and challenging scale-up exercise—a challenge that is exacerbated by the relatively weak health system in Bangladesh.
2. **Technically robust intervention:** Ensuring that interventions are grounded in evidence—and perceived to be so—supports a successful rollout. Widespread consensus had developed within the public health community in Bangladesh that the evidence supported HBB as a viable, effective intervention. The roots of this consensus lie in part in the HBB pilot test in Bangladesh and in the dissemination of results. Professor Shahidullah from BSMMU is the leading spokesperson within the neonatal public health community in Bangladesh, and he has championed HBB in his role as Principal Investigator for the HBB Pilot Study. Professor Shahidullah is credited with establishing the field of neonatology in Bangladesh. He has demystified the issues surrounding HBB and has made sure that all stakeholders have been part of the decision-making process with regard to HBB. It is in good part as a result of his support that there is consensus in Bangladesh regarding the effectiveness of HBB.

CHARACTERISTICS OF THE IMPLEMENTERS OF THE SCALE-UP

1. **Strong leadership:** The leadership for HBB in Bangladesh has been spearheaded by the Minister of Health and Family Welfare and is supported by a broader group of individuals and organizations that provide leadership for all neonatal health issues. The professional groups and public health community that support neonatal health in Bangladesh are quite sophisticated and are more active than groups that support other aspects of maternal and child health there. A Newborn Technical Working Committee for Newborn Health was recently formed by MOHFW order. It reports to the Newborn Core Committee, which in turn reports to the Minister of MOHFW. The NTWC-NBH is chaired by Professor Shahidullah and includes members from a wide variety of stakeholders. The NTWC-NBH is careful to work closely with the MOHFW and keep the MOHFW's role in the forefront. The NTWC-NBH has championed HBB from its early stages and has advocated for its adoption with the NCC. The NCC, when it sees consensus in the NTWC-NBH, tends to adopt its recommendations. In summary, the HBB experience in Bangladesh suggests that for effective leadership, the MOHFW should be at the forefront; there should be a working committee that informs the ministry; and there should be one or more professional societies that support the process. One key informant noted that, "It's important to have a local

²⁵ Yamey G. 2011. Scaling up global health interventions: A proposed framework for success. *PLoS Med* 8(6): e1001049. doi:10.1371/journal.pmed.1001049

champion; we are not just going to buy into HBB because of the brand.” The MOHFW and Professor Shahidullah have served as local champions in Bangladesh.

2. **Engagement of local stakeholders:** The engagement of local stakeholders is important for gaining allies in scale-up efforts and avoiding unnecessary opposition to the intervention. In the case of the HBB scale-up in Bangladesh, all relevant local stakeholders, including representatives of all of the major professional medical societies (e.g., anesthetists, neonatologists, and obstetrician-gynecologists), were involved from the earliest stages of planning for the scale-up. Another key aspect of building awareness was the HBB Pilot Study in 2010. Bangladesh needed to have an experience of its own to build on and use to rally interest before committing to the scale-up. The pilot study demonstrated that even a primary-level health worker in Bangladesh can learn HBB skills by participating in two days of training. The high-profile dissemination of the pilot study results was crucial for building awareness at the national level. Organizers of the dissemination function invited the Secretary and the Minister of MOHFW, key donors, and senior mentors, as well as representatives of partner NGOs. In one of the dissemination activities, grassroots health workers shared their experiences and demonstrated their skills in resuscitation. The Minister of MOHFW was impressed and stated that HBB should be scaled up immediately, without waiting to pilot it. He appealed to development partners to support the scale-up. A final stakeholder group in the HBB initiative was district-level health providers and officials. These key implementers were effectively engaged through district-level orientation programs and training to serve as district trainers.
3. **Government and NGOs working as co-implementers:** Government and nongovernmental actors each bring unique perspectives and attributes to scale-up efforts; when they work together effectively, their achievements go beyond what either group could achieve working alone. In the context of the HBB scale-up in Bangladesh, the MOHFW, NGOs, medical professional societies, UNICEF, and quasi-governmental institutions such as BSMMU worked together seamlessly. The MOHFW provided overall leadership and a service delivery framework while the other actors supported the MOHFW with intensive efforts in all aspects of the scale-up.

DELIVERY STRATEGIES

1. **Phased scale-up models:** The literature suggests that scale-up models that build on a pilot program and are then rolled out in a phased manner have an increased probability of achieving success. The scale-up of HBB in Bangladesh has been implemented with a total of 12 steps planned for completion by March 2014. Implementation was preceded by a pilot test that assessed the impact of the HBB training on providers’ knowledge and skills, although it was not an operational pilot that tested the scale-up model itself. The team overseeing the scale-up has met on a periodic basis and has used lessons learned to modify the approach.
2. **Freedom to adapt the intervention model based on the local context:** Yamey suggests that granting local implementers the freedom to modify the intervention model increases the chances for a successful scale-up. The AAP encourages countries to propose modifications to the HBB model based on country context, but reserves the right not to approve them. The Bangladesh HBB team made a number of minor changes to the HBB materials and approach. These changes, described in the section on Adaptation of HBB Materials and approved by the AAP, include translation of the core materials into the Bangla language, a small change in the number of ties applied to the cord before cutting, and the addition of supplementary materials.
3. **Integrating scale-up activities into existing health systems:** While many scale-up efforts are vertical in nature—often out of necessity—the value of simultaneously

integrating the intervention into the existing health system is widely acknowledged. As described in Section 13 of this report, the HBB team in Bangladesh has introduced HBB vertically while preparing an integrated foundation within the Bangladesh health system to strengthen its mid- and long-term effectiveness. This combination of vertical and integrated approaches appears to be an appropriate compromise as the HBB program attempts to achieve a near-term impact on newborn mortality at a minimum cost while also ensuring the future viability of HBB.

CHARACTERISTICS OF THE ADOPTING COMMUNITY

1. **Engagement of health providers and administrators:** It is critical to engage the target group of an intervention in an effective manner if the scale-up is to achieve success. Resuscitation is a technical procedure that SBAs use in emergencies, if needed. As such, HBB is not a service or approach that community members will demand; the target groups that need to be convinced to adopt it are SBAs and their administrators at the district and facility levels.

Perhaps the most critical target group for the HBB intervention is SBAs who provide delivery services. This group has been engaged through the HBB training as well as through professional societies and educational institutions. The engagement of the professional societies has been highly successful and has resulted in unqualified support for HBB by all types of medical professionals. In the health facilities, SBAs who have been trained in HBB do not see it as a new task, but rather as a routine skill that previously was not being performed adequately and now can be performed to a higher standard, which will pay dividends in the future.

Creating awareness at the district level has also been crucial. The HBB team engages district-level stakeholders over and over again, every time they return to the district, building and strengthening awareness with each new visit. The district-level HBB Advocacy and Micro-Planning Meeting that is held in each district prior to the introduction of HBB is well-designed and achieves its goal of raising awareness and generating enthusiasm for HBB in the districts.

SOCIOPOLITICAL CONTEXT

1. **Country ownership and political will:** Country ownership and policy commitment (political will) contribute to the success of scale-up efforts. Country ownership is most effectively fostered when the host country firmly controls the policy and programming agendas and is not dictated to by partners or donors. HBB stakeholders note that in Bangladesh, the MOHFW and donors have arrived at a balanced relationship. Government is definitely in the lead, and donors are told that Bangladesh has a health sector plan and that donors are welcome to fund initiatives that fall within the plan. Donors are told not to go outside of the plan. In this way the MOHFW lets donors focus on their own priorities within a broader context of defined host-country priorities. In the case of HBB, donors rallied to support an intervention that was a particularly high priority for the Minister of MOHFW. Country ownership of the HBB initiative is high.

Political will can be thought of as support from political leaders that results in policy change.²⁶ As noted above, the HBB Pilot Study and the dissemination function that followed it were critical to creating political will for HBB in Bangladesh. The Minister of Health was the key central political figure who supported HBB publicly; indeed, HBB is often referred to as “the Minister’s project.” Although some aspects of health care have been politicized in Bangladesh (e.g., construction of community-level health facilities), newborn care has not.

²⁶ Odugbemi S, Jacobson T. 2008. *Governance Reform under Real-World Conditions*. Washington, DC: The World Bank.

The political will to support HBB can also be seen in the substantial contribution of the MOHFW to paying the VAT and other taxes for HBB equipment that is procured abroad and imported.

RESEARCH AND IMPLEMENTATION

1. **Incorporating research into implementation:** Researchers have noted the link between successful scale-up and ongoing research to guide the rollout process. This requires program specialists to be open to findings that suggest that the scale-up has strengths and weaknesses, and to be able and willing to redesign the intervention based on evaluation findings. The HBB evaluation in Bangladesh certainly qualifies as ongoing program research during scale-up. The MOHFW and its partners will soon have detailed evaluation results that should allow them to modify the intervention design based on empirical data.