5 YEAR REPORT 2012 - 2017

Guiding the way forward

survive & thrive

professional associations, private sector and global health scholars
saving mothers, newborns and children

Click for Tayeeba's story

Surviving and Thriving

Tayeeba was one of the first babies saved through this partnership. She needed help to start breathing and the birth attendant Sahkina was able to save her shortly after participating in the Helping Babies Breathe (HBB) program. Tayeeba's story inspired the many national trainers who gathered in 2012 for the rollout of the program in Bangladesh.

Today, Tayeeba is a thriving five-year-old; over 500,000 birth attendants in 80 low-resource countries have participated in the program; and there are likely thousands of happy birthday stories like Tayeeba's.

Key Achievements

- **Developed an evidence-based transformative training methodology for maternal and newborn care.**
- **Demonstrated that quality improvement approaches are essential to sustain quality care.**
- **Transformed the global landscape for basic newborn resuscitation.**
- **Increased access to lifesaving resuscitation and training equipment.**
- **Integrated Helping Babies Survive and Helping Mothers Survive into 30 national programs.**
- **Demonstrated that strong professional associations are a pathway to sustainability.**
- **Mobilized $120M in contributions from all partners, 45% of which was cash.**

Photo Credit Md. Kabirul Abedin

Foreword

Global Development Alliances (GDAs) are USAID's premiere model for public-private partnerships, helping to improve the social and economic conditions in developing countries and deepen USAID's development impact. Survive and Thrive built on the award-winning Helping Babies Breathe GDA which clearly demonstrated that this was an effective model for rapid global rollout of a health intervention. USAID and partners expanded the scope and membership of the partnership, Survive & Thrive, to include maternal, newborn, and child health interventions with even greater potential for contributing to the global goal of ending preventable newborn, child and maternal deaths.

The partnership enabled several professional associations, NGOs, and the private sector to come together and leverage assets, technical expertise, influence and program platforms, exemplifying the power of partnership. The partnership leveraged a total of $120 million during 2010 - 2017 mobilized highly skilled volunteers from U.S. medical professional associations and NGOs to train, mentor, and develop educational materials; empowered national professional associations; and catalyzed the private sector to conduct research and develop innovative equipment appropriate for low-resource setting. The implementing partners supported countries to scale up these materials and innovations to strengthen national programs. The development and roll-out of a transformative training methodology that integrated simplified simulation-based training packages with quality improvement processes and low-dose, high-frequency practice drills has been institutionalized and firmly embedded in many national programs.

I congratulate the partners of Survive & Thrive for building on the success of Helping Babies Breathe and working towards strengthening the capacity of health providers to care for newborns and mothers as part of national programs. The partnership has created a momentum that will continue well beyond the end of the Alliance.

Lily Kak

Senior Advisor for Global Partnerships and Newborn Health
US Agency for International Development

Executive Summary

The Challenge

Globally, approximately 300,000 maternal, 2.6 million newborn, and 5.6 million under-five child deaths occur each year, largely from preventable and treatable causes. Another 2.6 million babies are stillborn.

The majority of maternal, newborn and child deaths are preventable and treatable with existing, cost-effective tools and interventions. Practices in health facilities are often far behind evidence-based Maternal, Newborn and Child Health (MNCH) standards. There is a critical need to improve the quality of services in order to reduce preventable deaths, especially as the rate of institutional deliveries and care-seeking for sick newborns and children increase in many countries.

The Response

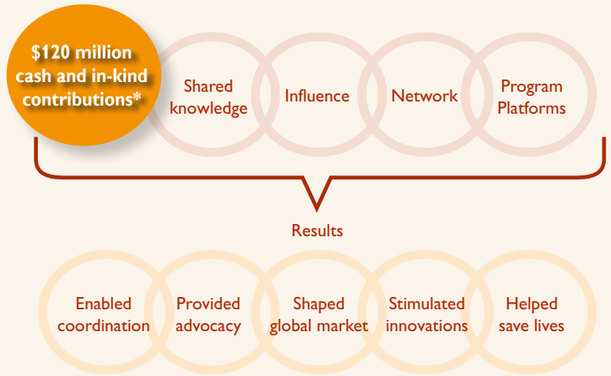
Survive & Thrive is a public-private partnership established by the US Agency for International Development (USAID) with pediatric, obstetric, and midwifery professional associations, the private sector and civil society to improve MNCH outcomes through clinical training, systems strengthening and policy advocacy.

Survive & Thrive builds upon the successes of the Helping Babies Breathe (HBB) GDA, which was formed in 2010 to address global challenges in newborn resuscitation.[1] Recognizing that the health and well-being of women and children are inextricably connected, the HBB GDA wanted to broaden its scope and partner base to improve maternal and child survival and tackle additional leading causes of newborn death beyond birth asphyxia. As a result, the Survive & Thrive (S&T) GDA was officially launched in 2012 at the Acting on the Call summit in Washington, DC.

1 Kak, Lily, Joseph Johnson, Robert McPherson, William Keenan, and Eileen Schoen. Editors. Helping Babies Breathe: Lessons Learned Guiding the Way Forward. link to this publication

The Approach

The partners agreed on two key objectives: (1) support, sustain and strengthen high-quality, facility-based interventions and clinical competencies through training, quality improvement (QI) approaches, and the application of effective technologies and innovations; and (2) mobilize and equip members of professional associations to improve the quality of high-impact MNCH interventions in health facilities and to be champions in MNCH.



The Tools

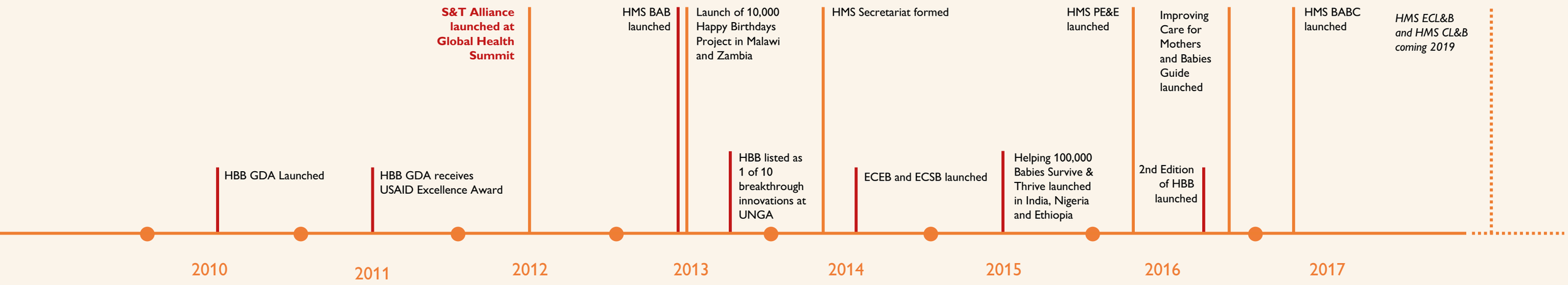
A lack of access to health services provided by trained, skilled health care providers correlates strongly with high global maternal, newborn, and child mortality rates.

Improving access to high-quality care provided by trained, competent, and equipped health providers is critical to save lives. Efforts by S&T partners responded to this global need by developing the following tools and resources:

- Helping Babies Survive (HBS) and Helping Mothers Survive (HMS) programs
- Improving Care of Mothers and Babies: A guide for improvement teams
- Professional Association Strengthening Manual
- Helping Mothers and Babies Survive Implementation Briefs

The Alliance utilizes the principle of country-led and country-owned initiatives, seeks the guidance and coordination of ministries of health, and involves host-country stakeholders in all Alliance activities. All activities are implemented within the national maternal and newborn health plan that is developed and owned by the participating national government.

Calendar of important milestones



The Achievements

- **Developed an evidence-based transformative training methodology for maternal and newborn care**
  The Helping Babies Survive and Helping Mothers Survive programs use an innovative, simulation-based approach enhanced by low-dose high-frequency practice, mentoring, and QI processes.
  The development and implementation of these educational modules have been informed by a rich body of scientific research studies conducted by multiple authors in many countries (see annotated bibliography on pages 33-43).

Large-scale studies that evaluated HBB programs in several hospitals in Tanzania and Nepal showed a 47% reduction in early 24-hour neonatal mortality and a 24% reduction in fresh stillbirths.

- **Transformed the global landscape for basic newborn resuscitation**
  The partnership influenced global policy on newborn resuscitation, shaped the global market for resuscitation devices, stimulated the development of associated innovations and educational materials, and was a powerful force for advocacy through the widespread reach of its partners' influence and networks.

  In seven countries (Bangladesh, Cambodia, Colombia, Ethiopia, Malawi, Tanzania and Uganda), governments and partners equipped up to 88 % of facilities with resuscitation devices and trained up to 75 % of health providers in neonatal resuscitation.

- **Global access to life-saving therapy and training equipment**
  From 2010 through 2018, S&T partners distributed 500,000 penguin suctions, 250,000 bag-mask resuscitators, 150,000 simulators, and almost 70,000 sets of learning materials to low-resource areas around the world.

  Global Health Media Project developed more than 90 training videos that have been narrated in 30 languages and have exceeded 90 million views online.

- **Integrated HBS and HMS training modules into national programs**
  More than 30 countries have adapted and integrated S&T tools into their national programs.

The Importance of Refresher Training

In 2011, Jhpiego conducted a literature review on teaching techniques which improve clinical practice. The evidence suggested that to change behavior, a combination of clinical simulation, skills practice, and feedback were needed. Repetitive interventions, rather than single interventions, were shown to be superior. Workplace learning improved skill acquisition and performance. These findings became the "low-dose, high-frequency" or LDHF approach: brief team-based simulation training at the facility followed by ongoing practice and other quality improvement activities to improve performance.

This methodology has been a large component of the implementation of the HMS and HBS programs.

- **Demonstrated that quality improvement approaches are essential to sustain quality care** A major contribution of the partnership was the integration of quality improvement processes in the training modules and the development of a quality improvement guide for frontline health workers.

- **Mobilized $120M in contributions from all partners, 45% of which was cash**

Best Practices Implementation of HBS & HMS programs

1. Secure Ministry of Health buy-in
2. Form a working group for planning, training, and monitoring
3 Develop national roll-out plan, for pre-service and in-service training, in both public and private sector
4. Provide learning materials and equipment at time of training
5. Identify and support local leaders and champions
6. Establish low-dose, high-frequency refresher training
7. Establish facility-level Quality Improvement teams
8. Collect and report local data on standardized indicators
9. Establish a system for reporting and feedback
10. Engage health care providers, families, and the broader community

link to this publication


PLOS ONE

RESEARCH ARTICLE

Successful implementation of Helping Babies Survive and Helping Mothers Survive programs—An Utstein formula for newborn and maternal survival

Abstract

Looking Forward

By placing a special emphasis on collaboration, strengthening health systems, improving the quality and availability of health services, and increasing the clinical capacity of providers to deliver skilled and respectful care, Survive & Thrive has played an important role in improving MNCH outcomes worldwide.

The lessons learnt in this alliance represent valuable stepping stones for future MNCH initiatives to

- leverage the opportunity of partnerships for increased impact
- capitalize on the evidence based educational methodology and materials developed by the GDA
- strengthen linkages to other Every Newborn Action Plan and WHO initiatives

Quick management of bleeding in Malawi

Shortly after Caroline Makoko gave birth to her son, she experienced profuse bleeding which threatened her life. Her midwives had been trained in the Helping Mothers Survive program and knew what to do to save her life.

Advocate for essential newborn care in Nicaragua

Dr. Katherine Guindo learned the importance of skin-to-skin contact and the significance of ongoing assessment of all newborns after her ECEB and HBB trainings.

Saved from pre-eclampsia and pre-maturity in Ethiopia

When Demewoz was pregnant she became pre-eclamptic and went into labor too early. She and her premature baby were both at high risk of dying. Her care provider detected pre-eclampsia and treated her. Both mother and baby survived and are thriving.

Born not breathing in India

After a prolonged delivery, Danjanay was born not breathing. Luckily, Nurse Suchitra had been trained in Helping Babies Breathe and saved Dananjay.

The Journey: From Surviving to Thriving

The Neonatal Resuscitation Program (NRP), developed by the American Academy of Pediatrics (AAP), is the global standard of care for newborn resuscitation. However, NRP is intended for advanced settings with well-equipped, fully-staffed hospitals during delivery. In 2004, LDS Charities (LDSC) and the Global Network for Women and Children's Health Research received permission from the AAP to develop simplified versions of neonatal resuscitation education. LDS Charities used their version to teach basic newborn resuscitation to health providers in low-resource settings. The Global Network used their version in "First Breath," the first randomized trial of simplified resuscitation training and essential newborn care in six countries. In 2006, AAP convened a team of experts to develop educational materials for newborn resuscitation that specifically designed for low-resource settings. HBB and NRP essentially teach an identical approach to assessing the newborn and taking appropriate action for newborns who have trouble breathing at birth.

The creation of the Helping Babies Breathe Global Development Alliance (HBB GDA) was a direct response to combatting newborn mortality. The United States Agency for International Development (USAID), the American Academy of Pediatrics (AAP), Laerdal Global Health, Save the Children, and the National Institute for Child Health and Development (NICHD) founded the HBB GDA in 2010. LDS Charities, Johnson & Johnson and USAID implementing partners joined the alliance in the following year.

The HBB GDA addressed the global burden of birth asphyxia through the creation and global dissemination of HBB. From 2010 to 2015, the HBB GDA influenced global policy, increased the uptake of newborn resuscitation in national programs, supported the creation of local and global resuscitation indicators, and increased the global supply of resuscitation equipment.

Following these successes, the HBB GDA wished to broaden its scope beyond newborn resuscitation to tackle the other major causes of newborn death and expand to include maternal and child survival. The Survive & Thrive (S&T) GDA absorbed the HBB GDA and expanded the scope of work.

The S&T GDA partners harnessed the expertise and innovation of professional associations, the private sector, and the public sector to ensure that mothers, newborns, and children across the globe can Survive & Thrive to their full potential. Experts from American, international, and national professional associations collaborated to strengthen clinical competencies and champion providers through training, quality improvement approaches, and professional association strengthening.

This mission was crafted at a critical junction in global health advancement as the Millennium Development Goals (MDGs) were transitioning into the Sustainable Development Goals. The S&T GDA brought together a broader menu of objectives and interventions focused on maternal, newborn, and child health with integration of quality improvement. Additional partners that signed on to the GDA included Jhpiego, the American College of Nurse-Midwives, the American College of Obstetricians and Gynecologists, Global Health Media Project, Project Cure, Sigma Theta Tau, International Pediatric Associations, and the American Heart Association.

The Programs

Multiple tools and resources were developed, enhanced, or produced by partners within the GDA. The core tools developed were a series of educational modules which addressed more than 75% of the causes for newborn and maternal mortality.

Critical learnings and best practices gleaned from implementation of these modules informed the development of new resources.

The HBS and HMS programs have a systems-based focus designed to improve clinical practices and strengthen country health systems. They can be used as stand-alone educational modules, integrated with one another, or integrated into a country's existing health infrastructure and are complemented by low-cost, purpose-built simulators.

Helping Mothers Survive

Developed by Jhpiego, Helping Mothers Survive (HMS) is a suite of educational modules which strengthen critical skills around pregnancy, labor, delivery, and postpartum care.

Consists of the following programs:

- Bleeding After Birth Complete (BABC) – skills training to prevent, detect and manage postpartum hemorrhage including management of shock and advanced care skills.
- Pre-eclampsia & Eclampsia (PE&E) – skills for detecting and managing pre-eclampsia and eclampsia focuses on correct assessment and classification of hypertensive disorders of pregnancy, administration of loading and maintenance doses of magnesium sulfate and antihypertensive medications, and management of convulsions.
- Threatened Preterm Birth Care (TPTBC) – skill building for identification of women likely to deliver a preterm baby within 7 days and the actions that can be taken prior to birth to improve survival.
- Essential Care for Labor and Birth (ECL&B) – skills to assess and manage labor and delivery in order to detect and prevent early signs of complications. Coming in 2018.
- Complicated Labor and Birth (CL&B) – skills training to classify and manage prolonged and obstructed labor and associated complications.

Helping Babies Survive

Developed by the American Academy of Pediatrics, Helping Babies Survive (HBS) is a trio of educational modules which address the three main causes of newborn mortality globally.

Consists of the following programs:

- Helping Babies Breathe (HBB) – teaches basic management of neonatal resuscitation, with a focus on quick identification of an asphyxiated newborn and getting the baby to breathe within the first minute after delivery.
- Essential Care for Every Baby (ECEB) – teaches essential newborn care practices for babies from birth to time of discharge from facility. It includes skin-to-skin care, initiation and maintenance of breastfeeding, essential care provided during the first hours of life, assessing for danger signs and proper referral procedures.
- Essential Care for the Small Babies (ECSB) – teaches the special care needed for small or premature babies. This includes alternative breast milk feeding options, thermal regulation, infection prevention, stabilization of baby for transport and home care guidance.

Antenatal Care	Labour Management	Birth	Postpartum Care	Newborn Care

Pre-eclampsia & Eclampsia addresses the second leading cause of maternal mortality.

Threatened Preterm Birth focuses on identifying women likely to deliver a preterm baby and the actions that can be taken prior to birth.

Essential Care for Labor & Birth and Complicated Labor & Birth focuses on how to ensure what starts out as a normal birth remains normal.

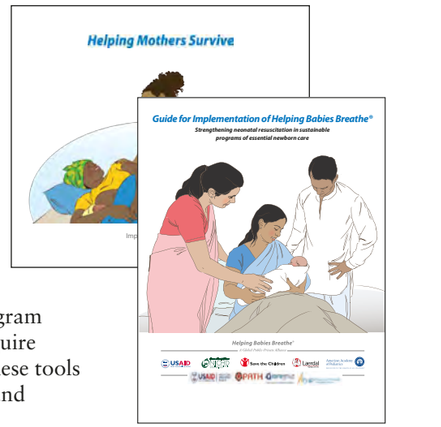
Helping Babies Breathe teaches the initial steps of neonatal resuscitation to save lives and give a much better start to many babies who struggle to breathe at birth.

Bleeding after Birth teaches active management of the third stage of labor, and early detection and basic management in order to reduce maternal deaths caused by post-partum hemorrhage.

Essential Care for Every Baby
Essential Care for Small Babies
teach essential newborn care practices to keep all babies healthy from the time of birth to discharge from the healthcare facility.

The Tools

Helping Mothers and Babies Survive Implementation Briefs



Over the course of the GDA, a need was identified to provide more formal support to country implementers in scaling-up HMS and HBS modules. Working with AAP, Jhpiego released a set of six briefs to address key topics. The GDA partners drew on extensive field implementation experience to prioritize and address the key areas in which program managers and implementing organizations often require additional guidance for successful programming. These tools are available for global use at no cost on the HMS and HBS websites.

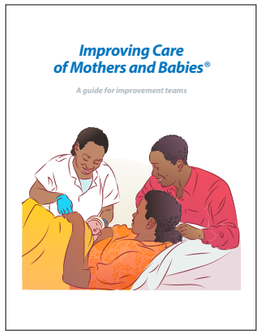
Global Health Media Video Series

The HMS and HBS training modules are complemented by over 90 videos produced by Global Health Media Project. These videos are organized in four series that cover small baby care, newborn care, breastfeeding, and childbirth.

Reach out of these video series:

- **30 different languages available**
- **90 million views online.**

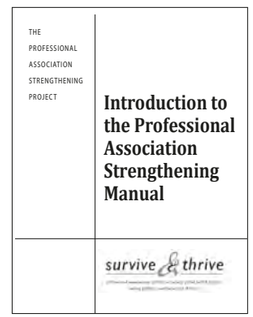
Improving Care of Mothers and Babies: A guide for improvement teams



An important component of the GDA is to ensure that quality improvement is part of the implementation and long-term sustainability of maternal and newborn care.

The AAP and the USAID ASSIST Project led development of Improving Care of Mothers and Babies: A guide for improvement teams. This guide was designed for providers who want to learn and apply special methods to improve the care they provide. This guide facilitates implementation of QI activities at the facility level.

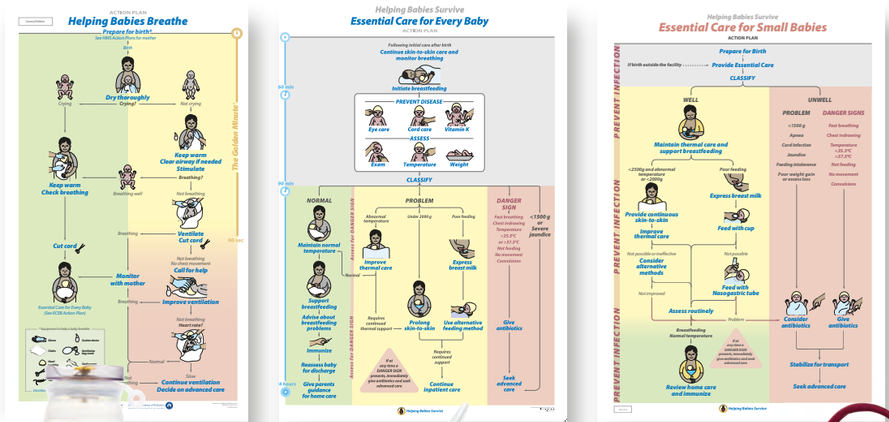
Professional Association Strengthening Manual



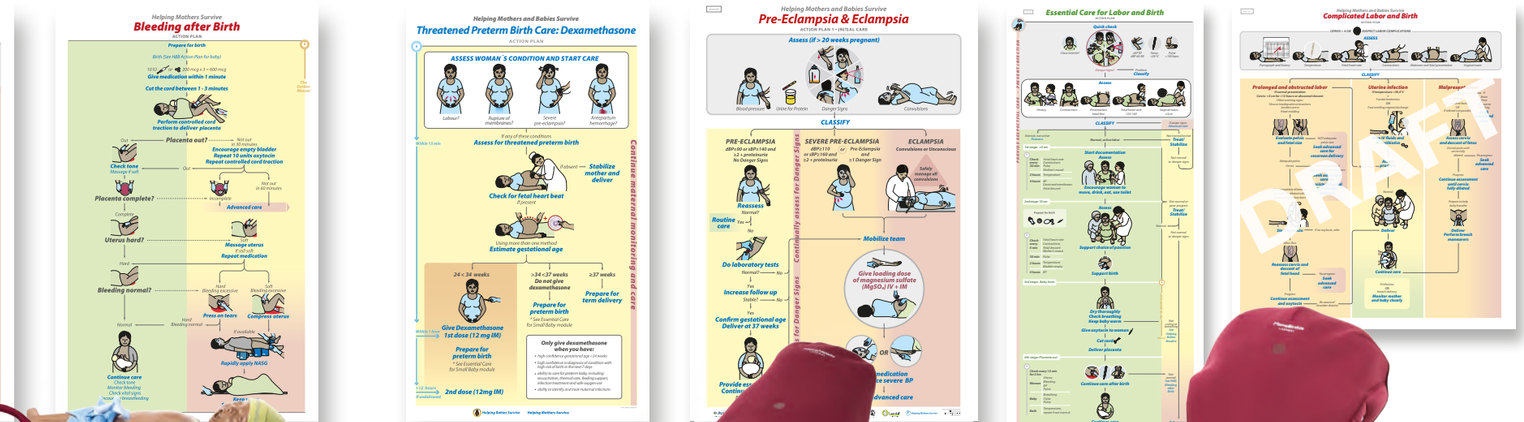
Led by ACNM, ACOG, and the ICM, the GDA developed and launched a manual designed to assist professional associations in strengthening their core competencies. The series of modules contain materials for strengthening the infrastructure of a professional association, enhancing its value to members, and increasing its impact within the health system and society.

Positive experiences from the impact of strengthening midwifery associations through the 10,000 Happy Birthdays project helped contribute to this manual.

The action posters of the HBS educational modules developed by the AAP



The action posters of the HMS educational modules developed by Jhpiego.



Training simulators and therapeutic products developed by Laerdal Global Health to support the educational modules.

Healthcare providers receiving master training in HMS BABC and HBB in Lusaka, Zambia during the launch of the 50,000 Happy Birthday Project.

The Achievements

Working together with partners across multiple countries, the GDA has achieved significant results and made a meaningful impact on the way care is delivered.

Developed an evidence-based transformative training methodology for maternal and newborn care informed by a robust body of research published in peer-reviewed journals

A key achievement of the GDA was the development and implementation of a suite of eight innovative educational modules that simplified and demystified complex clinical skills through simple pictorial materials. The educational modules used a simulation-based approach boosted by frequent drills called low-dose high-frequency practice, and QI processes. A combination of all these approaches empowered and trained over 500,000 health providers and was demonstrated to have improved retention of skills and provider performance long after the initial training.

The GDA worked to integrate the implementation of the HMS and HBS programs so that providers would have skills to care for the mother and baby holistically. This simulation-based, integrated approach will now continue as the gold standard for rolling out new maternal and newborn interventions at the country level. In Uganda, partners worked together to implement HBB and HMS-BAB in 125 facilities in 12 remote districts.

123 facilites in Uganda that went though the trainings saw a 17 % reduction in postpartum hemorrhage, 47 % reduction in retained placenta, 34 % reduction in intrapartum stillbirth, and 62 % reduction in early newborn death.

In Rwanda, GDA partners supported the government to introduce low-dose, high-frequency training, mentorship and quality improvement activities as part of a national scale-up effort. As a result, birth asphyxia has moved down to the second cause of neonatal death, rather than the first, in Rwanda.

Demonstrated that quality improvement approaches are essential to sustain quality care

A major contribution of the partnership was its development of the Improving Care of Mothers and Babies guide, a practical tool to engage frontline health workers in identifying and solving their local problems in quality of care. This approach combined with the HBB training reduced the mortality among asphyxiated babies by 73% in 206 USAID-ASSIST supported facilities in Mali.

Transformed the global landscape for basic newborn resuscitation

GDA efforts were responsible for the introduction of HBB in over 80 countries in partnership with governments, professional associations, and health providers.

Today, HBB is institutionalized in national health programs, has influenced national policies and guidelines, has encouraged procurement of essential supplies for resuscitation, and has brought visibility to birth asphyxia.

In Nepal, HBB implemented with a QI initiative increased the use of bag-mask ventilation from 0 to 84 % of asphyxiated newborns, decreased suction by 87 %, and increased stimulation by 62 %. The stillbirth rate dropped from 9 to 3.2 per 1000 deliveries and the early neonatal mortality dropped from 5.2 to 1.9 per 1000 live births (ref citation in annotated bibliography).

Nurse Eva helped Michael to breastfeed in Nakaseke, Uganda. Photo credit: Johnson & Johnson

Integrated HBS and HMS training modules into national programs

More than 30 countries have adapted and integrated the GDAs tools into their national programs. This is significant because national adaptation tends to support greater sustainability and support for the programs.

In Bangladesh, the Ministry of Health integrated HBS into their comprehensive newborn care package and rolled it out nationwide. 30,000 skilled birth attendants were trained on HBB and 85,000 health providers trained on essential newborn care, including 16,000 providers who received refresher training.

Between 2014-2017, Zimbabwe adopted 34 national policies, strategies and guidelines promoting perinatal and newborn interventions which included HBB, ECEB, and ECSB educational modules.

Nigerian health professional associations worked with the GDA partners to adapt and integrate the HBS educational modules into their national newborn care program. In addition, the ministry and other partners adopted the HMS PE&E module to address a leading cause of maternal death in Nigeria.

HBB was listed as one of ten breakthrough innovations for recommended further scale up in a PATH report presented by Ban ki-Moon to the UN General Assembly in September 2013.

Demonstrated that professional associations are a pathway to sustainability

Partners helped the Society of Obstetrics and Gynaecology of Nigeria, the Paediatric Association of Nigeria, and the National Association of Nigeria Nurses and Midwives (NANNM) to support the Federal Ministry of Health in Nigeria. The professional associations signed memoranda of understanding with the government and have actively trained and mentored health providers to improve the quality of services. The GDA partners worked with the Nigerian professional associations to adapt and integrate the HBS training modules into the national newborn program.

ACNM supported the Myanmar Nurses and Midwives Association (MNMA) in a multi-year effort to strengthen their association. The collaboration and support provided by the GDA, and other donors, to MNMA considerably increased the capacity of the association. The notable areas of improvment were:

- Enhanced ability to develop policy and strategy in the management and governance of the association.
- Reviewed and revised the constitution in accordance with best practices.
- Received membership to the International Confederation of Midwives.
- Increased their human resource capacity to carry out their mission.
- Fostered a stronger relationship with Ministry officials.

Another example of strengthening of professional associations is the ICM 50,000 Happy Birthdays program, described on page 28 of this report.

Mobilized $120M in contributions from all partners during 2010-2018.

Between 2010 to 2018, the partnership leveraged a total of $120 million by mobilizing multiple organizations to contribute monetary and non-monetary resources. These resources were used to raise awareness at the country and national level, develop key tools and resources, and many of the other key achievements reached in the GDA.

Increased the global demand and supply of life-saving therapy and training equipment

Survive & Thrive educational programs use low-cost, evidence-based, purpose-driven innovations that are integrated with learning materials and quality improvement measures. In order to support and sustain these high-quality facility-based MNCH interventions, GDA partners increased the demand and supply of lifesaving maternal and newborn care commodities.

Selected Country Cases - Click photos for full case reports

Bangladesh

GDA Lead: MCHIP
Time Period: 2013-2017

Highlights:
- HBS was adopted, adapted and institutionalized by the MOH as part of the national roll-out of prioritized newborn interventions.
- 30,000 SBAs trained on HBB, 85,000 health providers trained on ENC, 6,060 SBAs received refresher training on ENC.
- Best practice steps* 1, 3, 4, 7 & 8 have been implemented

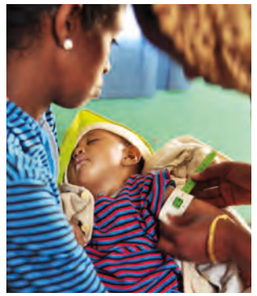
Next Steps: *A $50 million National Newborn Health Program (NNHP), included in the 2017-2022 health sector plan, will implement all prioritized newborn interventions included in the essential services package on a national scale.*

Democratic Republic of Congo

GDA Lead: MCSP
Time Period: 2015-2018

Highlights:
- Strengthened local professional associations to support providers.
- Developed an integrated maternal, newborn, and postpartum family planning training package. This package will be integrated into pre-service and in-service training.
- Best practice step* 4 has been implemented

Next Steps: *The MOH will validate the training package and MCSP will continue to support the implementation.*



Ethiopia

GDA Lead: AAP, ACNM, Save the Children, and Johnson & Johnson
Time Period: 2014-2018

- Providers benefitted from an HBS training cascade and QI measures - including the establishment of regional mentors - to build newborn health knowledge and skills.
- Service improvements in facilities led to a decrease in neonatal mortalityby 49%
- 90% of babies born not breathing at birth were resuscitated successfully, and stillbirth rates decreased from 14.5 to 11.1 per 1,000 live births.
- Best practice steps* 3, 4, 6, 7, 8 have been implemented

Next Steps: *The FMOH and partners plan to scale-up KMC services and strengthen the referral system to higher capacity "facilities"*

Haiti

GDA Lead: LDS Charities
Time Period: 2011-2017

Highlights:
- Trained over 1,000 HBB master trainers
- Translation of materials into Haitian Creole
- Over 6,200 health workers trained and equipped.
- Best practice step* 4 has been implemented

Next Steps: *Expand training to traditional birth attendants who are delivering over 50% of babies in Haiti.*

India

GDA Lead: NIPI (100,000 Babies) & ACOG (PAS)
Time Period: 2014-2017

Highlights:
- NIPI supported government to harmonize all training materials for neonatal and child health.
- Updated NSSK with HBB training methodology, including focus on low-dose, high-frequency training.
- ACOG supported FOGSI and created a batch of master trainers.
- Best practice step* 5 has been implemented

Next Steps: *The updated NSSK will be rolled out. Quality improvement and monitoring have been incorporated into this roll-out plan.*

* Best Practice steps are listed on p 9

Kyrgyzstan

GDA Lead: LDS Charities
Time Period: 2010-2017

Highlights:
- Implemented HBB, HMS BAB, ECEB, ECSB, and HMS PE&E.
- Strengthened Kyrgyz Midwife Alliance.
- Equipped all delivery facilities.
- Best practice step* 4 has been implemented.

Next Steps: *Scale up ECEB, ECSB, and HME PE&E. Incorporate HMS and HBS into national curricula.*

Malawi

GDA Lead: ICM and Laerdal
Time Period: 2011-2017

Highlights:
- MOH endorsed HBB in 2011 and agreed to national scale-up.
- The 10,000 Happy Birthdays project trained 3,000 midwives and midwifery students in HBB and HMS BAB.
- Best practice steps* 1, 3, 4, 5, 6 have been implemented

Next Steps: *The 50,000 Happy Birthdays is offering continued support of the progress made through the 10,000 Happy Birthdays project with the roll-out of additional training programs in both in-service and pre-service facilities.*

Mexico

GDA Lead: AAP and LDS Charities
Time Period: 2014-2017

Highlights:
- HBB integrated into midwifery, nursing and medical school curricula.
- Created HBB master trainers in three regions and equipped their institutions.
- Best practice steps* 2 and 4 have been implemented

Next Steps: *Clinical data collection will take place to evaluate neonatal health outcomes for all deliveries of those trained in pre-service.*

Myanmar

GDA Lead: MCSP, AAP, Laerdal, UNICEF
Time Period: 2015-2018

Highlights:
- MOH updated national newborn guidelines and training package and cascaded HBB.
- Launched Learning and Performance Improvement Center (L&PIC) for in-service capacity building.
- Best practice steps* 2, 3, 4, 6, 7, 8, 10 have been implemented

Next Steps: *Expansion of L&PIC to townships and launch of online platform for continued capacity building and refreshing.*

Nepal

GDA Lead: LDS Charities & UNICEF
Time Period: 2012-2018

Highlights:
- HBB ToT courses conducted in 5 regions.
- Over 700 trainers from 300 facilities have been trained.
- Best practice steps* 2 and 4 have been implemented

Next Steps: *Scale up of monitoring and QI activities and organization of training of trainers for additional HBS courses.*

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Shortly after Caroline Makoko gave birth to her son, she experienced profuse bleeding which threatened her life. Her midwives at the Chilomoni Health Center in Malawi had been trained in the Helping Mothers Survive program and knew what to do to save her life. Thanks to midwives Regina Kanyerere and Naomi Guba, Caroline survived and one less baby lost a mother.

Nigeria

GDA Lead: AAP, ACNM, MCSP, Save the Children, and Johnson & Johnson
Time Period: 2014-2018

Highlights:
- Adaptation and localization of HBS materials by the FMOH.
- 93 national level master trainers trained and rolled out to five zonal trainings.
- All training followed by post-training supportive supervision.
- All best practice steps* have been implemented.

Next Steps: *Step-down trainings planned to continue though 2018, and UNICEF has committed to implementing ongoing newborn training in 11 states.*

Pakistan

GDA Lead: MCHIP
Time Period: 2013-2017

Highlights:
- HBB training, supervision and mentorship in 16 districts in Sindh.
- Trained 1,500 SBAs from 750 health facilities.
- Best practice steps* 3 and 4 have been implemented

Next Steps: *Implementation of Provincial Newborn Plans.*

Rwanda

GDA Lead: MCSP
Time Period: 2014-2018

Highlights:
- Rolled-out LDHF training, mentorship, and QI activities for MNH.
- Trained providers in 12 hospitals and 160 health centers.
- Decreased proportion of live births with asphyxia from 2.4% in 2015, to 1.3 % in 2017.
- Best practice steps* 1, 2, 3, 4, 6, 7, 8, 9, 10 have been implemented

Next Steps: *Scale up to all 30 districts in Rwanda.*

Tanzania

GDA Lead: LDS Charities, Laerdal & Jhpiego
Time Period: 2014-2015

Highlights:
- Birth asphyxia elevated to national health care priority and HBB rolled-out country wide.
- National roll-out almost complete with almost 15,000 trained
- Best practice steps* 1, 2, 3, 4, 5, 6, 8, 9 have been implemented

Next Steps: *The 50,000 Happy Birthdays project will introduce HBB 2nd Edition in addition to 4 other HMS and HBS modules. USAID Boresha Ayfa program is training over 1,000 facilities in HBB and HMS BAB/PE&E.*

Uganda

GDA Lead: Jhpiego & AAP
Time Period: 2012-2015

Highlights:
- Jhpiego implemented a trial in 125 facilities in 12 remote districts and trained providers on LDHF practice of HMS BAB and HBB.
- Across all facilities, there was a 17% reduction in PPH, 47% reduction in retained placenta, 34% reduction in intrapartum stillbirth, and 62% reduction in early newborn death.
- Best practice steps* 1, 4, 5, 6, 8, 9, 10 have been implemented

Next Steps: *Jhpiego has been working with the MOH to adopt the LDHF methodology.*

Zimbabwe

GDA Lead: MCHIP
Time Period: 2014-2018

Highlights:
- Guided policy focused on perinatal and newborn outcomes
- Supported national and provincial level HBS training.
- Incorporation of HBB, ECEB and ECSB into national BEmONC training.
- Best practice steps* 3, 4, 5, 6, 7, 8 have been implemented

Next Steps: *MOH plans to implement national roll-out of revised guidelines and implement HBS programs.*

* Best Practice steps are listed on p 9

Lessons Learned

The partners of the GDA have learned some key lessons about program implementation and partnership.

Best practices: ten steps to implement HBS and HMS

The partners reached a consensus on best practices for program implementation at a meeting in Utstein, Norway. These included ten implementation steps to create sustained impact, leading to increased survival of mothers and babies.

1. Secure Ministry of Health buy-in
2. Form a working group for planning, training, and monitoring
3. Develop national roll-out plan, for pre-service and in-service training in both public and private sector
4. Provide learning materials and equipment at time of training
5. Identify and support local leaders and champions
6. Establish low-dose, high-frequency refresher training
7. Establish facility-level quality improvement teams
8. Collect and report local data on standardized indicators
9. Establish a system for reporting and feedback
10. Engage healthcare providers, families, and the broader community

A well-implemented educational program is embedded in a strong health system

Successful implementation of HBS and HMS programs require country-led commitment, readiness, and follow-up to create local accountability and ownership. Each country has to identify its own gaps and define realistic service delivery standards and patient outcome goals depending on available financial resources for sustainability.

Professional associations are critical allies for change and sustainability

Health professional associations play an integral role in ensuring MNCH programming is executed appropriately and adequately at district, regional, and national scale. The GDA has learned through its partnerships that national health professional associations are extremely valuable in leveraging change in government policies and practices around maternal, newborn, and child care. This includes the provision of technical assistance and mentoring and in creating strong local ownership of a program.

Data-based quality improvement process is essential to learn, improve and adapt care

An important component to ensure sustainability is the use of quality improvement science to continuously improve, learn and adapt the process of care. This includes capacity building at the worksite, using mentoring and other strategies to help facility teams continuously identify gaps, and routinely monitoring and refining strategies to address barriers to quality care.

At the inception of a global alliance, it is critical to agree upon routine monitoring and reflection. All partners should regularly evaluate and report their activities and learnings. The monitoring and evaluation framework for in-country implementation should be well established at the inception of the intervention and be aligned with the ultimate goals of the partnership.

Strong partnerships begin with collaborative relationships

The past five years have proven that partners have been able to have more impact on MNCH through collaborative initiatives via the GDA than on their own. Careful program design ensures that the strengths of the public-private partners are utilized to their full extent while recognizing that not all partners will have deep expertise in program implementation but will bring strong technical skills to enhance the implementation.

A partnership leverages complementary technical expertise and financial resources. It allows for multiple aspects of programs to come together in synergy and harmony to achieve a common goal. Partnerships allow participating organizations to coordinate with each other, avoid duplication of effort, and engage in clear communication and collaboration. Every partner needs to have a clear and defined role with expectations agreed upon in a memorandum of understanding as part of the membership; this needs to be established at the outset and revisited regularly throughout the partnership so all partners demonstrate ownership.

Throughout the course of a partnership, commitments and energy levels can wane; therefore, it is important to regularly evaluate partner commitments and visit strategic plans to confirm that all are performing up to original expectations.

Click for Job's story

Job's Story

In 2009, Baby Job was one of the first babies resuscitated after the introduction of HBB in Kenya. Nurse Mary Wekesa (to the right in the large image) resuscitated Baby Job, and today Job's parents Denis and Emily have watched with pride and joy as their son grows and attends school.

This second photo in 2015 represents so much more than a little boy's first day of school; it represents all the hopes and dreams for the future that every single pregnancy, and every newborn baby, around the world, encapsulates for their parents, families, and communities. Without HBB, this picture, and thousands of other like it, in the 80 countries where HBB has rolled out since 2010, would never have happened.

Regina's baby did not breathe at birth, but Monica Tippe, one of Haydom's most experienced midwives, who had been trained in HBB and HMS-Bleeding after Birth, immediately started resuscitation, helping the baby survive. When the baby was brought to the Neonatal Unit, Mama Regina started bleeding heavily because the placenta was not complete when it emerged. Midwife Monica manually removed the remaining placenta and stopped the hemorrhage.

Looking Forward

The lessons learnt from the S&T alliance should be considered a stepping stones to scaling up global initiatives on maternal, newborn and child survival, in order to;

Leverage expertise across partnerships for increased impact

The hallmark of the GDA is its public-private partnership model. Bringing together organizations across multiple sectors—non-profit, private, government, and professional health associations—offers an opportunity to tackle MNCH issues comprehensively; by working alongside in-country governments and health professionals to implement high-impact health interventions. This type of partnership can leverage the combined resources and expertise necessary to achieve desired health outcomes.

Capitalize on the evidence based educational methodology and materials developed by the GDA

The materials developed within the GDA umbrella have been pilot-tested and utilized successfully with national partners. Future programming needs to extend beyond training towards sustaining health systems improvement.

Additional HMS educational modules are under development, with Essential Care in Labor & Delivery and Complicated Labor & Delivering planning for release in 2019, and Vacuum Assisted Birth shortly following.

Strengthen linkages with the Every Newborn Action Plan and the vision of Ending Preventable Maternal Mortality

As a roadmap for ending preventable newborn mortality and stillbirth and reducing maternal mortality, the Every Newborn Action Plan (ENAP) was developed within the Every Woman Every Child (EWEC) framework and endorsed by more than 190 member states of the World Health Assembly in 2014. Similarly, Ending Preventable Maternal Mortality (EPMM) vision was developed by a global group of maternal health advocates to contribute to the EWEC framework. Any future endeavors must link to ENAP and EPMM and engage with partners aligned with that vision. Continued partnerships and programs should go beyond *the survival* of mothers and babies and include their *thriving*.

Saving Children's Lives

The Saving Children's Lives (SCL) program was developed by the American Heart Association in 2013 to address main causes of death among children from 1 to 5 years of age.

After AHA joined the S&T alliance the program has been further aligned with the educational methodology of the Helping Babies Survive modules, and focused on teaching community and hospital health workers in rural settings to recognize, stabilize and refer or treat severely-ill children.

Studies in Botswana, India and Tanzania show that the program can strengthen the links between district and community to help reduce mortality beyond the newborn period.

50,000 Happy Birthdays

Strengthening Professional Associations: Making All Birthdays Happy

50,000 Happy Birthdays is a program led by the International Confederation of Midwives (ICM), developed with the support of Laerdal Global Health. It builds on the success of the 10,000 Happy Birthdays project, which increased the professional capacity of 10,000 midwives and strengthened the midwifery associations in Zambia and Malawi. The goal of the project was to strengthen midwifery care, and train up to 10,000 midwives and other health providers to ensure 10,000 more lives of mothers and newborns saved. The midwifery associations introduced and scaled up the Helping Babies Breathe and Helping Mothers Survive programs in these countries - from 2014 to 2017.

A well trained and supported midwife can make the difference between life and death

50,000 Happy Birthdays program expands the scale of the previous project, with the goal to contribute to strengthening midwives' competencies in saving lives at birth in additional three countries; Ethiopia, Rwanda and Tanzania. The program was launched in Lusaka, Zambia in February 2018 in the presence of Ministry of Health and Midwifery Association representatives from all five countries.

The simulation-based Helping Mothers Survive and Helping Babies Survive programs, developed within the Survive & Thrive partnership, will be used to train, equip and empower midwives to save even more lives at birth, contributing also to reducing morbidity and ensuring a better birth experience. The program continues to be led by the national midwifery associations of the respective countries, with technical support from ICM, Laerdal Global Health and key partners such as Jhpiego, AAP and LDS Charities. By 2020, the program will be evaluated, and the results presented at the ICM Triennial Congress Indonesia.

50,000 Happy Birthdays will expand on the previous achievements by:

- Establishing a base of master trainers
- Increasing emphasis on low-dose high-frequency pedagogy
- Introducing all training programs in pre-service education
- Strengthening the capacity of midwifery associations to manage large scale programming
- Increasing partnerships with national, regional and global partners
- Ensuring a robust monitoring and evaluation of the program

Making all birthdays happy
Beyond lives saved, the program will also contribute to reducing morbidity and increasing women's satisfaction with their birth experience. A mother who has safely given birth to a healthy baby and has received respectful maternity care will experience a happy birthday.

Ann Phoya, President of AMAMI (left) and Franka Cadeé, President of ICM (right)

The Alliance Partners

USAID is committed to ending preventable newborn, child and maternal mortality and strengthen national health systems to deliver high-quality, high-impact interventions at scale. USAID will continue to support the rollout of effective interventions and the use of the innovative materials developed by the partnership.

www.usaid.gov

The American Academy of Pediatrics (AAP) is a professional association with a long-standing commitment towards achieving high-quality, high-impact maternal, newborn and child health interventions that save lives. Consistent with past roles as HBB and S&T Secretariat, the AAP will continue to support programs that enhance the impact of and expand access to newborn survival interventions and promote best practices.

https://www.aap.org/en-us/Pages/Default.aspx

Jhpiego is committed to saving lives, improving health and transforming futures by using innovation to support health workers to provide the highest quality of care throughout the life cycle. Through the Helping Mothers Survive Secretariat, Jhpiego remains committed to continuing the work supported through the S&T GDA.

jhpiego.org

Laerdal Global Health has worked in close collaboration with the alliance partners to develop high-impact, low-cost solutions to complement the HBS and HMS training modules. LGH is committed to the mission of the alliance and will continue to work with partners to promote and continue the efforts of the alliance.

www.laerdalglobalhealth.com

LDS Charities is the humanitarian arm of the Church of Jesus Christ of Latter-day Saints. As a member of the GDA, LDS Charities has been committed to providing lifesaving training and equipment for birth attendants. LDS Charities goal is to continue working with partner organizations in a way that will further this effort.

https://www.ldscharities.org/

Save the Children focuses on delivering high-impact, sustainable interventions in partnership with local governments and partners. Save the Children was involved in the alliance through three programs: The Maternal Child Survival Program, Saving Newborn Lives, and the Johnson & Johnson Newborn Health projects.

https://www.savethechildren.net/

Bill & Melinda Gates Foundation works with partners worldwide to reduce inequities in health by developing new tools and strategies and improving delivery of high-impact health products and services to the world's poorest communities.

www.gatesfoundation.org

Johnson & Johnson believes that saving mothers and their newborns is one of the most important investments in global health. J&J was a partner of the original HBB GDA and has continued to be engaged through the S&T GDA. J&J wants to work with partners to ensure that no mother or newborn dies from a preventable cause and every baby has a chance to reach her full potential.

https://www.jnj.com

Sigma Theta Tau International Honor Society of Nursing, in partnership with Johnson & Johnson Global Community Impact, conducts the Maternal-Child Health Nurse Leadership Academy in Africa. The program has trained more than 2,300 health care professionals in programs such as HBB, and the program will continue it's work and expand to additional countries.

https://www.sigmanursing.org

Global Health Media Project is dedicated to carefully designing and producing high-quality videos that play an important role in training frontline health workers. Global Health Media Project is developing additional videos to complement the HBS and HMS programs and will continue to partner with organizations worldwide to create and narrate their videos into more languages.

globalhealthmedia.org

American College of Obstetricians and Gynecologists (ACOG) is committed to leveraging its expertise and the commitment of US OBGYNs to support women's health programs around the world. ACOG will continue to strengthen professional associations and provide technical training.

https://www.acog.org

American College of Nurse-Midwives (ACNM) is a professional organization who works to support midwives and advance the practice of midwifery through promoting education, research and advovacy. ACNM worked to develop tools to strengthen professional associations through the alliance.

http://www.midwife.org

Project C.U.R.E. is committed to assisting the partners in their health systems strengthening related efforts in over 130 countries.

https://projectcure.org/

American Heart Association (AHA) has leveraged its expertise in pediatric resuscitation to address under-five mortality in sub-Saharan Africa and South Asia. The S&T GDA allowed the AHA to apply lessons learned from the dissemination of HMS and HBS programs.

http://www.heart.org/HEARTORG/

International Pediatric Association (IPA) desires to foster relationships between pediatric associations and promote education and best practices for child health. The IPA is now working to mobilize its extensive network of pediatricians for advocacy and programs in child health, working whenever possible with UN agencies and with other global organizations.

http://ipa-world.org/index.php

University Research Co., LLC (URC) is dedicated to continuing to provide technical assistance to strengthen and improve health care and social systems and advance capacity development. URC led the quality improvement technical working group in S&T and will continue fighting for quality health in the implementation of the Global Quality of Care Network.

http://www.urc-chs.com/

USAID flagship Maternal and Child Survival Program (MCSP) and its predecessor, the Maternal and Child Health Integrated Program (MCHIP), provided multi-faceted support to the Survive & Thrive GDA. MCSP contributed technically to the development and dissemination of the HBS materials, resulting in strengthened newborn health programming and improved quality of care for mothers and babies within a number of country programs. Technical assistance from MCSP and MCHIP supported countries' journeys to self-reliance by strengthening professional associations, improving quality of care by building providers' capacity, and influencing changes to national MNH policy.

www.mcsprogram.org

"Utstein Meeting" in Norway in June 2015;
Alliance partners establishing 10 best practice steps for implementation of Helping Babies Survive and Helping Mothers Survive Programs.

Abbreviations

AAP	American Academy of Pediatrics
BAB/BABC	Bleeding After Birth/Bleeding After Birth Complete
BEmONC	Basic Emergency Obstetric and Newborn Care
CL&B	Complicated Labor and Birth
ENC	Essential Newborn Care
ECEB	Essential Care for Every Baby
ECSB	Essential Care for Small Babies
ECL&B	Essential Care for Labor and Birth
CIFF	Children's Investment Fund Foundation
CSBA	Community Skilled Birth Attendant
FMOH	Federal Ministry of Health
GDA	Global Development Alliance
HBB	Helping Babies Breathe
HBS	Helping Babies Survive
HMIS	Health Management Information System
HMS	Helping Mothers Survive
ICM	International Confederation of Midwives
ICDDR,B	Institute for Childhood Diarrheal Diseases, Bangladesh
ILCOR	International Liaison Committee on Resuscitation
IMNCI	Integrated Management of Neonatal and Childhood Illness
KMC	Kangaru Mother Care
LDSC	LDS Charities
MCHIP	Maternal and Child Health Integrated Program
MCSP	Maternal and Child Survival Program
MNH	Maternal and Newborn Health
MNCH	Maternal, Child and Newborn Health
MoH	Ministry of Health
MOHFW	Ministry of Health and Family Welfare
MOHSW	Ministry of Health and Social Welfare
MoU	Memorandum of Understanding
MSD	Medical Stores Department
NIPI	Norway India Partnership Initiative
NSSK	Navjaat Shishu Suraksha Karyakram- a state run basic neonatal resuscitation training in India
NICHD	Eunice Kennedy Shriver National Institute of Child Health and Human Development
NGO	Nongovernmental Organization
NRP	Neonatal Resuscitation Program
PAS	Pediatric Academic Societi
SBA	Skilled Birth Attendant
S&T	Survive & Thrive
TOT	Training of Trainers
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
QI	Quality Improvement
WHO	World Health Organization

Annotated Bibliography

Link to a listing of scientific articles is continually updated can be found here

Helping Babies Survive

Year	Reference	Findings
2018	Dol, J., Campbell-Yeo, M., Tomblin-Murphy, G., Aston, M., McMillan, D., & Richardson, B. (2018). The impact of the Helping Babies Survive program on neonatal outcomes and health provider skills: a systematic review protocol. JBI Database of Systematic Reviews and Implementation Reports, 15(6), 1528-1536. link to this publication	This systematic review included a total of 17 studies and found that Helping Babies Survive has a significant positive impact on early neonatal outcomes, including fresh stillbirth and first-day mortality primarily through Helping Babies Breathe, but limited conclusions can be drawn about its impact on other neonatal outcomes. Continued research on the sustained knowledge and skills is needed to evaluate the long-term impact of the Helping Babies Survive program.
	Gomez, P., Nelson, A., Asiedu, A., Addo, E., Agbodza, D., Allen, C., & Effah, F. (2018). Accelerating newborn survival in Ghana through a low-dose, high-frequency health worker training approach: a cluster randomized trial. BMC Pregnancy and Childbirth, 18:72. link to this publication	From 2014 to 2017, authors conducted a cluster-randomized trial in 40 hospitals in Ghana to assess the effect of a low-dose, high frequency (LDHF) training approach on long-term evidence-based skill retention among skilled birth attendants (SBAs) and impact on adverse birth outcomes. The LDHF approach resulted in a sustained decrease in facility-based newborn mortality and intrapartum stillbirths, and retained knowledge and skills among SBAs after a year.
	Massawe, A., Kidanto, H. L., Moshiro, R., Majaliwa, E., Chacha, F., Shayo, A., Mdoe, P., Ringia, P., Azayo, M., Msemo, G., & Mduma, E., Ersdal, H., & Perlman, J. (2018). A care bundle including antenatal corticosteroids reduces preterm infant mortality in Tanzania a low resource country. PloS One, 13(3), e0193146. link to this publication	Together with the refresher course in a timely manner will ensure that the participants are better prepared to meet neonatal emergencies in low-income countries like Nepal where most deliveries occur at homes by traditional birth attendants. This study concluded that HBB training on Neonatalie newborn simulator significantly improved the knowledge of the participants.
	Moshiro, R., Ersdal, H., Mdoe, P., Kidanto, H., & Mbekenga, C. (2018). Factors affecting effective ventilation during newborn resuscitation: a qualitative study among midwives in rural Tanzania. Global Health Action, 11(1), 1423862. link to this publication	Interviews with eight midwives in Tanzania were analyzed to provide insight on barriers and facilitators to effective bag mask ventilation. Based on midwives' experiences, improvement efforts should focus on labor monitoring, birth preparedness, accurate assessment and high-quality and frequent simulation training.
	Tabangin, M., Josyula, S., Taylor, K., Vasquez, J., & Kamath-Rayne, B. (2018). Resuscitation skills after Helping Babies Breathe training: a comparison of varying practice frequency and impact on retention of skills in different types of providers. International health. 10(3): 163-171. link to this publication	The goal of this study was to determine retention of resuscitation skills by different cadres of providers using the approved HBB Spanish translation in a rural clinic and community hospital in Honduras. Assessments showed rapid loss of resuscitation skills occurs after an initial training. Repeated practice leads to retention of skills in all types of providers. Further investigation is warranted to determine the clinical correlation of neonatal outcomes after HBB training.
	Alwy F, Pembe AB, Hirose A, Morris JL, Leshabari S, Marrone G, Hanson C. (2018) Effect of the competency-based Helping Mothers Survive Bleeding after Birth (HMS BAB) training on maternal morbidity: A cluster-randomized trial in 20 districts in Tanzania. Submitted to PLOS One.	331 providers were trained in HMS BAB in a randomized controlled trial in Tanzania. A statistically significant reduction of PPH near-misses was found among women who suffered PPH in the intervention district compared to comparison districts. There was also a significant decrease in long-term case fatality in PPH near-miss cases in intervention facilities. The intervention also increased the proportion of women with PPH who received intravenous uterotonic. This study suggests that the decrease in morbidity and mortality from postpartum hemorrhage where the intervention occurred demonstrates that HMS BAB addresses an important deficit in knowledge and skills surrounding PPH.

2018	Emma Williams, Eva Bazant, Sam Holcombe, Innocent Atukunda, Rose Namugerwa, Cherrie Evans (2018) 'Let us … again, practice so that skill does not disappear': Mixed methods evaluation of simulator-based practice for midwives in Uganda. Submitted to Human Resources for Health	A trial in 125 facilities in Uganda compared three strategies of support for LDHF provider practice to improve retention of provider skills in prevention and treatment of postpartum hemorrhage and neonatal asphyxia after facility-based BAB and HBB training. Practice log data indicated that simulator-based practice sessions occurred more frequently in facilities where one or two peer practice coordinators helped schedule and lead the practice sessions compared to facilities without coordinators. Where practice occurred more frequently, better clinical practice was directly observed.
2017	Arlington, L., Kairuki, A., Isangula, K., Meda, R., Thomas, E., Temu, A., Mponzi, V., Bishanga, D., Msemo, G., Azayo, M., & Nel-son, B. (2017). Implementation of "Helping Babies Breathe": A 3-year experience in Tanzania. Pediatrics, 139(5). e20162132 link to this publication	This first-ever country-level study assesses results from the 3-year national rollout of the HBB program in Tanzania by measuring coverage, adoption and retention of provider skills, acceptability among providers, and barriers and challenges to at-scale implementation. The program was successful in equipping providers with life-saving newborn resuscitation skills and equipment; however, assessing impact on mortality requires greater efforts.
	Eblovi, D., Kelly, P., Afua, G., Agyapong, S., Dante, S., & Pellerite, M. (2017). Retention and use of newborn resuscitation skills following a series of Helping Babies Breathe trainings for midwives in rural Gha-na. Global Health Action, 10(1), 1387985, DOI: 10.1080/16549716.2017.1387985 link to this publication	Authors conducted two 2-day HBB trainings and 2-day refresher courses one year later for 48 midwives from rural Ghana in order to assess the impact of HBB trainings on skill retention and 24-hour neonatal mortality. Evaluations of trainee skills suggest that skills diminish less quickly when supplemented by refresher courses. Analysis of delivery data indicates the training likely prevented deaths to due birth asphyxia.
	Ersdal, H. L., Singhal, N., Msemo, G., Ashish, K. C., Data, S., Moyo, N. T., & Niermeyer, S. (2017). Successful implementation of Helping Babies Survive and Helping Mothers Survive programs - An Utstein formula for newborn and maternal survival. PloS One, 12(6), e0178073. link to this publication	This paper provides users of HBS and HMS programs with a 10-point list of essential implementation action steps designed to promote successful national implementation of HBS/HMS. The list evolved through an Utstein consensus process, involving a broad spectrum of international experts, and can be used to guide processes in low-resourced countries. Successful implementation of HBS and HMS training programs require country-led commitment, readiness, and follow-up to create local accountability and ownership. Each country has to identify its own gaps and define realistic service delivery standards and patient outcome goals depending on available financial resources for dissemination and sustainment.
	K.C., A., Bergström, A., Chaulagain, D., Brunell, O., Ewald, U., Gurung, A., Eriksson, L., Litorp, H., Wrammert, J., Grönqvist, E., & Edin, P., Le Grange, C., Lamichane, B., Shrestha, P., Pokharel, A., Pun, A., Singh, C., Målqvist, M. (2017). Scaling up quality improvement intervention for perinatal care in Nepal (NePeriQIP); study protocol of a cluster randomised trial. BMJ Global Health, 2(3), e000497. link to this publication	Describes the proposed Nepal Perinatal Quality Improvement Project (NePeriQIP) that builds on previous research on implementation of HBB-QI cycle and will add to scarce evidence base on how to scale up interventions within existing health systems.
	K.C., A., Wrammert, J., Nelin, V., Clark, R., Ewald, U., Peterson, S., & Målqvist, M. (2017). "Evaluation of Helping Babies Breathe Quality Improvement Cycle (HBB-QIC) on retention of neonatal resus-citation skills six months after training in Nepal." BMC Pediat-rics 17:1, 103. link to this publication	This article describes the impact of a multifaceted implementation strategy for HBB, as a quality improvement cycle (HBB-QIC). This HBB-QIC intervention took place at a tertiary hospital in Nepal, and findings show that health workers who practiced bag-and-mask skills, prepared for resuscitation before every birth, used self-evaluation checklists, and attended weekly review meetings were more likely to retain their neonatal resuscitation skills. Further studies are required to evaluate HBB-QIC in primary care settings.

2017	Kamath-Rayne, B. D., Josyula, S., Rule, A. R. L., & Vasquez, J. C. (2017). Improvements in the delivery of resuscitation and newborn care after Helping Babies Breathe training. Journal of Perinatology, 37, 1153-1160. link to this publication	In a rural Honduran community hospital, HBB training resulted in improvements in basic neonatal resuscitation and postnatal care practices such as skin-to-skin care, breast-feeding and delayed cord clamping. Authors suggest that further improvements may require focused quality improvement initiatives for hospitals to sustain high quality care.
	Leader, A., Cadet, C., Lazala, D., Roa, W., Arroyo, O., & Jensen, L. (2017). Collaborative implementation Strategy for newborn Resuscita-tion and Essential Care training in the Dominican Republic. Frontiers in Public Health, 5. link to this publication	This study details the design and implementation of a comprehensive newborn health initiative including HBS programs. The initiative featured a combined HBB/ECEB program with integrated quality improvement (QI) systems. The initiative was implemented through a partnership of a multidisciplinary team of technical experts and the Ministry of Health. Using a train-the-trainer model, the initiative aimed to provide ongoing program monitoring, reinforcement, and mentorship. Assessing the cognitive, affective, behavioral, and clinical outcomes, this study concludes that partnerships fostering collaborative training interventions contribute essential clinical resources to local providers. Further, they empower providers to better care for their patients and promote the training and supervision of their colleagues, and strengthen the local health care system, ultimately improving the quality of care, and support improved health outcomes.
	Perlman, J. M., Msemo, G., Ersdal, H., & Ringia, P. (2017). Design-ing and Implementing the Helping Babies Breathe Program in Tanzania. Journal of Pediatric Intensive Care, 6(01), 028-038. link to this publication	Introduction of the HBB program in eight study sites in Tanzania was associated with a significant reduction in early newborn mortality (ENM) and fresh stillbirth (FSB). This reduction is attributed to early basic interventions, including drying and stimulation of the newly born (key principals of the HBB curriculum), and was effective for both the term and preterm infant. Maintaining competencies in the basic skills, including application of bag-mask ventilation is enhanced by high-frequency, low-dose simulation-based training. Instilling a sense of ownership and self-efficacy at all levels is critical to success. However to further reduce both ENM and later deaths in the first week, focus has to include enhanced monitoring of events during labor (fetal heart rate) as well as reducing the burden of premature mortality (infants of 28 to 35 week estimated gestational age), through the administration of a package of interventions.
	Rule, A., Maina, E., Cheruiyot, D., Mueri, P., Simmons, J., & Kamath-Rayne, B. (2017). Using quality improvement to decrease birth asphyxia rates after Helping Babies Breathe" training in Kenya. Acta Paediatrica. 106(10): 1666-1673. link to this publication	A Neonatal Task Force was formed at a rural referral hospital in Kenya to improve local perinatal outcomes and data collection. In combination with HBB training, improvement of staff communication, ongoing refresher training, retention of skilled staff, and other interventions, hypoxic-ischaemic encephalopathy decreased by 50% over 10 months. Authors conclude that focused QI can sustain and advance gains in neonatal outcomes post-HBB training.
	Seto, T., Tabangin, M., Taylor, K., Josyula, S., Vasquez, J., & Kamath-Rayne, B. (2017). Breaking Down the Objective Structured Clinical Examination: An Evaluation of the Helping Babies Breathe OS-CEs. Simulation in Healthcare, 12(4), 226-232. link to this publication	Objective structured clinical examinations (OSCEs) are clinical performance assessments that evaluate learners' skills in simulated scenarios. The aims of this study were (1) to evaluate the validity and reliability of the OSCEs used in the HBB curriculum, (2) to conduct an itemized analysis of the OSCEs to identify specific deficits in knowledge and performance. As summative and formative assessments of performance in simulated neonatal resuscitation, the HBB OSCEs are effective because most learners were able to perform the skills correctly after an HBB workshop. Based on the results, the authors recommend changes to future editions of HBB, including the following: simplification of multistep items to single tasks, use of a global rating scale, provision of additional scenarios, and specific instructions to raters on how to grade OSCEs and promote self-reflection to enhance debriefings/feedback.

2017	Wilson, G. M., Ame, A. M., Khatib, M. M., Rende, E. K., Hartman, A. M., & Blood-Siegfried, J. (2017). Helping Babies Breathe implementation in Zanzibar, Tanzania. International Journal of Nursing Practice. 24:3; e12561 link to this publication	Implementation of HBB in rural Zanzibar was effective using the train-the-trainer implementation strategy combined with follow-up over time. Observations revealed that HBB skills and knowledge were carried over into practice. Authors suggest that applying key strategies such as mentoring, allocation of reusable supplies, observations with supportive feedback and focus group discussions when implementing HBB can result in improved clinical practice.
	Wrammert, J., KC, A., Ewald, U., & Målqvist, M. (2017). Improved postnatal care is needed to maintain gains in neonatal survival after the implementation of the Helping Babies Breathe initiative. Acta Paediat-rica, 106(8):1280-1285. doi: 10.1111/apa.13835 link to this publication	The aim of this study was to describe the timing and causes of neonatal in-hospital deaths before and after HBB training at a maternity health facility in Nepal. A prospective cohort study was conducted at the facility between July 2012 and September 2013. The causes of 299 neonatal deaths and the day of death, up to 27 days, were collected before and after the training course. Deaths caused by intrapartum-related complications were reduced from 51% to 33%. The authors conclude the continuum of postnatal care for newborn infants needs to be strengthened after Helping Babies Breathe training, to maintain the gains in neonatal survival on the day of delivery.
2016	Arabi, A., Ibrahim, S., Ahmed, S., Abdalla, M., & Rayan, C. (2016). Oiginal Articles Introducing Helping Babies Breathe (HBB) Programme into rural Sudan: An interim report. Khartoum Medical Journal, 8(1). 1048-1057 link to this publication	This study examined the impact of HBB training on resuscitation skills of Sudanese village midwives and perinatal outcomes. HBB training and peer-peer skills practice was associated with improvements in newborn resuscitation and perinatal outcomes. HBB training combined with peer-peer skills practice could have immense benefits if expanded nationally.
	Arabi, A., Ibrahim, S., Ahmed, S., MacGinnea, F., Hawkes, G., Dempsey, E., & Ryan, C. (2016). Skills retention in Sudanese village midwives 1 year following Helping Babies Breathe training. Archives of Disease in Childhood, 101:439-442. link to this publication	In this prospective intervention study to evaluate newborn resuscitation competencies, Sudanese village midwives' performances in the HBB OSCE B were recorded prior to, 3 and 12 months following HBB training. OSCE assessments showed that participants absorbed and sustained HBB skills for at least a year, and regular, low intensity, manikin-based skills training with peers may have helped sustain face-mask ventilation.
	Chaudhury, S., Arlington, L., Brenan, S., Kairuki, A., Meda, A., Isangula, K., Mponzi, V., Bishanga, D., Thomas, E., Msemo, G., Azayo, M., Molinier, A., & Nelson, B. (2016). Cost analysis of large-scale implementation of the 'Helping Babies Breathe' newborn resuscitation-training program in Tanzania. BMC Health Services Research, 16(1), 681, DOI: 10.1186/s12913-016-1924-2 link to this publication	This study shows that HBB implementation is a relatively low-cost intervention with potential for high impact on perinatal mortality in resource-poor settings, and that nationwide expansion of the program across the range of health provision levels and regions of Tanzania would be feasible. The article provides policymakers with the relevant cost-estimation for national rollout of this potentially neonatal life-saving intervention.
	Isangula, K., Kassick, M., Kairuki, A., Meda, R., Thomas, E., Temu, A., Msemo, G., Azayo, M., & Nelson, B. D. (2016). Provider experiences with the large-scale 'Helping Babies Breathe' training programme in Tanzania. Paediatrics and International Child Health, 38(1): 46-52. link to this publication	This article describes the results of 222 focus group discussions with HBB-trained providers across 15 regions of Tanzania. Overall, the HBB program was well received. Participants reported increased knowledge, skills and confidence, and that the equipment simplified resuscitation. Addressing the main challenges cited, particularly training duration, may increase provider satisfaction.
	K.C., A., Wrammert, J., Clark, R. B., Ewald, U., Vitrakoti, R., Chaudhary, P., Pun, A., Raajmakers, H., & Målqvist, M. (2016). Reducing perinatal mortality in Nepal using Helping Babies breathe. Pediatrics, 137(6): e20150117. link to this publication	The authors developed and implemented a quality improvement cycle (QIC) at a tertiary hospital in Nepal to improve adherence to HBB protocol and reduce perinatal mortality. The HBB QIC reduced intrapartum stillbirth and first-day neonatal mortality and was associated with improvements in providers' adherence to neonatal resuscitation protocols.

2016	Kassick, M. E., Chinbuah, M. A., Serpa, M., Mazia, G., Tang, A. M., Sagoe-Moses, I., & Engmann, C. (2016). Evaluating a novel neonatal-care assessment tool among trained delivery attendants in a resource-limited setting. International Journal of Gynecology & Obstetrics, 135(3), 285-289. link to this publication	In this cross-sectional study, ECEB-trained healthcare providers from 12 district hospitals in Ghana completed a 21-item OSCE tool to assess neonatal care competency. The OSCE tool demonstrated substantial reliability and the providers exhibited satisfactory performance. The OSCE tool could be useful in similar settings and could have potential for up-scaled use in assessing neonatal-management skills.
	Reisman, J., Arlington, L., Jensen, L., Louis, H., Suarez-Rebling, D., & Nelson, B. D. (2016). Newborn resuscitation training in resource-limited settings: a systematic literature review. Pediatrics, 138(2), e20154490. link to this publication	This systematic literature review examined acquisition and retention of NR knowledge and skills by birth attendants in low-and middle-income countries. Authors conclude that knowledge and skills falloff over time is a significant barrier to success of neonatal resuscitation programs. Refresher training and structured practice can prevent this decline.
	Xu, T., Niermeyer, S., Lee, H. C., Simon, W. M., Yue, Q., Gong, L., & Wang, H. (2016). International Perspectives: Reducing Birth Asphyxia in China by Implementing the Neonatal Resuscitation Program and Helping Babies Breathe Initiative. NeoReviews, 17(8), e425-e434. link to this publication	This article details China's dual approach to address birth asphyxia using the Neonatal Resuscitation Program (NRP) and Helping Babies Breathe. As a large and rapidly developing country, China has geographic- and resource-related challenges to improving clinical care to reduce neonatal mortality. While both NRP and HBB use the same evidence base, these two programs target differently-resourced facility settings. This article illustrates how NRP and HBB can be implemented in countries where needs and resources vary regionally and locally. The introduction and implementation of NRP and HBB in China have already shown substantial benefits in a relatively short amount of time. The authors provide a number of lessons learned and detail future steps to better achieve reductions in neonatal mortality in China.
2015	Mduma, E., Ersdal, H., Svensen, E., Kidanto, H., Auestad, B., & Perlman, J. (2015). Frequent brief on-site simulation training and reduction in 24-h neonatal mortality - an educational intervention study. Resuscitation, 93, 1-7. link to this publication	The objective was to assess the impact of frequent brief (3–5 min weekly) on-site HBB simulation training on newborn resuscitation practices in the delivery room and the potential impact on 24-h neonatal mortality. A newborn simulator was placed in the labor ward and frequent brief HBB simulation training was implemented on-site; 3-min of weekly paired practice, assisted by local-trainers. Local trainers also facilitated 40-min monthly re-trainings. The researchers reported that the number of neonates receiving stimulation increased, as did those who received suctioning. Neonates receiving bag mask ventilation decreased as did 24-hour mortality. The study concludes that on-site, brief and frequent HBB simulation training appears to facilitate transfer of new knowledge and skills into clinical practice and is accompanied by a decrease in neonatal mortality.
	Reisman, J., Martineau, N., Kairuki, A., Mponzi, V., Meda, A. R., Isangula, K. G., Thomas, E., Plotkin, M., Chan, G., Davids, L., Msemo, G., Azayo, M., & Nelson, B. (2015). Validation of a novel tool for assessing newborn resuscitation skills among birth attendants trained by the Helping Babies Breathe program. International Journal of Gynecology & Obstetrics, 131(2), 196-200. link to this publication	This prospective cross-section study of the OSCE tool was conducted among HBB-trained birth attendants in five regions of Tanzania. The best OSCE performances were recorded among participants from facilities with high annual birth volumes. The simplified OSCE tool could facilitate implementation of national-level HBB programs.
	Seto, T. L., Tabangin, M. E., Josyula, S., Taylor, K. K., Vasquez, J. C., & Kamath-Rayne, B. D. (2015). Educational outcomes of Helping Babies Breathe training at a community hospital in Honduras. Perspectives on Medical Education, 4(5), 225-232. link to this publication	This study evaluated the acquisition of knowledge and skills following HBB training and correlation of learner characteristics to performance at a community hospital in Honduras. When evaluated immediately after workshop, HBB training resulted in significant gains in neonatal resuscitation knowledge and skills. Further studies are necessary to determine how to sustain HBB knowledge and skills over time.

2015	Somannavar, M. S., Goudar, S. S., Revankar, A. P., Moore, J. L., McClure, E. M., Destefanis, P., DeCain, M., Goco, N., & Wright, L. L. (2015). Evaluating time between birth to cry or bag and mask ventilation using mobile delivery room timers in India: the NICHD Global Network's Helping Babies Breathe Trial. BMC Pediatrics, 15(1), 93. link to this publication	Researchers developed and evaluated a mobile delivery room timer to document the time interval from birth to the initiation of newborn crying/spontaneous respiration or bag and mask ventilation in five hospitals in Karnataka, India. The mobile delivery room timer is a cell phone-based application that recorded key events including crowning, delivery, and crying/spontaneous respiration or bag and mask ventilation. There was high concordance between the mobile delivery room timer and observed time elapsed between birth and crying/spontaneous respiration or ventilation. The researchers concluded this type of tool may be useful in reinforcing neonatal resuscitation training and the need to ensure spontaneous or assisted ventilation by The Golden Minute.
	Thukral, A., Lockyer, J., Bucher, S. L., Berkelhamer, S., Bose, C., Deorari, A., Esamai, F., Faremo, S., Keenan, W., McMillan, D., & Niermeyer, S. (2015). Evaluation of an educational program for essential newborn care in resource-limited settings: Essential Care for Every Baby. BMC Pediatrics, 15(1), 71. link to this publication	This study focused on Essential Care for Every Baby (ECEB), assessing the overall design of the course; the ability of facilitators to teach the course; and the knowledge and skills acquired by the learners. Testing occurred at 2 global sites, one in Kenya and one in India. Data from a facilitator evaluation survey, a learner satisfaction survey, a multiple-choice question (MCQ) examination, performance on two objective structured clinical evaluations (OSCE), and pre- and post-course confidence assessments were analyzed using descriptive statistics. Pre-post course differences were examined. Comments on the evaluation form and post-course group discussions were analyzed to identify potential program improvements. Findings indicate ECEB program was highly acceptable, demonstrated improved confidence, improved knowledge and developed skills.
2014	Bang, A., Bellad, R., Gisore, P., Hibberd, P., Patel, A., Goudar, S., Esamai, F., Goco, N., Meleth, S., Derman, R., Liechty, E., McClure, E., Carlo, W., & Wright, L. (2014). Implementation and evaluation of the Helping Babies Breathe curriculum in three resource limited settings: does Helping Babies Breathe save lives? A study protocol. BMC Pregnancy and Childbirth, 14(1), 116. link to this publication	The study evaluates the effect of a HBB/ENC training and a QI and monitoring package on perinatal mortality using a large multicenter common design and approach in 71 resource-limited health facilities, leveraging an existing birth registry to provide neonatal outcome data through day 7. The study provides the evidence base, lessons learned, and best practices that will be essential to guiding future policy and investment in neonatal resuscitation.
	Bondoe, C., Wraynee, A. B., Riner, M. E., Allam, E., & Stephenson, E. (2014). Helping Babies Breathe: Providing an evidence-based education intervention at a tertiary referral hospital in Liberia. Journal of Nursing Education and Practice, 4(9), 119-127. link to this publication	In this study the Helping Babies Breathe program was provided to students and staff at the teaching and referral hospital in Liberia. Results showed a significant increase in neonatal knowledge as well as attainment of skills by staff and students. It is expected that full implementation will include establishing agency procedures, supervision, and support to staff in the delivery room and will ultimately result in lower neonatal mortality due to asphyxia. Similar institutions seeking to implement the HBB program should fully support the initial training initiative and plan for ongoing implementation support. Preparing nurses and midwives as certified trainers can make this valuable lifesaving knowledge and skill available to those delivering babies under high risk conditions in low resource areas.
	Hubballi, J., Sumitra, L., & Raddi, S. (2014). Randomized control trial to evaluate the effectiveness of Helping Babies Breathe programme on knowledge and skills regarding neonatal resuscitation among auxiliary nurse midwives students. International Journal of Nursing Education, 6(1), 146. link to this publication	The findings of the study showed that Helping Babies Breathe program is effective to improve the knowledge and skill regarding neonatal resuscitation among experimental group of Auxiliary Nurse Midwives (ANM) students. Findings revealed that Helping Babies Breathe program was effective to improve knowledge and skill of subjects under study. There was no gain in knowledge and skill regarding neonatal resuscitation among control group of ANM students.

2014	Lindbäck, C., K.C., A., Wrammert, J., Vitrakoti, R., Ewald, U., & Målqvist, M. (2014). Poor adherence to neonatal resuscitation guidelines exposed; an observational study using camera surveillance at a tertiary hospital in Nepal. BMC Pediatrics, 14(1), 233. link to this publication	CCD-cameras recorded the resuscitations taking place and CCD-observational record forms were completed for each case. The resuscitation routines were then assessed and compared with existing guidelines. To evaluate the reliability of the observational form, 50 films were randomly selected and two independent observers completed two sets of forms for each case. The results were then cross-compared. During the study period 1827 newborns were taken to the resuscitation table, and more than half of them (53.3%) were noted as not crying prior to resuscitation. Suction was used in almost 90% of newborns brought to the resuscitation table, whereas bag-mask ventilation was only used in less than 10%. The chance to receive ventilation with bag-and-mask for a newborn not crying when brought to the resuscitation table was higher for boys, low birth weight babies and babies that were delivered by caesarean section.
	Little, G. A., Keenan, W. J., Singhal, N., & Niermeyer, S. (2014). International perspectives: Helping Babies Breathe: Evolution of a global neonatal resuscitation program for resource-limited areas. Neoreviews, 15(9), e369-e380. link to this publication	This review of HBB provides readers with insight into the strategic assessment of global neonatal mortality that led to development of the program, how that assessment shaped the educational program as a catalyst for change, and how a global public–private alliance has promoted HBB implementation and continues to strive for sustainable improvement in newborn health.
	Maharjan, U., Rajbanshi, L., & Dhungana, G. (2014). Effectiveness of Helping Babies Breathe (HBB) training on knowledge for Health Professionals and Medical Students at Chitwan Medical College. Journal of Chitwan Medical College, 4(8): 17-19. link to this publication	The educational effectiveness of HBB training on newborn simulator, knowledge of trainees from Doctors, Nurses and Medical Students was evaluated before and after training. Participants underwent a 2 day training course of 5 hours each. A post course practical skills evaluation was performed on a Neonatalie Newborn Simulator.
	Vossius, C., Lotto, E., Lyanga, S., Mduma, E., Msemo, G., Perlman, J., & Ersdal, H. (2014). Cost-effectiveness of the Helping Babies Breathe program in a missionary hospital in rural Tanzania. PloS One, 9(7), e102080. link to this publication	Authors analyzed the cost effectiveness of HBB at Haydom Lutheran Hospital (HLH) in rural Tanzania. Costs per life saved were USD 233, while they were USD 4.21 per life year gained. Costs for maintaining the program were USD 80 per life saved and USD 1.44 per life year gained. Authors conclude that HBB is a low-cost intervention, and implementation in HLH has been highly cost effective. To facilitate further global implementation of HBB, a cost-effectiveness analysis including government, urban hospitals and district facilities is necessary.
2013	Julia Bluestone, Peter Johnson, Judith Fullerton, Catherine Carr, Jessica Alderman James BonTempo. (2013) Effective in-service training design and delivery: evidence from an integrative literature review. Human Resources for Health 2013, 11:51 link to this publication	A review of education and training literature was conducted between May and June 2011 to identify effective training approaches. The evidence suggests using multiple interactive techniques including clinical simulation with skills practice and feedback was identified as the most effective approach. Didactic techniques using passive instruction, such as reading or lecture, were found to have little or no impact on learning outcomes. Repetitive interventions, rather than single interventions, were shown to be superior. Workplace learning improved skill acquisition and performance.
	Ersdal, H. L., & Singhal, N. (2013). Resuscitation in resource-limited settings. Seminars in Fetal and Neonatal Medicine, 18(6): 373-378 link to this publication	Authors describe the need to reduce global perinatal mortality and effectively address intrapartum-related hypoxia leading to death and disability, especially in resource-limited settings. Based on an analysis of current science and educational programs, authors suggest that simple resuscitation education such as 'Helping Babies Breathe' can help transfer competency into clinical practice and lead to sustainable programs impacting neonatal mortality and morbidity.

2013	Ersdal, H. L., Vossius, C., Bayo, E., Mduma, E., Perlman, J., Lippert, A., & Søreide, E. (2013). A one-day "Helping Babies Breathe" course improves simulated performance but not clinical management of neonates. Resuscitation, 84(10): 1422-1427. link to this publication	This report documents the long-term impact of a one-day HBB training on practical skills and management strategies among providers in a rural Tanzanian hospital. When providers simulated "Routine Care" and "Neonatal Resuscitation" seven months after HBB training, skills and performance were significantly better. By contrast, neonatal management in the delivery room during the corresponding time period did not improve and in fact was worse. Thus, less newborn infants were stimulated and the time to initiate face mask ventilation was longer. Subsequently, measures were taken (short HBB re- trainings delivered regularly and frequently with local mentoring) to improve the transfer of acquired knowledge and skills into clinical practice. Further research is necessary to explore the impact of these measures on performance and patient outcome. More focus on early stimulation and discussions around local implementation should be prioritized during HBB training.
	Goudar, S., Somannavar, M., Clark, R., Lockyer, J., Revankar, A., Fidler, H., Sloan, N., Neirmeyer, S., Keenan, W., & Singhal, N. (2013). Stillbirth and newborn mortality in India after Helping Babies Breathe training. Pediatrics, 131(2), e344-e352. link to this publication	This study evaluated the effectiveness of HBB training in reducing stillbirth (SB), and pre-discharge and neonatal mortality (NMR) in Southern India. A total of 599 birth attendants from rural, district and urban facilities were trained in HBB, and authors found that the training systematically improved provider knowledge and performance. Assessments also showed that HBB training reduced SB without increasing NMR, indicating that resuscitated infants survived the neonatal period.
	Hoban, R., Bucher, S., Neuman, I., Chen, M., Tesfaye, N., & Spector, J. M. (2013). Helping Babies Breathe training in sub-Saharan Africa: educational impact and learner impressions. Journal of Tropical Pediatrics, 59(3), 180-186. link to this publication	This study sought to characterize knowledge changes and resuscitation skills after national-level HBB training in Ethiopia, the factors correlated with successful training, and trainee perceptions. Assessments showed that the HBB training improved neonatal resuscitation knowledge and was well-received by participants. A lower trainer-to-trainee ration was associated with improved knowledge scores.
	Msemo, G., Massawe, A., Mmbando, D., Rusibamayila, N., Manji, K., Kidanto, H., & Perlman, J. (2013). Newborn mortality and fresh stillbirth rates in Tanzania after helping babies breathe training. Pediatrics, 131(2), e353-e360. link to this publication	The objectives of this study were to determine if implementation of HBB would enhance basic skills of birth attendants and reduce early neonatal mortality and fresh stillbirth rates. Results of the study demonstrated that implementation of the HBB program in 8 hospitals in Tanzania was associated with a sustained 47% reduction in early neonatal mortality within 24 hours and a 24% reduction in fresh stillbirths after 2 years.
	Musafili, A., Essén, B., Baribwira, C., Rukundo, A., & Persson, L. Å. (2013). Evaluating Helping Babies Breathe: training for healthcare workers at hospitals in Rwanda. Acta Paediatrica, 102(1): e34-e38. link to this publication	This study of 118 trainees found that Helping Babies Breathe training significantly improved the knowledge of healthcare personnel from three hospitals in Rwanda. Retesting 3 months later showed that knowledge was retained but, skills dropped to unsatisfactory levels in that period of time. The authors suggest educational training programs should include continuing field experiences to assist health workers in retaining knowledge and sustaining practical skills.
2012	Ersdal, H. L., Mduma, E., Svensen, E., & Perlman, J. (2012). Birth asphyxia: a major cause of early neonatal mortality in a Tanzanian rural hospital. Pediatrics, 129(5), e1238-e1243. link to this publication	Global estimates on the presumed causes of neonatal deaths have remain unchanged over the past decade, so the objective of this study was to determine the presumed causes of neonatal death within the first 24 hours in a rural hospital in northern Tanzania. Over 1 year, 4720 infants were born and evaluated. Observational findings indicate that most cases of early neonatal mortality were related to birth asphyxia (BA), and the 5-minute Apgar score is a poor surrogate of BA. Reducing perinatal mortality requires a multifaceted approach with attention to issues related to BA, prematurity and low birth weight.

2012	Ersdal, H. L., Mduma, E., Svensen, E., & Perlman, J. M. (2012). Early initiation of basic resuscitation interventions including face mask ventilation may reduce birth asphyxia related mortality in low-income countries: a prospective descriptive observational study. Resuscitation, 83(7), 869-873. link to this publication	The objectives of this observational study at a rural hospital in Tanzania were to describe normal transitional respiratory adaption at birth and to assess the importance of initiating basic resuscitation within the first minutes after birth as it relates to neonatal outcome. Results demonstrated that the majority of lifeless babies were in primary apnea and responded to stimulation/suctioning and/or face mask ventilation (FMV). Infants who required FMV were more likely to die particularly when ventilation was delayed or prolonged.
	Ersdal, H. L., Mduma, E., Svensen, E., Sundby, J., & Perlman, J. (2012). Intermittent Detection of Fetal Heart Rate Abnormalities Identify Infants at Greatest Risk for Fresh Stillbirths, Birth Asphyxia, Neonatal Resuscitation, and Early Neonatal Deaths in a Limited-Resource Setting: A Prospective Descriptive Observational Study at Haydom Lutheran Hospital. Neonatology, 102: 235–242. link to this publication	The objective of this observational study was to determine the value of routine intermittent fetal heart rate (FHR) monitoring during labor in the detection of FHR abnormalities. Authors observed and recorded labor information for 10,271 deliveries at Haydom Lutheran Hospital in Tanzania. Assessments showed that intermittent detection of an absent or abnormal FHR using a fetal stethoscope is associated with fresh stillbirth, increased need for resuscitation, birth asphyxia and neonatal death in a limited resource setting. This supports the well-established hypothesis that an abnormal FHR is an important indicator of fetal stethoscope is associated with fresh stillbirth, increased need for resuscitation, birth asphyxia and neonatal death in a limited resource setting. This supports the well-established hypothesis that an abnormal FHR is an important indicator of fetal compromise. Moreover, the findings indicate a significant association between an abnormal FHR and labor complications.
	K.C., A., Målqvist, M., Wrammert, J., Verma, S., Aryal, D. R., Clark, R., KC, N., Vitrakoti, R., Baral, K. & Ewald, U. (2012). Implementing a simplified neonatal resuscitation protocol-helping babies breathe at birth (HBB)-at a tertiary level hospital in Nepal for an increased perinatal survival. BMC Pediatrics, 12(159). link to this publication	To provide a scalable strategy to improve the health workers performance in simplified neonatal resuscitation to reduce intrapartum death has been a global research priority. In low resource healthcare setting with multiple and complex factors determining the performance of health worker, identifying a specific solution to improve performance would be crucial. The HBB initiative has previously been shown to be feasible and acceptable to health workers. The focus on assisted breathing and the "golden minute" harbor an expectation also for improved results in relation to mortality and morbidity. This has however not been demonstrated. The results from this research study will therefore be of importance for policy makers at all levels and have implications for future neonatal resuscitation guidelines globally.
	Singhal, N., Lockyer, J., Fidler, H., Keenan, W., Little, G., Bucher, S., Qadir, M. & Niermeyer, S. (2012). Helping Babies Breathe: global neonatal resuscitation program development and formative educational evaluation. Resuscitation, 83(1), 90-96. link to this publication	This article describes the outcome of a formative evaluation of the HBB educational program at two test sites (Kenya and Pakistan). Participants demonstrated high satisfaction with the program, high self-efficacy and gain in knowledge and skills. Mastery of ventilation skills and integration of skills into case management may not be achievable in the classroom setting without additional practice, continued learning, and active mentoring in the workplace. These findings were used to revise program structure, materials and assessment tools.
	Little, G. A., Keenan, W. J., Niermeyer, S., Singhal, N., & Lawn, J. E. (2011). Neonatal nursing and helping babies breathe: an effective intervention to decrease global neonatal mortality. Newborn and Infant Nursing Reviews, 11(2), 82-87. link to this publication	This article describes the global neonatal death problem and the need to expand effective interventions to decrease neonatal mortality in limited-resource settings. Authors note that HBB is a highly suitable intervention to improve neonatal survival. Authors also point out that neonatal nursing must serve an essential role in standard setting, education and implementation of any bedside change in care of the newly born infant, and that international nursing and medical organizations should critically evaluate HBB and consider being actively involved in efforts that use HBB to decrease neonatal mortality.

Helping Mothers Survive

Pending	Evans, C. L., Bazant, E., Atukunda, A. Peer-assisted learning to sustain provider performance after onsite, low-dose, high-frequency training and practice to prevent and treat postpartum hemorrhage and neonatal asphyxia: A pragmatic cluster randomized trial in Uganda. Submitted to PLoS ONE.	This cluster-randomized¬ trial in 125 facilities in 12 districts of Uganda provided facility-based training in HMS BAB and HBB to >700 providers. Three approaches to facilitating simulation-based, peer practice were compared. Uterotonic provision within one minute of birth increased and remained high in all groups, but was greater in the groups with support for ongoing practice. Simulated skills maintenance for postpartum hemorrhage prophylaxis remained high across all study groups 7 to 8 months after the intervention however skills for newborn bag-and-mask ventilation remained high only in the full intervention group. For all groups combined, incidence of postpartum hemorrhage and retained placenta declined 17% and 47%, respectively and fresh stillbirths and newborn death prior to discharge decreased by 34% and 62%, respectively, from baseline and remained reduced 6-9 months post-implementation.
2018	Egenberg, S., Karlsen, B., Massay, D., et al. (2017). "No patient should die of PPH just for the lack of training!" Experiences from multi-professional simulation training on postpartum hemorrhage in northern Tanzania: a qualitative study. BMC Medical Education, 17:119. link to this publication	The study utilized qualitative methods to examine the effect of multi-professional simulation training on PPH on providers' perceptions. After the second of two simulation training at two hospitals in northern Tanzania, ten focus group discussions comprising 42 nurse midwives, doctors, and medical attendants, were carried out. The key finding was the perceived importance of team training as learning feature, and the perception of improved ability to use a teamwork approach to PPH.
	Egenberg, S., Masenga, G., Bru, L. E., et al. (2017). Impact of multi-professional, scenario-based training on postpartum hemorrhage in Tanzania: a quasi-experimental, pre- vs. post-intervention study BMC Pregnancy and Childbirth, 17:287. link to this publication	This quasi-experimental, pre-vs. post-interventional study involved on-site multi-professional, scenario-based PPH training, conducted in a two-week period in October 2013 and another 2 weeks in November 2014 in a rural hospital in Tanzania. Results showed a 47% reduction in blood transfusion.
	Egenberg,, S., Øian, P., Eggebø, T. M., Arsenovic, M. G. and Bru, L. E. (2017). Changes in self-efficacy, collective efficacy and patient outcome following interprofessional simulation training on postpartum haemorrhage. Journal of Clinical Nursing, 26(19-20), 3174-3187. link to this publication	The study contributes to new knowledge on how simulation training with BAB through mastery and vicarious experiences, verbal persuasion and psychophysio- logical state might enhance postpartum haemorrhage-specific self-efficacy and collective efficacy levels and thereby predict team performance. The significant reduction in severe postpartum haemorrhage after training, indicated by reduction in ≥5 units of blood transfusions, corresponds well with the improvement in collective efficacy,
	Nelissen, E., Ersdal, H., Mduma, E., et al. (2017). Clinical performance and patient outcome after simulation-based training in prevention and management of postpartum haemorrhage: an educational intervention study in a low-resource setting. BMC Pregnancy and Childbirth, 17:301. link to this publication	This study examined changes in PPH before and after BAB training. Three thousand six hundred twenty-two births before and 5824 births after intervention were included. The incidence of PPH (500–1000 ml) significantly reduced from 2.1% to 1.3% after training. The proportion of women who received oxytocin as part of management of PPH increased significantly (before training 43. 0%, after training 61.2%).
	Dustan R. Bishanga, John Charles, Gaudiosa Tibaijuka, Rita Mutayoba, et al. (2018) Improvement in the active management of the third stage of labor for the prevention of postpartum hemorrhage in Tanzania: a cross-sectional study. BMC Pregnancy and Childbirth. 18:223. link to this publication	The quality of PPH prevention increased substantially in facilities that implemented competency-based training and quality improvement interventions, with the most dramatic improvement seen at lower-level facilities. As Tanzania continues with efforts to increase facility births, it is imperative that the quality of care also be improved by promoting use of up-to-date guidelines and ensuring regular training and mentoring for health care providers so that they adhere to the guidelines for care of women during labor. These measures can reduce maternal and newborn mortality.

2017	Nathan, L. M., et al. (2016). Retention of skills 2 years after completion of a postpartum hemorrhage simulation training program in rural Rwanda. International Journal of Gynecology & Obstetrics, 134(3), 350-353. link to this publication	A quasi-experimental pre–post intervention study enrolled eleven generalist physicians in rural Rwanda. Participants underwent initial simulation training including pre- and post-training testing in February 2012. Simulation drills to assess skill retention were conducted on eight physicians in March 2014. Results showed simulation training to be effective for teaching postpartum hemorrhage- management skills to generalist physicians in rural areas and skills are retained for at least 2 years.
	Nelissen, E., Ersdal, H., Mduma, E., Evjen-Olsen, B., et al. (2016). Helping Mothers Survive Bleeding After Birth: retention of knowledge, skills, and confidence nine months after obstetric simulation-based training. BMC Pregnancy and Childbirth, 15:190. link to this publication	In 2012, 89 providers were trained in a half day BAB course onsite in Tanzania. Nine months later, 36 providers were retested for knowledge and skills retention. Training resulted in an immediate increase in knowledge, skills, and confidence. While knowledge and simulated basic delivery skills decayed after nine months, confidence and simulated obstetric emergency skills were largely retained. These findings indicate a need for continuation of training.
2015	Egenberg, S., Øian, P., Bru, L. E., Sautter, M., Kristoffersen, G., Eggebø, T. M. (2015). Can interprofessional simulation training influence the frequency of blood transfusions after birth? Acta Obstetricia et Gynecologica Scandinavica, 94(3), 316–323. link to this publication	This study examined whether inter-professional simulation training for PPH could influence the rate of blood transfusion after birth in a large, urban Norwegian hospital. A significant reduction in red blood cell transfusions, curettages, and uterine artery embolization after introduction of mandatory simulation training on management of postpartum hemorrhage. In 2009, 20.8% of women with estimated blood loss >500mL received transfusion vs. 12.3% in 2011.
2014	Evans, C. L. and Johnson, P. (2014). Response to Nelissen et al, Helping mothers survive bleeding after birth: an evaluation of simulation-based training in a low-resource setting. Acta Obstetricia et Gynecologica Scandinavica, 93(6), 610-610. Evans, C. L., Johnson, P., Bazant, E., Bhatnagar, N., Zgambo, J., Khamis, A. R. (2014). Competency-based training "Helping Mothers Survive: Bleeding after Birth" for providers from central and remote facilities in three countries. International Journal of Gynecology & Obstetrics, 126(3), 286–290. link to this publication	In response to the Nelissen study in 2012, Jhpiego responded outlining the changes based on learning from the Tanzania experience. In the Nelissen study, trainers had little or no experience as trainers beyond simple orientation to the materials. As a result, trainer preparation was reinforced and training time was increased whereby the BAB agenda was increased to one full day.
2013	Nelissen, E., Ersdal, H., Østergaard, D., Mduma, E., Broerse, J., Evjen-Olsen, B., et al. (2013). Helping mothers survive bleeding after birth: an evaluation of simulation-based training in a low-resource setting. Acta Obstetricia et Gynecologica Scandinavica, 93(3), 287-295. link to this publication	In 2013 a total of 155 skilled and semiskilled birth attendants participated in training in India, Malawi, and Zanzibar, Tanzania. Knowledge and confidence were assessed before and after training. Skills and acceptability were assessed after training. The proportion of attendants with passing knowledge scores increased significantly. Post training pass rates ranged from 83% to 89%. In 2012, 89 health care workers received a half-day training in BAB a rural hospital in Tanzania. Knowledge scores tested before and after training showed significant increase, but skills testing showed only a 3% pass rate for both routine prevention of PPH and for management after training. The evaluation revealed that the training was feasible and acceptable, but more time was needed.

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Formed in 2012, the Survive & Thrive Alliance merged with the previously formed Helping Babies Breathe Global Development Alliance.