Helping Babies Breathe Global Development Alliance and the Power of Partnerships

William J. Keenan, MD,[a,b] Susan Niermeyer, MD, MPH,[c,d] Anna af Ugglas, MSc,[e] Waldemar A. Carlo, MD,[f] Robert Clark, MD,[g] Matthew Ross Gardner,[g] Lily P. Kak, PhD,[h] Tore Laerdal,[e] George A. Little, MD,[i] Janna Patterson, MD, MPH,[j] Eileen Schoen,[j] Unni Silkoset, MSc, MBA,[e] Michael K. Visick, MD,[g] Stephen Wall, MSW, MPH, MD,[k] Linda L. Wright, MD[l]

abstract

The Helping Babies Breathe Global Development Alliance (GDA) was a public–private partnership created simultaneously with the launch of the educational program Helping Babies Breathe to accelerate dissemination and implementation of neonatal resuscitation in low- and middle-income countries with the goal of reducing the global burden of neonatal mortality and morbidity related to birth asphyxia. Representatives from 6 organizations in the GDA highlight the recognized needs that motivated their participation and how they built on one another's strengths in resuscitation science and education, advocacy, frontline implementation, health system strengthening, and implementation research to achieve common goals. Contributions of time, talent, and financial resources from the community, government, and private corporations and foundations powered an initiative that transformed the landscape for neonatal resuscitation in low- and middle-income countries. The organizations describe the power of partnerships, the challenges they faced, and how each organization was shaped by the collaboration. Although great progress was achieved, lessons learned through the GDA and additional efforts must still be applied to the remaining challenges of prevention, widespread implementation, improvement in the quality of care, and sustainable integration of neonatal resuscitation and essential newborn care into the fabric of health care systems.

[a]*Department of Pediatrics, Saint Louis University, St Louis, Missouri;* [b]*International Pediatric Foundation, St Louis, Missouri;* [c]*University of Colorado School of Medicine, Aurora, Colorado;* [d]*Colorado School of Public Health, Aurora, Colorado;* [e]*Laerdal Global Health, Stavanger, Norway;* [f]*Department of Pediatrics, University of Alabama at Birmingham, Birmingham, Alabama;* [g]*Latter-day Saint Charities, Salt Lake City, Utah;* [h]*US Agency for International Development, Washington, DC;* [i]*Department of Pediatrics, Geisel School of Medicine, Dartmouth College, Hanover, New Hampshire;* [j]*American Academy of Pediatrics, Washington, DC;* [k]*Save the Children US, Washington, DC; and* [l]*National Institutes of Health (retired), Bethesda, Maryland*

Dr Niermeyer conceptualized and designed the questions, collected data, conducted the initial analyses, and drafted the initial manuscript; Dr Keenan collected data and conducted the initial analyses; and all authors contributed perspectives on behalf of the organizations they represent, reviewed the analysis, reviewed and revised the manuscript, and approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

DOI: https://doi.org/10.1542/peds.2020-016915G

Accepted for publication Aug 4, 2020

Address correspondence to Susan Niermeyer, MD, MPH, Section of Neonatology, University of Colorado School of Medicine, 13121 E. 17th Ave, Mail Stop 8402, Aurora, CO 80045. E-mail: susan.niermeyer@cuanschutz.edu

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FINANCIAL DISCLOSURE: Mr Laerdal, Ms af Ugglas, and Ms Silkoset are employed by Laerdal Global Health, a not-for-profit corporation manufacturing resuscitation equipment and training materials; the other authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: This article reflects the views of the authors and does not necessarily reflect the views of the US Agency for International Development, the National Institutes of Health, or the US Government.

The Helping Babies Breathe (HBB) Global Development Alliance (GDA) was a public–private partnership created in June 2010 simultaneously with the launch of the educational program HBB. Its goal was to rapidly disseminate and implement neonatal resuscitation in low- and middle-income countries (LMIC) to reduce neonatal mortality and morbidity from birth asphyxia. Recognizing a unique convergence of interests among diverse organizations, the US Agency for International Development (USAID) invited 4 other founding partners, including the American Academy of Pediatrics (AAP), Laerdal Global Health (LGH), Save the Children's Saving Newborn Lives (Save), and the Global Network for Women's and Children's Health Research (GN) of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD). Shortly thereafter, Latter-day Saint Charities (LDSC), Johnson & Johnson, Catholic Medical Missions Board, Earth Institute at Columbia University, Project CURE, and the International Pediatric Association joined the alliance. The partners agreed on 5 objectives: (1) encourage increased international, regional, and national commitment and resources for newborn resuscitation as part of essential newborn care; (2) improve the availability of high-quality, appropriate, and affordable resuscitation devices and training materials; (3) improve the resuscitation capabilities of birth attendants; (4) strengthen the supply chain logistics for resuscitation devices; and (5) evaluate the impact of resuscitation programs at scale. As part of the 10th anniversary of HBB, representatives from 6 organizations in the HBB GDA responded to a common set of questions regarding their participation. Their answers illustrate commonalities and differences and how communication, collaboration, and consensus helped achieve outcomes that exceeded individual contributions.

CONTRIBUTORS

AAP: William Keenan, Fellow and HBB Associate Editor; George Little, Fellow and HBB Associate Editor; Susan Niermeyer, Fellow and HBB Editor; Janna Patterson, Senior Vice President, Global Child Health and Life Support; Eileen Schoen, HBB Program Manager (2010–2019).

GN: *Eunice Kennedy Shriver* NICHD: Linda L. Wright, Senior Medical Officer responsible for NICHD Global Network (2002–2015) and Waldemar A. Carlo, Site Principal Investigator, University of Alabama at Birmingham.

LDSC: Matthew Ross Gardner, Program Manager; Michael Visick, Project Manager; Robert Clark, Project Manager.

LGH: Tore Laerdal, Chairman; Anna af Ugglas, Global Program and Implementation Manager; Unni Silkoset, Business Development Director and Acting Chief Executive Officer.

Save: Steve Wall, Senior Director, Newborn Health.

USAID: Lily Kak, Team Lead for Newborn Health.

WHAT PERCEIVED NEED MOTIVATED YOUR ORGANIZATION'S PARTICIPATION?

In 2010 perinatal asphyxia (intrapartum hypoxic-ischemic events) remained one of the major causes of neonatal mortality, and there was no clear solution to the global problem, despite efforts on many fronts. More than 2 decades earlier, in 1987, the AAP had introduced the Neonatal Resuscitation Program (NRP) in the United States. As articulated in the strategic plan of the AAP, "The Mission of the American Academy of Pediatrics is to attain optimal health for all infants, children, adolescents and young adults." With a broad interpretation of that mission to include the health of all the world's children, the AAP responded to global requests for technical assistance in implementing NRP from countries in Latin America, Eastern Europe, Africa, and Asia. Those interactions led to a growing awareness that delivering professional education in well-resourced hospitals and medical centers would not be sufficient to address the gaps at lower levels of the health system in more resource-limited environments where the greater burden of neonatal mortality centered. LDSC began its involvement with NRP early on, implementing training in low-resource settings as part of their mission to relieve suffering and to serve those in need. LDSC had consulted with the AAP to develop their own version of a simplified NRP course for use in their trainings. Laerdal's collaboration with the AAP on the NRP program broadened the company's lifesaving focus from adult and pediatric cardiopulmonary resuscitation to saving lives at birth and also increased awareness of settings that were not being reached by NRP, where both the needs and the impact potential were much greater.

In the global health arena, governmental and nongovernmental organizations were searching for an effective response. The NICHD and the Bill and Melinda Gates Foundation funded the Global Network with the goal of developing the independent research capacity of investigators in Asia, Africa, and Latin America. Recognizing that birth asphyxia was the leading cause of neonatal death in LMICs, the Global Network's initial studies (First Breath) focused on resuscitation training at birth. GN investigators along with the AAP adapted NRP for training of delivery care providers

ranging from traditional birth attendants to physicians in tertiary facilities in India, Pakistan, Guatemala, Argentina, Democratic Republic of the Congo, and Zambia. At the same time, Save had been working to reduce newborn mortality through advocacy, research, innovative programming, partnership, and resource mobilization with special emphasis on the 3 major causes of neonatal death: complications of prematurity, infections, and intrapartum complications or birth asphyxia. Successful interventions promoted community-based essential newborn care, facility-based implementation and scale-up of kangaroo mother care, and outpatient treatment of serious newborn infections when referral was not possible. However, Steve Wall of Save noted, "Addressing the challenge of birth asphyxia proved difficult in low-resource settings, with limited skilled birth attendants, lack of necessary equipment, and lack of simple protocols to enable rapid response for non-breathing newborns." Implementation research in Indonesia examined whether community midwives could be trained to recognize nonbreathing newborns and use a tube-mask device.[1] However, "It was clear that there was a serious global gap in affordable, safe, and efficacious resuscitation equipment as well as a lack of simple educational tools to empower less experienced providers to effectively provide newborn resuscitation." In 2010, the global community intensified efforts and increased investments to reduce newborn mortality by increasing access to essential newborn care for all. Lily Kak of USAID summarized,

"While breastfeeding, thermal protection, and clean cord care were challenging, it was even more difficult to scale up newborn resuscitation. The intervention is critical for newborns who struggle to breathe at birth, but it is a complex intervention that requires many health systems components to come together to be successful: inclusion of many different cadres of health care providers, training that builds provider competencies, learning materials that are easy to use and effective, resuscitation devices that are functional and affordable, a logistics system for procurement and distribution, a health information system to capture necessary data, financing for implementation and oversight, and government commitment and leadership. Aligning all these aspects of the national health program was highly challenging and complex, resulting in an entrenched and intractable problem that desperately needed an innovative solution."

WHY DID THE HBB GDA MERIT YOUR ORGANIZATION'S INVOLVEMENT?

All organizations in the GDA had deep involvement in newborn survival and shared a common goal of addressing birth asphyxia, but it was the alliance mechanism that brought together their diverse skills and assets into a cohesive and functioning whole. GDA, as defined by USAID, describes a partnership between public and private entities that capitalizes on common or complementary interests among partners to improve social and economic conditions.[2] Lily Kak related,

"While USAID searched for solutions to overcome the obstacles to scaling up newborn resuscitation, the AAP and Laerdal had already begun developing innovative and affordable training and clinical materials to improve provider competencies, including Helping Babies Breathe, the NeoNatalie simulator and reusable resuscitation devices. Recognizing an opportunity for an innovative solution to a seemingly impossible global problem, USAID fostered a partnership that would harness technical expertise with implementation resources."

Laerdal brought a unique perspective based on the Utstein Formula for Survival, which expresses survival as the product of medical science times educational efficiency times local implementation.[3] Tore Laerdal reflected, "We were convinced that the weakest link is implementation, and there was a need to partner with strong implementation organizations, both on a global and a national level in order to really increase survival." Both the AAP and LDSC had a long tradition of supporting pediatric care providers in their training and practice needs related to care of the newborn but valued the opportunity to work in partnership with other organizations having a similar mission but more established global roles as implementers. Several member organizations had been involved in developing or adapting resuscitation training materials for low- and middle-income contexts and advised on the development of HBB; the GDA provided access to its purpose-built learning strategies and educational materials and equipment of the highest quality. Save the Children, other USAID implementing partners, and the NICHD Global Network sites found HBB to be the breakthrough needed to address previous gaps, but they were eager to quickly bring the intervention to scale in their programs and evaluate the outcomes. The Laerdal team summarized the shared motivation, "We have always believed we could achieve manifold greater impact through partnerships, and the HBB GDA was a great example of this. We can save so many more lives by working together."

WHAT WAS YOUR ORGANIZATION'S UNIQUE CONTRIBUTION TO THE EFFORT?

Each organization brought different skill sets to the partnership: USAID served as convener, and the AAP developed technical content and educational design together with Laerdal, who also developed distribution networks for materials and equipment. Save, together with other USAID implementing partners and nongovernmental organizations such as LDSC, led the cascade of training, as did the Global Network, with an added element of implementation science research.

USAID conceived of the HBB GDA as a "three-legged stool" in the words of Lily Kak. Two legs of the stool were innovative training approaches and materials and purpose-designed equipment for training and saving lives. However, the stool could not stand tall and stable without the third leg: partners who could implement the program in countries. Bringing together multiple implementing partners with a common focus enabled the alliance to reach >80 countries in 5 years, and 8 countries took the program to national scale with the support of their governments.

The AAP originated the HBB concept and contributed the extensive technical (medical) and educational expertise of its volunteer members, both in curriculum development and in the formation of a global corps of master trainers and facilitators. In its role as a founding partner, the AAP also served as secretariat for the GDA, maintaining communication among partners and providing annual documentation of operational details for reporting to USAID.

LGH was established as a nonprofit corporation to support educational program development and distribution of educational materials and resuscitation equipment at cost. Laerdal provided in-kind contributions of educational design and development of culturally adapted and affordable simulation training tools. Sharing the vision of how to invest most strategically to save more lives helped the program expand into a series of Helping Babies Survive (HBS) and Helping Mothers Survive (HMS) educational programs. Funding through the Laerdal Foundation supported multiple studies to evaluate the impact of the program. LGH and the Laerdal Foundation also co-convened the Utstein consensus conference in 2015 that led to published guidelines for best-practice implementation of the HBS and HMS programs.[4]

Save the Children entered into the GDA as the newborn health lead for USAID's flagship investment for implementation, the Maternal and Child Health Integrated Program. Save the Children's contributions to the HBB efforts included the combined SNL technical leadership, advocacy, and innovative programming in low-income countries along with Maternal and Child Health Integrated Program's prioritization of HBB as a cornerstone of its newborn health implementation and scale up efforts in LMICs. In addition, Save leveraged investments from Johnson & Johnson to implement HBB in selected countries in Africa.

The Global Network designed and conducted research to document the effectiveness of HBB. In the initial phase of the First Breath trial using simplified NRP, the Global Network trained large numbers of providers in a single country facility-based active baseline study (18 sites, 123 nurse midwives, >57 000 neonates) and showed a significant decrease in early neonatal mortality, from 25 to 16 deaths per 1000 live births (P = .003).[5] The subsequent population-based cluster-randomized control trial (5 countries, >62 000 neonates, 10 master trainers and 3676 birth attendants trained) revealed reduced neonatal mortality in 5 of 6 sites.[6,7] Linda Wright and Wally Carlo of the Global Network highlighted that, "Achieving those successful trials yielded significant experience in training and implementation across different geographies and medical systems and also established a network of high-quality data collection systems and perinatal registries." Those assets shaped the design and execution of a pre- and postimplementation trial of multisite scale-up of HBB training in India and Kenya.[8]

LDSC helped fund formative educational evaluation during development of the materials as well as field testing. In addition to mobilizing its network of volunteers as primary implementers, LDSC translated the educational materials into many different languages for use by others implementing groups. Funding also supported later field testing and evaluation of Essential Care for Every Baby and the second edition of HBB as well as Global Health Media Project videos on newborn resuscitation and Jhpiego development and field testing of HMS: Essential Care for Labor and Birth.

HOW DID YOUR ORGANIZATION QUANTIFY ITS CONTRIBUTION TO THE GDA?

Although all organizations tracked their investment of financial resources, numbers of providers trained, and equipment distributed, partners also made unique contributions in the form of volunteer time and talent, advocacy and policy change, and scholarship. The contractual terms for GDAs within USAID require the Agency to leverage its funds 1:1 with resources from partners. The HBB GDA leveraged nearly 3 times the resources invested by USAID for an estimated total of $58 million through December 2014. USAID's investments through global and country-level projects funded implementing partners to roll out the HBB program, manage the GDA secretariat, and support AAP and other USAID partners to implement the program. Including direct financial support and in-kind support, LGH and the Laerdal Foundation contributed >$25 million across a 10-year period. LDSC tracked both the purchase and donation of course materials and equipment and in-kind hours

donated by volunteers to implement 886 HBS facilitator courses and 81 HMS facilitator courses in 73 countries from 2010 to 2017. As secretariat for the GDA, the AAP estimated a total of >850 000 providers trained as part of the GDA and follow-on activities. The Global Network implementation trial of HBB examined not only the training cascade but also patient outcomes. Articles describing the implementation process and documenting reduction in fresh stillbirth and very early neonatal death informed the broader global health community; they also pointed out the importance of maintenance of knowledge and skills and quality improvement activities to achieve and sustain change in outcomes.[9,10] Save the Children tracked the introduction of national policies and frameworks to implement and scale up HBB in newborn health programs. In selected countries, Save tracked the number of babies successfully resuscitated at the subnational and even national level. In Bangladesh, the story of one infant saved highlighted the power of locally collected outcome data and individual success stories in creating policy change (Figs 1 and 2). All GDA partners contributed to the Utstein consensus conference in 2015 that produced guidelines for effective implementation of HBS and HMS programs as well as the 5-year report of the GDA, *Helping Babies Breathe: Lessons Learned Guiding the Way Forward*, which gathered published literature from many independent investigators and country case studies.[2,4]

WHAT WAS THE GREATEST SUCCESS OF THE GDA?

The GDA partnership succeeded in rapidly implementing and scaling up newborn resuscitation because of coordinated collective effort. Steve Wall of Save the Children observed, "I have not seen such a harmonized effort by partners resulting in rapid and dramatic increases in policy, program implementation, and scale for any other innovative newborn health intervention." All partners expressed agreement on this point, and yet each brought out slightly different aspects of success and why it occurred. For the AAP, the alliance completed the final link in the chain of survival that allowed a package of the best medical science and educational effectiveness to be delivered to providers and babies. Dr George Little noted, "Through the collaboration the possibilities for health care providers shifted and the lives of newborns were saved. Even more, the experience with resuscitation served as a catalyst for efforts to improve other aspects of essential newborn and maternal care." Both the Global Network and Save the Children reflected on development of "…the strengths of partners and stakeholders worldwide" and "…a legacy of national commitments and champions and empowered health care providers and program managers" (Figs 3 and 4). The LDSC team highlighted advocacy for newborn health as one of the greatest successes of the GDA: "The alliance helped bring attention to interventions that could be implemented at scale to address preventable causes of neonatal and maternal mortality and morbidity. It shined a spotlight on newborn health and expanded the global demand for newborn resuscitation and care." USAID and Laerdal also reflected that the GDA changed the global landscape for newborn resuscitation. Countries began to recognize the feasibility of reducing newborn mortality due to birth asphyxia and introduced newborn resuscitation into their national plans and budgets. A UNICEF report indicated that the HBB GDA had dramatically shaped the global market for resuscitation devices, increasing distribution fivefold in a period of 2 years.[11] The reach and overwhelmingly positive reception to the educational program contributed to the achievement of MDGs 4 and 5 in many countries. Since 2015, the program has continued to contribute to the gradual achievement of the Sustainable Development Goal 3 subgoals for reduction of newborn, child and maternal mortality and morbidity.

WHAT WERE THE GREATEST OR MOST UNEXPECTED CHALLENGES OF WORKING TOGETHER IN THE GDA?

Unexpected challenges were few, as Save articulated, "due in large part to the common vision and strong commitments by GDA partners to harness the power of collaboration." However, as pointed out by LDSC, the task itself was the real challenge: working side by side in a collaborative effort to implement programs required tremendous attention to communication and detailed division of responsibility. Tracking results proved difficult because some partners had stronger in-country data systems than others. For the Global Network, undertaking evaluation at scale, the greatest challenge was true impact evaluation at population level. Facing a lack of resources, infrastructure, staffing, and oversight at implementation sites, the effectiveness of the HBB program itself generated the enthusiasm and commitment that helped overcome challenges. USAID, the AAP, and Laerdal all reflected on the inherent challenges of the GDA framework with respect to sustainability, especially as the HBB GDA transitioned to the expanded scope of the Survive and Thrive GDA in 2012 and added new partners. Managing the expectations and interests of 20 diverse partners presented challenges to the function of the group, which were only compounded by changes in staff and leadership of individual organizations. Finances, focus on purpose, minimizing differences, and maximizing commonalities can

FIGURE 1
Tayeeba was one of the first infants saved through the HBB GDA partnership. She needed help to breathe, and her midwife, Sahkina, was able to provide ventilation after participating in the HBB workshop. Tayeeba's story was instrumental in propelling the national implementation of the program for midwives in Bangladesh.

become more difficult with time. Perhaps the greatest challenge, however, was sustaining the program "from donorship to ownership" once the GDA came to an end.

HOW DID THE GDA CHANGE YOUR ORGANIZATION'S INTERACTIONS WITH IMPLEMENTING PARTNERS ON THE FRONTLINE AND OTHER PARTNERS IN THE ALLIANCE?

Strong collaboration and expanded partnerships characterized the experience of all organizations. Save the Children pointed out strong engagement and collaboration with frontline health workers, who viewed HBB as a breakthrough that overcame traditional barriers to providing asphyxia management in low-resource settings. All partners reflected on how the GDA broadened their network of relationships and deepened their existing relationships. Both LDSC and the AAP integrated broader educational programs, including other aspects of essential newborn and maternal care into their educational offerings to meet the needs of providers. Advocacy by the GDA helped ministries of health and other governmental organizations recognize and endorse continuing professional education using standardized curricula developed by globally respected organizations. The GDA facilitated integration of partner efforts within countries, working in consultation and under the leadership of the national government, which resulted in better systems development for newborn resuscitation and strengthening at the country level.

WHAT WAS THE LASTING IMPACT OF THE GDA FOR YOUR ORGANIZATION?

Many aspects of the GDA endured: relationships among the specific partners, the power of partnership itself, the effectiveness of the intervention, and the commitment to improving survival at birth. The AAP expanded involvement in global initiatives beyond resuscitation and continues to work in partnership with many of the organizations that were part of the GDA. The HBB GDA also taught the value of building partnerships around a focused goal or

FIGURE 2
Tayeeba, as a thriving 5-year-old, prepared to go to school as her mother prepared to welcome a new child in the family.

activity and keeping partnerships nimble. Similarly, LDSC strengthened relationships with organizations sharing similar goals and values. The Global Network cited the success of the GDA in making it possible for NICHD, principal investigators, and in-country partners to develop new collaborations with countries, funding agencies, and universities. The GN expanded its capacity to address critical problems in the developing world and increase individual skills and opportunities at many different professional levels. Save noted, "The GDA demonstrated the power of partnerships across disciplines and different stakeholders, working at global level to effect lasting change at country level." USAID also reflected that "The results achieved by the GDA have endured well beyond the partnership. The GDA propelled HBB across the globe; the term 'Helping Babies Breathe' has become a household word and is often used interchangeably with newborn resuscitation. The widespread awareness of the feasibility of scaling up newborn resuscitation and the institutionalization of this in national systems' informatics, quality improvement, logistics, and budgets are all evidence of the enduring nature of this program. And finally, for LGH, the GDA forged a strong ongoing commitment to helping save lives at birth in low-resource settings.

WHAT LESSONS FROM THE GDA MIGHT HELP OTHERS WORKING TO ADDRESS CRITICAL PROBLEMS AND GAPS IN THE FIELD OF MATERNAL, NEWBORN, AND CHILD HEALTH?

The lessons learned were many and reflected the variety of perspectives within the GDA. USAID emphasized that selecting the right solution to a problem is critical. A GDA is not necessarily the solution to every obstacle in global health. Agreeing on a common vision, clarifying each partner's unique role, and being accountable for the results are important elements that should be articulated in a formal Memorandum of Understanding through a consensus-driven process. It is important to work on interventions that are evidence-based and aligned with World Health Organization (WHO) recommendations and critical to work with partners on the ground at the country level who are familiar with the national context and who have a network of partners in-country. From a similar perspective, LGH emphasized that a GDA requires a strong, proactive, and empowered secretariat to succeed, as well as a minimum level of funding and strongly committed representatives of each partner. Save emphasized the value of innovative, simplified tools that empower actions by frontline health workers previously unprepared to intervene effectively. Both Save and the Global Network stressed that when tackling a previously intransigent problem, it is especially important to have implementing partners, technical experts, material development and distribution experts, and donors working collaboratively to harness their collective capacities. LDSC and the AAP pointed out that training alone has minimal impact without mentoring and longitudinal quality improvement activities integrated into country-owned programs. Those lessons can be applied to other aspects of maternal, newborn, and child health and, in fact, should be promoted to develop deliberate collaboration between maternal and newborn health professionals who must work as one to protect the mother–newborn dyad. LDSC expressed the valuable lessons the GDA taught on the complexity of developing a program that is sustainable and truly owned by the countries and partners where it is implemented. Although having the right structure, partners, and tools and interventions is essential, all partners agreed that perhaps the most important lesson is to build sustainability through local ownership and change in the culture and structure of the health system.

FIGURE 3
Nakaseke District Hospital, Uganda. March 22, 2018. Registered midwife Eva Nangalo, 39, trains student midwives on techniques of HBB; she first began training with Save the Children in 2012. Eva proudly continues the training today.

How Do You See Your Organization Contributing to the Next Steps in Improvement of Care for Mothers and Newborns?

Commitment to saving lives at birth remains strong as does the commitment to partnership. Many of the GDA members continue to work together to broaden the scope of change, strengthen health systems, and reach every newborn. The AAP provides peer-to-peer support across more than 15 countries and is also engaged in deep technical work with WHO and UNICEF at the global and country level in efforts to attain high levels of coverage and quality in essential newborn care. Partnerships with nursing and obstetric colleagues focus on changing whole systems to improve the outcomes of newborns, with training just one critical piece of that change. Save is committed to reducing preventable newborn deaths and stillbirths by mobilizing action and commitments at country level; sustaining breakthroughs such as HBB to effective coverage at scale is necessary to reach every newborn. Ending preventable maternal, newborn, and child death remains a priority of USAID, and investments in programmatic support and strengthening health systems continue as part of the US Government's global development assistance. LDSC is working to promote collaboration among an expanded group of key partners (including AAP, Save the Children, Jhpiego, Global Health Media Project, the International Confederation of Midwives, Project Hope) and thus avoid a fragmented approach to implementation. The Global Network and its members continue to scale up HBB through partnerships in countries participating in the network. GN has also expanded its research on perinatal care, with a trial of emergency obstetrical and newborn care incorporating HBB and other interventions. Laerdal continues collaboration with AAP, Jhpiego, and other partners but is also expanding the collaboration to new partners, including WHO, the International Confederation of Midwives, the International Federation of Gynecology and Obstetrics, and the Global Financing Facility for Reproductive, Maternal, Newborn, Child and Adolescent Health. Current activities focus on further developing and assuring the quality

FIGURE 4

Eva Nangalo, registered midwife in Nakaseke District Hospital, Uganda, explains, "We could have fresh still births and many neonatal deaths. But all that reduced with the intervention of HBB. Save the Children also took us through effective monitoring of mothers in labor. This has also helped reduce babies born with asphyxia. They also trained us on good communication skills when managing mothers, creating rapport with mothers and feedback and comfort to relatives. It helped keep good relationship to our mothers. We still have gaps, we've started a new neonatal unit and need equipment and training." (Photo credit: Juozas Cernius, Save the Children).

of educational programs, incorporating digital approaches such as e-learning modules and digitally based competency maintenance solutions. The aim is to embed the implementation of comprehensive maternal and newborn care modules in national health system plans with funding and support by the ministries of health in as many LMICs as possible. The challenge is to build the case that rather than an additional financial burden for these countries, this strategy is both a good investment and an effective approach to achieve the Sustainable Development Goals subgoals relating to maternal, newborn, and child health.

CONCLUSIONS

The HBB GDA capitalized on a convergence of interests to bring together diverse organizations and harness the power of collective action. Strong commitment to a shared goal, formalized in the working structure of the alliance, accomplished outcomes that no single organization or sector could achieve on its own. The GDA raised global awareness of asphyxia-related newborn mortality and demonstrated the feasibility of tackling a previously intractable cause of newborn death. The partners worked together to deliver simpler, more effective methods and materials for education and clinical care. The groundswell of experience and evidence influenced updating of global policy recommendations and approaches to education of health care providers. A global supply chain for neonatal resuscitation equipment took shape and increased the availability of affordable devices. Programmatic evaluation and implementation research documented effectiveness but also heightened awareness of the need for more appropriate indicators to track further progress. Many collaborations forged in the GDA have continued and expanded as the organizations seek to broaden further the scope of maternal and newborn initiatives, strengthen health systems, and reach every newborn.

ABBREVIATIONS

AAP: American Academy of Pediatrics
GDA: Global Development Alliance
GN: Global Network for Women's and Children's Health Research
HBB: Helping Babies Breathe
HBS: Helping Babies Survive
HMS: Helping Mothers Survive
LDSC: Latter-day Saint Charities
LGH: Laerdal Global Health
LMIC: low- and middle-income countries
NICHD: National Institute of Child Health and Human Development
Save: Save the Children's Saving Newborn Lives
USAID: US Agency for International Development
WHO: World Health Organization

REFERENCES

1. PATH. *Reducing Birth Asphyxia Through the Bidan Di Desa Program in Cirebon, Indonesia: Final Report Submitted by Program for Appropriate Technology in Health (PATH) to Save the Children US*. Jakarta, Indonesia: PATH; 2006
2. Kak LP, Johnson J, McPherson R, Keenan W, Schoen E, eds. *Helping Babies Breathe: Lessons Learned Guiding the Way Forward. A 5-Year Report From the HBB Global Development Alliance*. American Academy of Pediatrics, Laerdal Global Health; 2015. Available at: https://www.aap.org/en-us/Documents/hbb_report_2010-2015.pdf. Accessed May 25, 2020
3. Søreide E, Morrison L, Hillman K, et al; Utstein Formula for Survival Collaborators. The formula for survival in resuscitation. *Resuscitation*. 2013; 84(11):1487–1493
4. Ersdal HL, Singhal N, Msemo G, et al; participants in the Utstein consensus process: How to Implement Successful Helping Babies Survive and Helping Mothers Survive Programs. Successful implementation of Helping Babies Survive and Helping Mothers Survive programs-an Utstein formula for newborn and maternal survival. *PLoS One*. 2017;12(6):e0178073
5. Carlo WA, McClure EM, Chomba E, et al. Newborn care training of midwives and neonatal and perinatal mortality rates in a developing country. *Pediatrics*. 2010;126(5). Available at: www.pediatrics.org/cgi/content/full/126/5/e1064
6. Carlo WA, Goudar SS, Jehan I, et al; First Breath Study Group. Newborn-care training and perinatal mortality in developing countries. *N Engl J Med*. 2010;362(7):614–623
7. Carlo WA, Goudar SS, Jehan I, et al; First Breath Study Group. High mortality rates for very low birth weight infants in developing countries despite training. *Pediatrics*. 2010;126(5). Available at: www.pediatrics.org/cgi/content/full/126/5/e1072
8. Bang A, Bellad R, Gisore P, et al. 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 Childbirth*. 2014;14:116
9. Bang A, Patel A, Bellad R, et al. Helping Babies Breathe (HBB) training: what happens to knowledge and skills over time? *BMC Pregnancy Childbirth*. 2016; 16(1):364
10. Bellad RM, Bang A, Carlo WA, et al; HBB Study Group. A pre-post study of a multi-country scale up of resuscitation training of facility birth attendants: does Helping Babies Breathe training save lives? *BMC Pregnancy Childbirth*. 2016;16(1):222
11. UNICEF Supply Division. Resuscitation devices market and supply update. 2014. Available at: https://www.unicef.org/supply/reports/resuscitation-devices-market-and-supply-update. Accessed May 25, 2020

Helping Babies Breathe Global Development Alliance and the Power of Partnerships

William J. Keenan, Susan Niermeyer, Anna af Ugglas, Waldemar A. Carlo, Robert Clark, Matthew Ross Gardner, Lily P. Kak, Tore Laerdal, George A. Little, Janna Patterson, Eileen Schoen, Unni Silkoset, Michael K. Visick, Stephen Wall and Linda L. Wright

Pediatrics 2020;146;S145
DOI: 10.1542/peds.2020-016915G

Helping Babies Breathe Global Development Alliance and the Power of Partnerships

William J. Keenan, Susan Niermeyer, Anna af Ugglas, Waldemar A. Carlo, Robert Clark, Matthew Ross Gardner, Lily P. Kak, Tore Laerdal, George A. Little, Janna Patterson, Eileen Schoen, Unni Silkoset, Michael K. Visick, Stephen Wall and Linda L. Wright

Pediatrics 2020;146;S145
DOI: 10.1542/peds.2020-016915G