Neonatal Resuscitation Training and Systems Strengthening to Reach the Sustainable Development Goals

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On the eve of the 10th anniversary of Helping Babies Breathe (HBB), we are clearly on the precipice of a new era. Currently, the coronavirus disease 2019 pandemic has made in-person gatherings challenging, if not impossible. Health systems are stretched far beyond the typical limits. We see innovation in infection control approaches, personal protective equipment, and communication with health care professionals and families. Crisis can be the stimulus for innovation, and this will surely spur a new approach to preparation of health care workers. This preparation will go far beyond traditional concepts of training and is best conceptualized as supporting the success of health care workers as measured by their impact within a health system on the population it serves. After all, if the health of a population is not supported or improving, the health care worker is not achieving his or her goal.

HBB was launched in 2010 during the Millennium Development Goals era, in which the world set 8 measurable goals that ranged from halving extreme poverty and hunger to reducing child mortality by the target date of 2015. At this time, there was a critical need to develop training materials that could be used at a local level in resource-limited settings without relying on sophisticated technology. HBB materials are available for free online and are easily downloadable so that they can be used by those with intermittent Internet access. Hard copies of the materials can be purchased or printed locally in-country. Countless labor and delivery units have the action plan hanging on the wall near the site of resuscitation, and thousands of flip charts for training have been disseminated around the world.[1] Many people will continue to use these paper-based training materials, but the current pandemic has made it even more clear that there is a pressing need for virtual or e-tools.

We know that acquisition and maintenance of new skills for health care workers is not a single event. It requires multiple stages, including knowledge acquisition, skills practice, follow-on mentorship, and tracking of new skills in clinical application. The digital environment that envelops us all has changed our expectations and way of thinking. Health care workers desire and deserve "just-in-time" education.

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They want to refresh their knowledge of the neonatal sepsis treatment protocol when they have a sick infant in front of them. This will require converting a multiday in-person training to bite-sized infographics and video clips, supported by a mentor who can explain the details and nuance of how to use the protocol.

The previous model of providing training in a central hospital or hotel conference room in the capital city, providing a per diem for health care workers to be away from their homes and workstations for multiple consecutive days (or even weeks), is inefficient. It misdirects financial resources, often guts the clinical services available for that time period, and does not easily allow for integration within the providers' actual work environments. Perhaps most importantly, it is ineffective in achieving the goal of new skill acquisition and mastery. Research has repeatedly shown that acquiring and practicing skills in a setting that is similar to the typical daily environment is most effective in transforming abilities and practice.[2] In addition, repeated practice of skills is not enough if there is not a feedback mechanism that fuels improvement and progress toward high-quality care.

We are now in the Sustainable Development Goals (SDGs) era. Specifically, SDG 3 has set an ambitious target for reducing neonatal mortality to 12 deaths per 1000 live births by 2030 in all countries.[3] To fully reach SDG 3, countries must achieve universal health coverage, which requires access to, and use of, quality essential health care services as well as a sufficient number of skilled health workers who have been trained in evidence-based standards of care.

As highlighted in the article, "Reducing Perinatal Mortality in Nepal Using Helping Babies Breathe," quality improvement (QI) teams at the facility level can provide a vehicle for a new way of thinking about delivery of high-quality care, thereby increasing adherence to protocols and reducing mortality.[4] When paired with a culture of empowerment and innovation, health care workers can track their progress in implementing their new skills, measuring frequency, effectiveness, patient outcomes, and more. QI teams who look at data together from their own facilities gain insight into what is actually happening versus what they believe is happening. In addition, these teams often provide a venue for conversations between birth attendants and obstetric and pediatric health care workers that may not happen easily in the daily rush of clinical care. Examining data within QI teams can also point to additional system issues that need to be addressed by clinical leadership and administrators.

We also know that health care workers can have excellent skills, but if a supportive, well-financed health care system is lacking, their effectiveness and performance are limited. Financial resources are an essential health system input, yet financial constraints impact all health systems, especially those in low-income and lower-middle–income countries (LMICs). An analysis completed by *The Lancet* revealed that increased prioritization of the health sector and economic development can lead to increased government spending globally, which can be an important step toward improved health outcomes.[5] At the most basic level, supply chains must be in place to procure essential equipment, such as appropriately sized bag and masks for neonatal resuscitation. Running water and soap or alcohol-based hand sanitizer must be available for infection-prevention measures to be practiced, and the safety of both patients and health care workers must be prioritized by ensuring the availability and improved use of personal protective equipment for and by health care personnel. On a larger level, newborn programs, including resuscitation, must be integrated into national budgets to protect against a shortfall or breakdown in supply chains and to ensure that systems are in place for sustained implementation at scale to help achieve widespread, national impact.

In addition to having access to resources and commodities, it is equally critical for rational data-recording systems to be in place that promote good communication and continuity of patient care. These systems allow for the collection of meaningful, high-quality data that can be used locally to identify gaps in service delivery, guide improvement approaches, and inform regional and national health statistics. More specifically, it is imperative to include resuscitation in health management information systems so that health providers, program managers, and policy makers can track the progress of their resuscitation programs at the facility, district, and national levels.[6]

Effective deployment of human resources for health (HRH) poses another challenge. The World Health Organization (WHO) is predicting a shortfall of 18 million health care workers by 2030, with LMICs experiencing the most significant shortages.[7] Bold actions and investments at the country and international levels will be necessary to address this shortfall, but there are initiatives and actions that can be promoted now to increase efficiency in using existing HRH. Simple adjustments to management processes and policies, such as eliminating or limiting the rotation of trained maternal and newborn care providers, can help maximize educational investments and ensure that quality, patient-centered care is maintained.

Evidence indicates that supportive supervision is another critical activity that can positively impact health

worker performance, motivation, retention, and satisfaction, yet formal supervisory or mentorship mechanisms often have low coverage or are not adequately promoted in LMICs.[8] Monitoring performance and providing real-time feedback enables health care workers to learn and grow, which can be instrumental in nurturing future generations of leaders who will shape the health and well-being of their communities for decades to come.

Furthermore, to achieve an impact at the country level, evidence-based training, such as the HBB curriculum, must be integrated into pre-service and in-service educational packages. In particular, strengthening pre-service training for all newborn care providers offers a high return on investment by inculcating newly minted professionals in the culture and importance of continuous QI. All these components taken together (financing, strong supply chains, data collection, effective allocation of HRH, prioritizing supportive supervision, and evidence-based, innovative pre-service training) can help to transform the health system approach from one of monitoring and compliance of appropriate skills to one of yearning and learning of skills and self-guided practice improvement.

However, for education to translate to improved clinical practices and increased survival for mother and infant, we must also focus on implementation. The article "Successful Implementation of Helping Babies Survive and Helping Mothers Survive Programs–An Utstein Formula for Newborn and Maternal Survival" provides a 10-point list of essential action steps designed to promote successful national implementation of the Helping Babies Survive and Helping Mothers Survive programs.[9] This article can be used to guide processes in LMICs.

Overall, the Utstein consensus process highlighted that successful implementation requires country-led commitment, readiness, and follow-up to create local accountability and ownership. Each country must identify its own gaps and design a uniquely tailored national plan; these elements are necessary to institutionalize education and QI as part of a sustainable, routine function of maternal and newborn care.

Integration of maternal and newborn care has been a buzz topic for some years now, but it may be unrelatable for a midwife working at the community level. Is she not already integrating the care she provides for the mother to whom she gives oxytocin after birth and the infant who needs a few breaths of positive pressure ventilation? At the level of implementation, this care is often provided by one and the same person. However, at national and global levels, there are distinct communities of maternal health professionals and newborn health professionals who do not always work in a concerted fashion. This will only improve through purposeful efforts to work jointly on policy guidance at the global and national level.

Collaboration between maternal and newborn professionals is only one axis of the teamwork necessary to support health care workers within a health care system. Public and private sector cooperation is another key ingredient. The "three-legged stool" that formed first the HBB and then the Survive and Thrive Global Development Alliance included private sector partners that brought innovation and commercialization know-how (eg, Laerdal), government partners that had deep infrastructure in support of whole health systems (eg, the US Agency for International Development), and technical expertise in clinical skills and capacity building (eg, The American Academy of Pediatrics). The unique contribution of each partner contributed to rich learning materials that could be disseminated and implemented effectively. Additional partnerships with country-level organizations, such as midwifery associations, pediatric and obstetric societies, other nongovernmental organizations and, certainly, ministries of health, have been key to global diffusion and country implementation. Working with governments to roll out training materials has also been critical to highlighting other components of health care delivery that needed addressing to have an impact on the population.

Ultimately, we cannot save lives in silos; everyone has a role to play in ending preventable maternal and newborn deaths. Empowering health workers, communities, parents, civil society, and other stakeholders to serve as champions for newborn health can bring about sustainable change and keep providers and governments accountable for providing accessible, high-quality care. Parents must be included in the program education and implementation process and must speak out to demand excellent care for their infants. Health care workers will strive to provide the best care possible and advocate for better support and training to provide high-quality care. Collaborative efforts between governments, civil society, and private partnerships will be built and maintained to help build capacity and encourage shared, local ownership.

Moving forward, partnerships will remain key to supporting high-quality care for mothers and newborns. To achieve the WHO Global Strategy on Human Resources for Health: Workforce 2030,[10] collaboration across maternal and newborn experts and public and private sectors and integration with universal health coverage and sufficient health financing will be essential. Newborn resuscitation training will be

important but will be insufficient without the continuity of quality maternal-newborn services and commodities across the health system. The partnership led by WHO, in collaboration with the American Academy of Pediatrics and Laerdal Global Health, to provide integrated tools for essential newborn care is an excellent example of how collaboration and strengthening of health systems can make a valuable contribution to public resources. The potential impact of programs like Helping Babies Survive is exponentially increased by partnering with organizations such as WHO and the United Nations Children's Fund. Ultimately, catalyzing country ownership of these programs can lead to local evidence generation and synthesis and, finally, new knowledge and ways of practice. This will drive change and improve the lives of mothers and newborns.

ABBREVIATIONS

HBB: Helping Babies Breathe
HRH: human resources for health
LMICs: low-income and lower-middle–income countries
QI: quality improvement
SDG: Sustainable Development Goal
WHO: World Health Organization

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