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Research Article

Helping Babies Breathe in Nepal: Results of a Telephone Debriefing of Master Trainers

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Abstract

Background: Millennium Development Goal 4 (MDG4) called for a two-thirds reduction in global child mortality from 1990 to 2015. Although the worldwide under-five (U5) mortality has decreased significantly, reductions in neonatal mortality have not been as dramatic. In Nepal, neonatal mortality has decreased slowly despite improvements in maternal and child health. Helping Babies Breathe® (HBB) training has been shown to decrease perinatal mortality. To assist with improving perinatal outcomes, the HBB program was initiated and disseminated in Nepal by Latter-day Saint Charities (LDSC).

Methods: From 2012 to 2015LDSC sponsored eight Helping Babies Breathe® (HBB) training of trainer (TOT) courses in Nepal to empower master trainers. LDSC implemented a relatively unsupervised, hospital-based, voluntary resuscitation training program, independent of government in-service training, in selected areas of Nepal. Atelephone debriefing system was established to maintain contact with master trainers on a monthly basis, for up to six months after the TOT, including (1) tracking the extent and the quality of the secondary training, and (2) encouraging and assisting master trainers in carrying out their training plan. The purpose of this study is to report the dissemination of training from this unique hospital-based program utilizing the findings from the telephone debriefing system.

Results: During the initial TOTs, 445 master trainers were trained. Of the 218 health care facilities represented at the TOTs, 216 (99.1%) participated in the telephone debriefing during at least one month (during the six-month follow-up period) following the TOT. Among participating facilities, 181 (84.2%) held an HBB training course during at least one follow-up month. A total of 124 (68.1%) facilities held only formal trainings, 44 (24.2%) held only informal trainings, and 14 (7.7%) held both formal and informal trainings. Master trainers reported training 4,464 providers, using HBB training methods, within six months of their respective TOT attendance. Factors found to be associated with number of providers formally trained included type of facility and training city.

Conclusion: The findings of this study suggest that the hospital-based, semi-autonomous implementation model resulted in significant secondary training of resuscitation techniques. Further, telephone debriefing systems can be feasibly used to track the scale-up of HBB training in Nepal. Finally, telephone contact can provide an opportunity for monitors to remind providers to hold trainings, offer needed advice and encouragement, and assess training successes and challenges.

ABBREVIATIONS

MDG4: Millennium Development Goal 4; HBB: Helping Babies Breathe; TOT: Training of Trainer; LDSC: Latter-Day Saint Charities

INTRODUCTION

Millennium Development Goal 4 (MDG4) called for a two-thirds reduction in global child mortality from 1990 to 2015. Efforts to achieve this goal mobilized massive global resources [1]. Since 2000, the worldwide under-five (U5) mortality has dropped significantly, with an estimated 5.9 million worldwide U5 deaths in 2013 [2]. Reductions in neonatal mortality, however, have not been as dramatic, with an increasing proportion of overall child deaths are attributed to the first month of life. Globally, neonatal deaths accounted for 37% of the estimated child deaths in 1990 [3], compared with 45% in 2015 [4]. The UN Inter-agency Group for Child Mortality Estimation predicts that neonatal deaths will account for 52% of child deaths by 2030 [4].

Similarly, neonatal mortality in Nepal has decreased slowly despite improvements in maternal and child health. Nearly two-

thirds of child deaths in Nepal occur in the first 28 days of life. In 2015, the under-5 mortality rate in Nepal was 35.8 per 1,000 live births and the neonatal mortality rate was 22.2 per 1,000 live births [5,6]. A very large proportion of global and national child deaths could be averted by cost-effective, scalable interventions [7].

Helping Babies Breathe® (HBB) was developed by the American Academy of Pediatrics and launched in 2010 as a training tool to address the burden of birth asphyxia and intrapartum events in low- and middle-income countries. HBB trains birth attendants in the skills of neonatal resuscitation. The curriculum emphasizes "assessment of every baby, temperature support, stimulation to breathe, and assisted ventilation as needed" within the first minute after birth (The Golden Minute®). Stimulation, support, and/or ventilation will most likely save a life when initiated within this window [8].

The educational material of HBB consists of a well-tested pictorial representation of the resuscitation protocol, learner workbook, facilitator flip chart, neonatal simulator and equipment (i.e., reusable ventilation bag and mask devices and bulb suction devices) [9,10]. It is based on the International Liaison Committee on Resuscitation guidelines, and focuses on the common reality of only one birth attendant being present to provide care to both the mother and newborn [11,12].

Several studies have evaluated the HBB program by changes in stillbirth and early neonatal mortality, cost-effectiveness, knowledge of health workers, and competency of health care providers. A study of HBB in Nepal reported a 54% decline in stillbirths and 49% decline in 24-hour mortality [13]. Similar results were documented in a large trial in Tanzania [14]. A study of cost-effectiveness in rural Tanzania found that HBB is cost-effective intervention [15]. HBB training evaluations in Ethiopia and India also showed that neonatal resuscitation knowledge of health workers improved immediately after training [16,17].

However, a subsequent study in Tanzania showed a significant decline in resuscitation skill performance after six months [18]. Similarly, an evaluation of the retention of neonatal resuscitation competency in Rwanda showed that competency dropped to an unsatisfactory level within three months after the training [19]. Several studies in high- and low-income countries have shown that resuscitation competency improves immediately after the training; however, the resuscitation skill tends to deteriorate over a period of time. These studies suggest that HBB training needs to be followed up by on-going training and skill maintenance to improve neonatal resuscitation competency.

In contrast to the implementation models described in prior studies, LDS Charities (LDSC) initiated a resuscitation training and dissemination model that was uniquely matched to the current conditions in Nepal. The model was hospital-based, independent of in-service training and other governmental supervision, and geared towards future scale-up efforts in the country. Worldwide, LDSC routinely conducts follow-up telephone surveys of master trainers with the goal of assessing their dissemination of resuscitation training, the availability of equipment, and their personal experience. In Nepal, additional questions were added to the survey with the goals of determining the details of the dissemination, describing institutional experience, and finding opportunities to assist the master trainers with dissemination. The purpose of this study is to report the extent and details of the dissemination of the resuscitation training, with reference to the implementation model employed. Demographic data from the course registration questionnaires were used to further inform the survey results regarding the dissemination of training.

MATERIALS AND METHODS

Study setting

HBB training first began in Nepal in 2012, sponsored by Latter-day Saint Charities. From 2012 to 2015, eight HBB training of trainer (TOT) courses were held to empower master trainers from the public and private sectors. The Ministry of Health inserted portions of HBB into national training curriculum packages in 2015 and has since supported the scale up of resuscitation training

Study design

In this study, a prospective cohort design was implemented. At least one of the eight HBB TOTs conducted from 2012-2015 occurred in each of the five administrative regions of Nepal. Specifically, trainings were conducted in the Eastern Region (Biratnagar), Central Region (Kathmandu), Western Region (Chitwan), Pokhara, Midwestern Region (Nepalgunj), and Far West Region (Dhangadhi). Both public and private facilities from the surrounding districts, with a focus on larger facilities (district hospital and above), were invited to participate in the program. Those who accepted the invitations sent representatives of their choosing to the two-day master trainer courses. The Ministry of Health did not adopt HBB into national training packages until the completion of these training sessions, therefore participation in the training was voluntary for all the facilities involved.

In addition to the voluntary participation, this hospital-based HBB dissemination effort was not supervised or monitored by external agencies or individuals other than the telephone debriefing program. Upon successful completion of training, master trainers received a complete set of translated training materials, and were given additional equipment (primarily bags and masks) for use in their delivery rooms. They submitted plans to train the other providers at their respective facilities in the ensuing months and agreed to the telephone monitoring and debriefing system. Debriefing efforts targeted all who attended the eight master trainer TOTs.

This research represents a secondary analysis of data initially collected for the purposes of program evaluation. While LDSC doesn't seek approval from an ethical review board for program evaluation, the HBB master trainer workshop does include commitments by participants regarding HBB dissemination and reporting. Workshop sessions focused on planning, usually conducted by local Nepali health authorities, inform the master trainers of dissemination expectations, the survey process, and obtain their participatory consent.

Data collection

At the start of each HBB TOT, the master trainees complete a registration questionnaire, which includes questions about

their professional background and experience. The telephone debriefing system designed to obtain dissemination and experiential data was modified to maintain contact with master trainers, on a monthly basis, for up to six months after the TOT. The debriefing system had three parts: (1) a survey with a standard set of questions as described above, (2) an unstructured discussion to aid master trainers in carrying out their training plans, and (3) an Excel spreadsheet to summarize results. Each month, the same two Nepali medical workers conducted the telephone survey, including discussion and advice regarding challenges, and submitted the report. .

Variables

The registration questionnaire assessed several variables including the master trainer's facility type, professional degree, years of professional experience, prior resuscitation training and experience, and equipment at the facility. This questionnaire and the follow-up survey were developed by the Maternal and Newborn Care Advisory Committee at LDSC, with Nepal-specific modification and formatting by the authors. The follow-up survey is found in the appendix (Appendix 1).

Statistical analysis

The unit of analysis for the registration data was the master trainer. For the telephone debriefing data, the unit of analysis was the health care facility. While most questions in the registration questionnaire evaluated the experiences of the master trainer taking the survey, the questions in the telephone debriefing survey evaluated the facility where the master trainer works.

Descriptive and analytic statistics were computed using Statwing, the statistical analysis software of Qualtrics (Provo, UT, USA). Descriptive statistics (frequencies and percentages) were computed to describe the characteristics of trainers (registration data) as well as HBB dissemination (telephone debriefing data). Analytic statistics (one-way analysis of variance [ANOVA]) was run to understand factors associated with HBB dissemination.

RESULTS

Background characteristics

Hospitals were selected on a regional basis, invited to participate and to select the candidates for the master trainer course. The registration questionnaire describes the variety of participating facilities and the background of the master trainer candidates, with a total of 445 master trainers in the eight TOTs. While each of the 445 master trainees were asked to complete the registration questionnaire at the start of the TOTs, not all of the trainees responded to all of the questions. As a result, the total count varies between survey item. Based on the results of the registration questionnaires, 164 (25.0%) master trainers were from sub-district facilities and 178 (27.1%) were from teaching facilities. The facility types are further described in table (1).

In terms of professional credentials, 61.8% were nurses, 17.8% were doctors, and 11.7% were midwives. In regards to experience, 52.1% had at least 6 years of experience. The backgrounds of master trainers are further described in table (2). Among the master trainers, 58.3% had received prior resuscitation training, and 62.3% had prior experience resuscitating babies. In addition, 75.6% were actively involved with deliveries and 57.8% had participated in resuscitations in the past six months prior to the TOT course. In terms of equipment, 81.2% reported having a bag and mask at their facility. The resuscitation experiences of master trainers are further described in Table (3).

Test performance

Master trainers demonstrated their improved knowledge through test scores, with a Pre-test to Post-test score differential of 14.6%. In addition, 96.9% of master trainers passed the three skill tests (Bag and Mask, OSCE A, and OSCE B).

Telephone debriefing

The secondary dissemination of resuscitation training, and aspects of the quality of the dissemination were measured by the telephone monitoring and debriefing system. The repetitive approach of monthly discussions helped monitors develop better rapport and assess progress over time. The veracity of the telephone reports was not verified by alternative methods.

The 218 health care facilities that were represented at the initial TOTs were contacted, with 216 (99.1%) participating in the telephone debriefing during at least one month (during the six-month follow-up period) following the TOT. The facilities that did participate monthly for the six months usually participated in the final 6-month survey. The two non-participating facilities could not be engaged in the debriefing process either because the contact information was incorrect or the master trainer had

Table 1: Facilities of master trainers.

	Frequency	Percent (95% Confidence Interval)
Type of Facility		
Zonal	55	8.4 (6.5 - 10.8)
Regional	12	1.8 (1.0 - 3.2)
District	107	16.3 (13.7 - 19.3)
Sub-district	164	25.0 (21.8 - 28.5)
Teaching	178	27.1 (23.9 - 30.7)
Private	107	16.3 (13.7 - 19.3)
Other	33	5.0 (3.6 - 7.0)

Table 2: Credentials of master trainers.

	Frequency	Percent (95% Confidence Interval)
Professional Degree		
Doctor	79	17.8 (14.5 - 21.6)
Nurse	275	61.8 (57.2 - 66.2)
Midwife	52	11.7 (9.0 - 15.0)
Student	10	2.2 (1.2 - 4.1)
Teacher	6	1.3 (0.6 - 2.9)
Other	23	5.2 (3.5 - 7.6)
Years in Profession		
1-5 years	210	47.9 (43.3 - 52.6)
6-10 years	81	18.5 (15.1 - 22.4)
11-15 years	53	12.1 (9.4 - 15.5)
16-20 years	41	9.4 (7.0 - 12.5)
More than 20 years	53	12.1 (9.4 - 15.5)

Table 3: Resuscitation experiences of master trainers.

	Frequency	Percent (95% Confidence Interval)
Prior Resuscitation Training		
Yes	257	58.3 (53.6 - 62.8)
No	184	41.7 (37.2 - 46.4)
Prior Experience Resuscitating Babies		
Yes	246	62.3 (57.4 - 66.9)
No	149	37.7 (33.1 - 42.6)
Avg. Monthly Deliveries		
No deliveries	109	24.4 (20.7 - 28.6)
1-5 deliveries	104	23.3 (19.6 - 27.5)
6-15 deliveries	97	21.7 (18.2 - 25.8)
16-25 deliveries	49	11.0 (8.4 - 14.2)
26-50 deliveries	37	8.3 (6.1 - 11.2)
More than 50 deliveries	50	11.2 (8.6 - 14.5)
Number of Resuscitations (Last 6 Months)		
No resuscitations	188	42.2 (37.7 - 46.8)
1-2 resuscitations	110	24.7 (20.9 - 28.9)
3-5 resuscitations	59	13.2 (10.4 - 16.7)
6-12 resuscitations	26	5.8 (4.0 - 8.4)
More than 12 resuscitations	63	14.1 (11.2 - 17.7)
Bag and Mask at Primary Facility		
Yes	362	81.2 (77.3 - 84.5)
No	84	18.8 (15.5-22.7)

Table 4: Formal vs. informal training of providers.

	Count	Percentage (95% Confidence Interval)
Training Type		
Formal only	124	68.1 (61.0- 74.5)
Informal only	44	24.2 (18.5 - 30.9)
Both formal and informal	14	7.7 (4.6 - 12.5)
At Least 1 Training Course Included all HBB Components		
Yes	120	97.6 (93.1- 99.2)
No	3	2.4 (0.8 - 6.9)

departed from the facility.

Among participating facilities, 181 (84.2%) held an HBB training course during at least one follow-up month (during the six-month follow-up period). During the telephone debriefing calls, the monitors learned that in addition to conducting formal trainings (i.e., the standard workshop with all components of HBB), the master trainers also conducted informal trainings (i.e., alternative formats of training that included only some components of HBB). Examples of informal training included onsite group instruction, coaching during class, practical training during actual deliveries, and one-on-one training when necessary. A total of 124 (68.1%) facilities held only formal trainings, 44 (24.2%) facilities held only informal trainings, and 14 (7.7%) facilities held both formal and informal trainings. The types of trainings held are further described in Table (4). Master trainers reported training 4,464 providers, using HBB training methods, within six months of their respective TOT attendance.

A statistically significant relationship was found between type of facility and number of providers formally trained (P-Value = 0.0257). More providers were formally trained at Zonal, Regional, and District level facilities. In addition, a statistically significant relationship was found between training city and number of providers formally trained (P-Value = 0.00318). More providers were formally trained in the Eastern Region of Nepal. Lastly, a statistically significant relationship was found between training year and number of providers formally trained (P-Value = 0.0252). Training in 2012 and 2013 resulted in better dissemination than in subsequent years.

The debriefing sessions collected both quantitative and qualitative data. The structured debriefing sessions included the solicitation of resuscitation successes. Five main themes emerged from the comments: (1) staff believed in the training, (2) the training increased staff confidence, (3) the donated equipment was helpful, (4) some cases no longer had to be referred, and (5) more babies survived with resuscitation. A representative sample of comments are provided below.

- "The training has helped a lot to improve the health of newborns."
- "The staff is more confident and can handle such cases easily."
- "The donated equipment has made it easy to resuscitate many babies."
- "A lot of improvement is seen. Previously, such cases were referred to other hospitals, but now we can handle such cases in our hospital."
- "Twenty-five such cases were handled successfully."
- "Six babies survived with resuscitation."
- "Thirty-eight babies survived."

Debriefing sessions also included questions regarding challenges in the dissemination of resuscitation training. These responses were categorized and tabulated. The five most commonly cited challenges to training included: (1) lack of equipment, (2) lack of budget, (3) lack of time, (4) few delivery cases, and (5) no delivery cases. The discussion of successes and challenges created opportunities for the telephone monitors to offer advice and encouragement regarding the scale-up process.

DISCUSSION

The purpose of this study is to report secondary dissemination of training that occurred following the implementation of a hospital-based, semi-autonomous model for the scale-up of resuscitation knowledge and skills. The results of the telephone monitoring and debriefing system indicated significant secondary resuscitation training occurred with this implementation model.

This model of dissemination is distinct from the models reported in the literature. The three key, large-scale studies of HBB implementation in Tanzania, India, and Nepal all derived from well-funded research protocols that included close supervision and support of the dissemination process. Such studies are essential to the validation of HBB as a life-saving tool, but difficult to scale-up due to administrative and financial burdens. In contrast, the LDSC model was relatively unsupervised, and dissemination was carried out nearly cost-free, with a nominal expense to LDSC for the telephone monitoring system. While such a relatively unsupervised dissemination model can have significant disadvantages, it is much easier to scale-up.

This study validated this dissemination model, including centralized TOT courses, for the subsequent scale up of resuscitation skills. Among participating facilities, the large majority held at least one HBB training course for the providers in that facility. In the first six months after each of the eight HBB Master Trainer courses, a total of 4,463 providers were trained.

This study demonstrated that a telephone monitoring system can track dissemination in Nepal, with 99% of the master trainers participating in at least a portion of the follow surveys. Both monitoring and telephone support were feasible in a country with challenging topography and poor transportation infrastructure.

The results showed that this model of dissemination is more prone to variability of subsequent teaching than the research protocol models. Quality issues were discovered that will need to be addressed in subsequent trainings. An unexpected finding was the relatively high percentage of facilities that opted for informal HBB training, either exclusively or combined with a formal HBB course, for nearly 1/3 of the facilities. This is in contrast to more closely supervised training cascades, in which training fidelity is optimized. The relative effectiveness in skill maintenance of formal vs. informal HBB training has not been studied here or elsewhere, but the obvious concern is that skill dissemination may have been compromised.

Analysis including the registration data revealed a few factors were found to be significantly associated with the number of providers formally trained. First, type of facility was associated with number of providers formally trained. Zonal, Regional, and District facilities trained more providers than Sub-district, Teaching, Private, and Other facilities. One possible explanation for this finding is that the larger staff size of Zonal, Regional, and District facilities is associated with more formal training systems and expectations. In addition to providing formal HBB trainings, larger facilities are often engaged in other formal teaching responsibilities, such as the Skilled Birth Attendant program in Nepal (which did not include HBB training).

Another factor found to be significantly associated with number of providers formally trained was training city. More providers were formally trained in the Eastern Region of Nepal. One possible explanation for this finding is that large public and quasi-public medical teaching facilities were concentrated in the Eastern Region of Nepal. Senior staff and medical trainers from TOTs in the Eastern Region may have been highly involved in providing formal trainings.

The background characteristics and test scores of the master trainers suggested that the hospitals involved in this voluntary training generally selected trainers that were experienced and were able to master the content of the TOT. The large proportion of nurses serving as facilitators is a reflection of the work force in the public sector in Nepal. There were 0.214 physicians per 1,000 people [20] and 0.469 nurses and midwives per 1,000 people [21] in 2004. Nurses often perform deliveries, with midwives representing a much smaller number of the delivery workforce. The preponderance of nurses as master trainers also has implications for subsequent scale-up efforts in the country.

The proportion of providers who had prior experience resuscitating babies and who had received prior resuscitation training were higher than expected, whereas the proportion of providers who had attended only 0 resuscitations or 1-2 resuscitation in the prior six months were lower. These data likely reflect that fact that trainers include either administrators (clinicians without current clinical duties) or full-time trainers (also without current clinical duties).

The Nepalese study of HBB impact incorporated skill maintenance and other quality improvement measures into the protocol in order to address the issue of skill and knowledge degradation over time. The very impressive results of a 54% decline in stillbirths and 49% decline in 24-hour mortality were attributed to the maintenance activities that followed the initial training [13]. Thus, translating the training competency into routine clinical performance requires a multi-faceted educational strategy.

The results of this study should be interpreted in the context of several limitations. First, the telephone debriefing reports were not validated by audits or other external methods. To reduce bias, the two monitors were trained to ask questions and interpret responses consistently. Second, except for that training in interpretive consistency, inter-rater reliability was not established. Third, the two monitors tracked telephone debriefing results in a new spreadsheet each month, and often spoke with different providers who worked at the same facility. Extensive efforts were taken to correctly collapse the results from each provider and calculate facility-wide results. Fourth, some providers reported that “some” or “most” providers at their facility were trained at subsequent HBB trainings since they could not remember the exact number. As these responses were excluded from the analysis, the actual number of providers trained by six months may be greater than the number provided in this study.

CONCLUSION

The findings of this study suggest that the hospital-based, semi-autonomous implementation model resulted in significant secondary training of resuscitation techniques. Further, telephone debriefing systems can be feasibly used to track the scale-up of HBB training in Nepal. In spite of generally poor infrastructure systems in Nepal, cell phone coverage has greatly expanded and proved a reliable method to contact the large majority of master trainers. Rapid HBB scale-up occurred following the initial TOTs. Finally, the telephone contact can provide an opportunity for monitors to remind providers to hold trainings, offer needed advice and encouragement, and assess training successes and challenges.

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REFERENCES

1. United Nations Web site. We can end poverty: millennium development goals and beyond. 2015.
2. World Health Organization. Global Health Observatory (GHO) data: under-five mortality. 2017.
3. Wang H, Liddell CA, Coates MM, Mooney MD, Levitz CE, Schumacher AE, et al. Global, regional, and national levels of neonatal, infant, and under-5 mortality during 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2014; 384: 957-979.
4. You D, Hug L, Ejdemyr S, Beise J. Levels and trends in child mortality. Report 2015. Estimates developed by the UN Inter-agency Group for Child Mortality Estimation. 2015.
5. The World Bank Web site. Mortality rate, under-5 (per 1,000 live births). 2017.
6. The World Bank Web site. Mortality rate, neonatal (per 1,000 live births). 2017.
7. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS, Bellagio Child Survival Study Group. How many child deaths can we prevent this year? Lancet. 2003; 362: 65-71.
8. Healthy Newborn Network. Helping babies breathe: the golden minute. 2016.
9. Singhal N, Lockyer J, Fidler H, Keenan W, Little G, Bucher S, et al. Helping Babies Breathe: global neonatal resuscitation programme development and formative educational evaluation. Resuscitation. 2012; 83: 90-96.
10. Steele C. Helping babies breathe around the world. J Obstet Gynecol Neonatal Nurs. 2013; 42: 243-246.
11. Kattwinkel J. Neonatal resuscitation guidelines for ILCOR and NRP: evaluating the evidence and developing a consensus. J Perinatol. 2008; 28: 27-29.
12. Roehr CC, Hansmann G, Hoehn T, Bührer C. The 2010 Guidelines on Neonatal Resuscitation (AHA, ERC, ILCOR): similarities and differences--what progress has been made since 2005? Klin Padiatr. 2011; 223: 299-307.
13. Ashish KC, Wrammert J, Clark RB, Ewald U, Vitrakoti R, Chaudhary P, et al. Reducing perinatal mortality in Nepal using Helping Babies Breathe. Pediatrics. 2016; 137: 1-10.
14. Msemo G, Massawe A, Mmbando D, Rusibamayila N, Manji K, Kidanto HL, et al. Newborn mortality and fresh stillbirth rates in Tanzania after helping babies breathe training. Pediatr. 2013; 131: 353-360.
15. Vossius C, Lotto E, Lyanga S, Mduma E, Msemo G, Perlman J, et al. Cost-effectiveness of the "helping babies breathe" programme in a missionary hospital in rural Tanzania. PloS One. 2014; 9: 102080.
16. Hoban R, Bucher S, Neuman I, Chen M, Tesfaye N, Spector JM. 'Helping babies breathe' training in sub-saharan Africa: educational impact and learner impressions. J Trop Pediatr. 2013; 59: 180-186.
17. Goudar SS, Somannavar MS, Clark RB, Lockyer JM, Revankar AP, Fidler HM, et al. Stillbirth and newborn mortality in India after Helping Babies Breathe training. Pediatrics. 2013; 131: 344-352.
18. Ersdal HL, Vossius C, Bayo E, Mduma E, Perlman J, Lippert A, et al. A one-day "Helping Babies Breathe" course improves simulated performance but not clinical management of neonates. Resuscitation. 2013; 84: 1422-1427.
19. Musafili A, Essén B, Baribwira C, Rukundo A, Persson LÅ. Evaluating Helping Babies Breathe: training for healthcare workers at hospitals in Rwanda. Acta Paediatr. 2013; 102: 34-38.
20. The World Bank. Physicians (per 1,000 people). 2017.
21. The World Bank. Nurses and midwives (per 1000 people). 2017.

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