Helping Babies Breathe

Country Case Study: Dominican Republic

Authors: Lloyd Jensen, Goldy Mazia, Brianna Casciello

April 2015

www.mcsprogram.org

Acknowledgments

We would like to recognize the contributions of the Dominican Republic Ministry of Health, particularly representative Dr. Olga Arroyo.

Authors and Contributors' Contact Information

Dr. Olga Arroyo
Director of Perinatal Health Education
Ministry of Health
olgarroyoreyes@hotmail.com

Dr. Lloyd Jensen, MD, FAAP
Neonatal Specialist, Latter Day Saints-Charities (LDS-C)
Professor of Pediatrics, University of Utah
Lloyd.Jensen@hsc.utah.edu

Dr. Goldy Mazia
Newborn Advisor
Maternal and Child Survival Program (MCSP)
gmazia@path.org
202.835.3137

Brianna Casciello
Program Assistant
Maternal and Child Survival Program (MCSP)
bcasciello@path.org
202.835.6095

This report was made possible by the generous support of the American people through the United States Agency for International Development (USAID), under the terms of the Leader with Associates Cooperative Agreement GHS-A-00-08-00002-00 and Cooperative Agreement AID-OAA-A-14-00028. The contents are the responsibility of The Maternal and Child Health Integrated Program (MCHIP) and The Maternal and Child Survival Program (MCSP), and do not necessarily reflect the views of USAID or the United States Government.

Cover and document photo credits: Dr. Goldy Mazia, PATH unless otherwise noted.

Table of Contents

Abbreviations

AAP	American Academy of Pediatrics
ALAPE	Latin American Association of Pediatrics (Asociación Latinoamericana de Pediatría)
HBB	Helping Babies Breathe
DR	Dominican Republic
IMNCI	Integrated Management of Newborn Childhood Illness
LAC	Latin America and the Caribbean
LDS-C	Latter Day Saints-Charities
MCH	maternal and child health
MCHIP	Maternal Child Health Integrated Program
MoH	Ministry of Health
NMR	neonatal mortality rate
NRP	neonatal resuscitation program
PAHO	Pan American Health Organization
SBA	skilled birth attendance
SRS	Regional Health Services (Servicios Regionales de Salud)
TOT	training of trainers
U5MR	under-5 mortality rate
USAID	United States Agency for International Development

Introduction

The Dominican Republic (DR) has the third highest neonatal mortality rate (NMR) (21/1,000 live births)[1] in Latin America and the Caribbean (LAC) (after Haiti and Bolivia), more than double the average NMR for the LAC region (10.6/1,000 live births) and approximately one-third higher than the global NMR (14.6/1,000 live births). The country's NMR is comparable to present rates in Madagascar, Rwanda, and Tanzania.[2] The DR has achieved a 47%[3] reduction in the under-five mortality rate (U5MR) since 1990, but the NMR has not been reduced at the needed rate. Along with 69%[4] of countries in LAC (18 of 26 countries), the DR will not reach the Millennium Development Goal 4 target of two-thirds reduction by 2015.

Most recent figures indicate that 55% of under-five deaths are among newborns[5]. This proportion is higher in the DR than in all but two of the 24 USAID priority countries (Bangladesh at 60% and Nepal at 57%).[2] At the same time, the small Caribbean island country, home to ten million, has a very high skilled birth attendance (SBA) rate (99%). A strong inverse correlation between NMR and SBA indicates a clear need for the improvement in quality of newborn care in the DR (Figure 1).

Figure 1: NMR, IMR, and SBA in the DR, 1990–2013

	Year	NMR	IMR	SBA
National	2013	21	31	**99%** 72% public sector 27% private sector
Urban		24	_	**98.9%** 70% public sector 28.9% private sector
Rural		17	_	**97.4%** 76% public sector 21.4% private sector
National	2011	14	25	_
National	2007	23	37	**98%** 78% public sector 20% private sector
National	2002	22	38	_
National	2000		39	
National	1996	27	57	
National	1991	24	59	
National	1990	26	58	

Figure 1 Sources: ENDESA (Demographic Health Survey). Dominican Republic, 2013. United Nations Statistics Division, 2011.

[1] ENDESA (Demographic Healthy Survey). Dominican Republic, 2013.
[2] Prioritizing Newborn Health in USAID's Health Program Handout, 2014
[3] Child Mortality Estimates: Dominican Republic. UNICEF. 2015.
[4] MDG Progress Status. World Bank. 2015.
[5] CRVS Lancet Every Newborn Series. 2014.

Up to two-thirds of newborn deaths can be prevented if known[6], effective health measures are provided at birth and during the first week of life. Birth asphyxia, or the lack or spontaneous breathing at birth, is one of three main causes of newborn mortality in the country, along with complications of prematurity and sepsis. Birth asphyxia claims between 700 and 1,000 deaths each year in the DR (13% of all newborn deaths[7]).

[6]Newborns: Reducing Mortality Fact Sheet N333, World Health Organization (WHO). 2012.

[7]World Health Organization (WHO) Global Health Observatory Data Repository. 2013.

Preparation for Scale-up

Helping Babies Breathe (HBB) was introduced to the USAID Mission in the Dominican Republic under the Maternal and Child Health Integrated Program (MCHIP) in 2010. A basic newborn resuscitation module had been included in the national Integrated Management of Neonatal and Child Illness (IMNCI) guidelines. At the time of HBB introduction, and together with IMNCI, the advanced competency-based Neonatal Resuscitation Program (NRP) of the American Academy of Pediatrics (AAP) was being and continues to be used for national training programs with support from the AAP and Latter Days Saints Church-Charities (LDSC-C). From 2005 to 2012, AAP, LDSC-C, and the Pan American Health Organization (PAHO) in coordination with the DR Ministry of Health (MoH), conducted NRP training courses for 635 facilitators serving all nine of the country's health regions. The Pediatric Society of the Dominican Republic and the MoH developed committees to implement official training courses, enabling trained providers to replicate the NPR course to an additional 4,200 health care providers.

Dominican MoH representatives (Drs. Luz Herrera and Donatilo Santos pictured) participated in a regional ToT for HBB during the Mesoamerica Forum of National Neonatal Alliances in Nicaragua in 2011.

The introduction of HBB in the DR was a multi-step process that promoted the involvement and ownership of the MoH from the outset. During the launch of HBB in June 2010 in Washington, DC, organized by the Global Development Alliance, representatives of the MoH and USAID (MCHIP and the bilateral, Abt Associates' Maternal and Child Health [MCH] Centers of Excellence) participated and received Master Trainers certification. Here four master trainers from the DR were accredited under the premise that the country would pioneer HBB implementation in the LAC region. Following the global launch, MCHIP presented HBB to the USAID Health Officer, who in turn allocated field funds for both the MCHIP and the bilateral projects to carry out HBB-related activities in their geographic areas of work. When Spanish materials became available, additional DR MoH representatives participated in the Mesoamerica Forum of Neonatal National Alliances held in Nicaragua in 2011. At this forum, the LAC Neonatal Alliance endorsed HBB and led a regional training of trainers, MCHIP's DR technical staff formerly trained in Washington, DC participated in the training of trainers as one of the trainers. High-level clinicians from the Maternidad de Nuestra Senora de la Altagracia, a national referral hospital with an estimated 22,000 annual deliveries, participated in the second LAC regional HBB training held the following year during the Latin American Association of Pediatrics (ALAPE) regional meeting in November 2012 in Cartagena, Colombia.

USAID DR and LDSC-C were key stakeholders supporting the scale-up of HBB in the DR. In 2012, the USAID bilateral prioritized MCH Centers of Excellence following the submission of written proposals to improve MCH care by the facilities. MCHIP provided technical assistance for newborn health activities for the Centers of Excellence. In July 2011, MCHIP held its first HBB training in coordination with the USAID bilateral, with the participation of 30 regional trainers covering public referral facilities from eight of the nine health regions. MCHIP and the Centers of Excellence Project continued to coordinate and support training of providers, and data collection activities in those sites. In 2013, MCHIP and LDSC-C, in coordination with PAHO and the MoH, co-sponsored their first joint HBB training, reaching 53 providers. In 2014, LDS-C and MoH held a ToT course with 48 participants.

HBB Funding, Inputs, and Partnerships

Trainings and materials/equipment were provided by USAID (bilateral and MCHIP) for the 10 Centers of Excellence. MCHIP provided training materials, equipment, and technical assistance totaling an estimated $70,000 over two years. The bilateral provided service equipment (bags and masks and suction bulbs) for the 10 facilities. The MoH provided time for the trainers and trainees.

As the program expanded its reach, MCHIP led coordination efforts between the MoH, Abt Associates MCH Center of Excellence Project, and LDSC-C, a nonprofit organization with a longstanding history supporting NRP in the DR. Beginning in 2013, LDSC-C provided both human and financial resources (including equipment, training materials, and trainers) to expand new HBB programs and strengthen existing ones. Presently, the MoH has a very limited budget for carrying out HBB trainings.

Adaptation of HBB for the Local Context

MCHIP spearheaded the first steps to initiate HBB implementation in the DR by overseeing the translation and adaptation of pictures to the various ethnicities of the LAC region. In 2011, MCHIP hired a consultant from the region to translate the HBB implementation guide into Spanish. The USAID bilateral translated the educational materials. MCHIP guided the revision process that followed, which took several months to complete as it included inputs from stakeholders, MCHIP, and the AAP. Approvals for a version appropriate for all Spanish-speaking countries in the LAC region was granted after approximately one year.

Implementation

In-Service Training and Pre-Service Education

In the Dominican Republic, a critical mass of trained providers exists, including registered and auxiliary nurses, pediatricians, neonatologists, obstetricians- gynecologists, anesthesiologists, general practitioners, residents in various programs, and interns. The trained providers mainly work in the public sector. To ensure quality, MCHIP used a cascade training approach that involved National Master Trainers. A solid group of trainers was formed, enabling for the replication of HBB training in various regions of the country, including staff of peripheral facilities attending deliveries. In October 2013, LCDS-C trained 17 nursing educators who have since incorporated the HBB curriculum in their eight institutions.

"It is recommended that Helping Babies Breathe be included in undergraduate and graduate curricula at universities to guarantee high-quality newborn care at birth. The HBB initiative has generated interest among all health professionals in the Dominican Republic, who understand that in order to respond appropriately, all health providers who provide assistance at birth should be [skilled and equipped to help babies breathe] trained in HBB."

– Dr. Nieves Rodriguez, MCHIP in country Technical Lead

Actions to Improve Quality of Implementation and Retention of Skills

MCHIP tested feasibility of data collection in the delivery room to report program indicators for essential care at birth including HBB. Facilities collected and analyzed data for improvement of quality of care (i.e., finding low percentages of early breastfeeding and taking actions to improve). Supportive supervision was recommended locally but follow-up was not possible due to program closure. Beginning in 2012 until January 2014, technical assistance was provided to the bilateral for the implementation and supervision of HBB in MCH Centers of Excellence. In addition, refresher courses were conducted in 2013 for facilitators at the Centers of Excellence.

HBB Equipment and Logistics Systems

The MoH has recommended standards for newborn resuscitation equipment that includes mask and bag and suction. The MoH is responsible for procuring equipment that is not produced locally. The approximate wait time for an order to arrive in-country (and clear customs) is two months. A 16% sales tax is incurred when bags and masks are purchased in country. There is no national regulation on selling these products in the local market. The country currently does not have a national regulatory committee for medical equipment and supplies. Health establishments are responsible for soliciting newborn resuscitation equipment from the MoH at the regional level; some hospitals do not have the appropriate number of masks for babies.

Since 2005 LDSC-C has donated more than 320 training sets (Laerdal NRP mannequins and teaching equipment), 650 clinical resuscitation kits (bag and mask, suction device, and stethoscope), 150 Neonatalie models, 75 HBB flip charts, and 1040 HBB workbooks for training and clinical use. Teaching equipment is typically donated to the facilities as well for use in future trainings. MCHIP donated 70 sets of equipment as well as educational materials at the time of program closure for continued scale-up of the HBB curriculum.

Recording and Reporting System

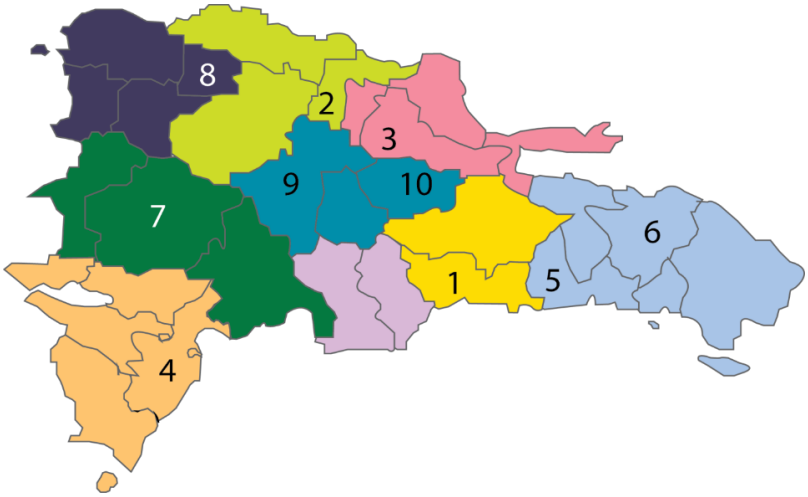
Data collection register for HBB at birth

MCHIP and the MCH Centers of Excellence presented technical indicators related to basic newborn resuscitation and essential newborn care at birth. Furthermore, MCHIP developed a register allowing for the collection and analysis of these new newborn health indicators (pictured right). In 2013, data collection was initiated in three regional hospitals (San Lorenzo de los Mina (los Mina), San Vicente de Paul Regional Hospital (HSVP), and Dr. Antonio Musa Hospital (MUSA). These indicators were recommended for inclusion in the national health management information system during stakeholders meetings with the MoH for advancement of a newborn health action plan. An initial analysis showed actions related to the practice of HBB. Of 19,200 live births from April 2012 to March 2013, 677 newborns in four centers did not cry at birth (3.5%); of these, 240 (3.5% of babies not crying) required and were successfully resuscitated with bag and mask ventilation.

Implementation Status in Country

In two years, MCHIP coordinated and facilitated a total of 23 training sessions in the DR, one for regional trainers and 22 for providers, resulting in a total of 52 regional facilitators and 573 providers trained in country. Figure 2 (below) illustrates the location of the ten hospitals trained in HBB under MCHIP.

Figure 2: Hospitals trained in HBB*



1. San Lorenzo de los Mina
2. Toribio Bencosme
3. San Vicente de Paúl
4. Jaime Mota
5. Antonio Musa
6. Teófilo Hernández
7. Alejandro Cabral
8. Luis Bogaert
9. Morillo King
10. Inmaculada Concepción

*As of January 2014

MCHIP, with support from the USAID Mission, established a collaborative relationship with the LDS-C for further expansion of the HBB strategy. LDS-C continued scale-up by providing human and in-kind resources, including trainers, training equipment, and supplies. In October 2014, LDS-C and the MoH led an HBB training course with 48 participants who have since trained additional health care providers. Hospitals have been selected based on the following criteria: 1) referral centers for one of the 10 hospitals originally trained; 2) areas with the highest newborn mortality and 3) demonstrated interest and commitment in the HBB program. Annex 2 includes a list of hospitals and institutions that have received HBB training since January 2014.

Institutionalization

Integration of HBB

Joint advocacy efforts by MCHIP and the USAID Mission with the MoH for the incorporation of HBB in the IMNCI were unsuccessful during the duration of the MCHIP country program. At the same time, as the MoH continually decentralizes its services at the local level, the demand for the HBB program continually increases. In a collaborative effort, LDSC-C and MCHIP promoted the combining of NRP and HBB programs, given how well-received the program was in hospitals implementing HBB under MCHIP and its impact on empowering nurses, as well as the impending closure of the MCHIP project.

Photo credit: Dr. Luz Herrera, DR MoH

Sustainability of HBB

To promote sustainability of the program, MCHIP and the USAID Mission facilitated coordination with the LDSC-C for continuation of activities and monitoring.

Antonio Musa Hospital serves as an excellent example of HBB ownership and sustainability. A public referral hospital located in the province of San Pedro de Macoris and serving approximately 5,000 births annually, the regional facility now requires that all personnel providing newborn care receive HBB training. Two of the neonatologists at Musa were among the first to be trained in NRP and HBB and have since volunteered their time to facilitate MoH-sponsored HBB trainings. One of MCHIP's implementing hospitals, the facility served as a pioneer in data collection on HBB and early newborn care, and has trained its referral centers in the southeastern region of the country.

Key Lessons Learned

Summary of Success Factors

Trained staff have demonstrated their commitment to train their referring facilities. Following the closing of the MCHIP DR country program in January 2014, several training courses have taken place resulting in an additional 200 trained providers. This training was funded in part by the DR MoH, demonstrating a clear transfer of ownership and uptake by the referral hospitals.

The NRP in the DR had been implemented traditionally by an elite group of professionals using the advanced AAP curriculum. In collaboration with LDSC-C, a dedicated group of skilled instructors became the country's first newborn resuscitation champions, many of whom volunteered countless days to teach resuscitation skills to others in their hospitals and regions. MCHIP played a key role in providing equitable access to the acquisition of competencies in newborn resuscitation to many professionals serving in the public health care system and particularly contributed to the empowerment of nurses in the facility setting.

Summary of Challenges

At the time of completion of MCH projects funded by USAID DR in 2014, a solid base for HBB in the DR had been provided. The MoH is determined to implement the program but has faced funding challenges. Given their responsibility to implement the program and to assure high quality of the services, it is critical to have the MoH involved. The DR MoH has played an important role in participants' attendance in HBB training events and with the distribution of equipment, but has not as of yet included HBB as the resuscitation curriculum in the IMNCI norms.

MCHIP previously provided HBB materials and equipment to implementing hospitals; however, there are currently no guidelines in place for procurement of new/replacement materials. Without immediate access to equipment and teaching materials, the likelihood of trained providers to teach others and practice their newly acquired skills is diminished. Practice on a regular basis is required for optimal resuscitation skills acquisition and retention. One recommended option is that simulation be included at the beginning of hospital shifts. Data collection on indicators for basic resuscitation and essential newborn care at birth will continue to generate valuable new information to improve the quality of implementation and retention of skills. Ongoing monitoring and supervision of data collection is needed to ensure timely and accurate information and to make program adjustments accordingly.

It is fundamental that training participants fit the adequate profile, possessing both the ability, personality, and backing of their administrators to implement. In the early implementation stage, participants trained by LDSC-C were 40–50% medical residents, who were not in teaching positions for the subsequent two to three years. In the following years of implementation, LDSC-C focused on training teaching instructors who had the capacity to replicate training immediately in their institutions. In the case of training direct providers, it is recommend that at least two from each facility participate, as it is beneficial for encouraging teaching.

Next Steps Towards Institutionalization and National Impact

Plans

This year, the MoH is planning two TOT courses in two health service regions: San Pedro de Macoris and Espaillat, in coordination with PAHO, UNICEF, and LDS-C. Also in 2015, the MoH will be working with Mount Sinai, Physicians for Peace, PAHO, UNICEF and LDS-C to implement Essential Care for Every Baby in a pilot study with six hospitals in the Espaillat region, with the goal of implementing a combined HBB and ECEB program nationally in 2016.

Recommendations

- Advocate for HBB training to be a requirement for all health personnel providing newborn care.
- Include HBB as part of the national IMNCI pre- and in-service programs with funding from the MoH and other stakeholders.
- Continue collecting information on the HBB indicators introduced in the Dominican Republic under MCHIP. Analyze and report related indicators.
- Integrate MoH-led measures of quality to implement improvements on an ongoing basis.
- Develop evaluation to measure the quality of teaching by trained facilitators.
- Conduct refresher trainings.
- Develop a procurement plan for acquisition of equipment.
- Conduct an assessment to determine amount of equipment needed in each implementing hospital. The UN Commission has developed a quantification tool for newborn resuscitation equipment that can be used for this purpose.
- Advocate for active participation of implementing hospitals in the LAC HBB virtual Community of Practice, created and managed by USAID's ASSIST project, which provides an avenue for health care providers to continue engagement among program implementers at the facility level within the country and across the LAC region.

Annex I: Hospitals trained in HBB under MCHIP, by Health Services Region

Map No.	Name of Hospital	Province	Name of Health Services Region	Health Services Region
1	San Lorenzo de los Mina	Santo Domingo	Metropolitano	0
2	Toribio Bencosme	Espaillat	Norcentral	2
3	San Vicente de Paúl	San Francisco de Macorís	Nordeste	3
4	Jaime Mota	Barahona	Enriquillo	4
5	Antonio Musa	San Pedro de Macorís	Este	5
6	Teófilo Hernández	El Seibo	Este	5
7	Alejandro Cabral	San Juan de la Maguana	El Valle	6
8	Luis Bogaert	Valverde	Cibao Occidental	7
9	Morillo King	La Vega	Cibao Central	8
10	Inmaculada Concepción	Sánchez Ramírez	Cibao Central	8

Annex II: Hospitals and Provinces Trained in HBB, January 2014 – Present

No.	Name of Hospital/ Institution
1	Universidad Autónoma de Santo Domingo
2	Yaguate (municipio)
3	Hospital Dr. Luis Eduardo Aybar
4	Hospital El Almirante
5	Hospital Dr. Vinicio Calventi
6	Hospital Municipal Cambita
7	Hospital Materno Infantil Villa Mella
8	Hospital General Melenciano
9	Tamayo (municipio)
10	Hospital Central de las Fuerzas Armadas
11	Azua
12	Hospital Regional Taiwan
13	Hospital Dr. Luis E. Aybar
14	Hospital Infantil Dr. Robert Reid Cabral
15	Hospital Materno-Infantil San Lorenzo de los Mina
16	Hospital de Maternidad
17	Hospital Regional Dr. Antonio Musa
18	Hospital Maternidad Nuestra Señora de la Altagracia
19	Hospital Regional Juan Pablo Pina
20	Hospital Nuestra Señora de Regla
21	Los Cacaos (municipio)
22	San José de Ocoa (provincia)
23	Tamaina Valdez
24	Municipio de Villa Altagracia
25	Gerencia de área de salud Peravia
26	Hospital Provincial Monte Plata
27	Hospital Municipal Engombe
28	Bayaguana