MCHIP Dominican Republic End-of-Project Report

April 1, 2010–January 31, 2014

Submitted on:
May 2014

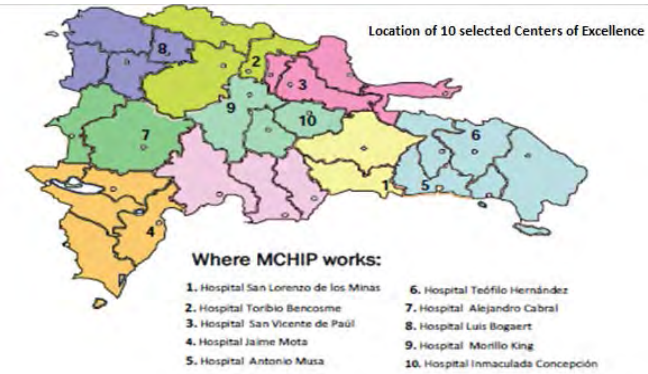
Submitted to:
United States Agency for International Development
under Cooperative Agreement # GHS-A-00-08-00002-00

Submitted by:
Jhpiego with PATH

The Maternal and Child Health Integrated Program (MCHIP) is the USAID Bureau for Global Health's flagship maternal, neonatal and child health (MNCH) program. MCHIP supports programming in maternal, newborn and child health, immunization, family planning, malaria, nutrition, and HIV/AIDS, and strongly encourages opportunities for integration. Cross-cutting technical areas include water, sanitation, hygiene, urban health and health systems strengthening.

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. The contents are the responsibility of the Maternal and Child Health Integrated Program (MCHIP) and do not necessarily reflect the views of USAID or the United States Government.

Country Summary: Dominican Republic



Selected Health and Demographic Data for the Dominican Republic	
GDP per capita (USD)*	5,746
Total population (millions)*	10.3
Maternal mortality ratio (deaths/100,000 live births)	150
Any antenatal care from a skilled provider	98
Antenatal care, 4+ visits	95
Neonatal mortality rate (deaths/1,000 live births)	21
Infant mortality rate (deaths/1,000 live births)*	19.63
Under-five mortality (deaths/1,000 live births)**	27
Treatment for acute respiratory infection	70
Oral rehydration therapy for treatment of diarrhea	48
Diphtheria-pertussis-tetanus vaccine coverage (3 doses)	74
Modern contraceptive prevalence rate	72
Total fertility rate	2.5
Total health expenditure per capita (USD)*	310
Source: *World Bank 2012; DHS 2013; **UNICEF.	

Major Activities by Program

- Scale-up of quality improvement of prevention and treatment of newborn sepsis in the 10 Maternal and Child Health (MCH) Centers of Excellence as part of the regional strategy to improve newborn health
- Strengthening and scale-up of Kangaroo Mother Care strategies in selected MCH Centers of Excellence
- Implementation of the Helping Babies Breathe program in MCH Centers of Excellence
- Improvement of the quality of prevention and treatment of HIV/AIDS (prevention of mother-to-child transmission of HIV) in the MCH Centers of Excellence

Program Dates	April 2010—March 2012, extended through January 2014
Total Mission Funding	$1,083,400 (HIV: $300,000, MCH: $783,400)
Geographic Coverage	No. (%) of provinces: 8 of 9 health regions (88%) No. of facilities: 10 MCH Centers of Excellence
Country and HQ Contacts	Nieves Rodriguez, Country Representative: nieverortiz@gmail.com; Goldy Mazia, Latin Amercia and Carribean Newborn Advisor: gmazia@path.org; Magdalena Serpa, Newborn Health Program Officer: mserpa@path.org; Sarah Marjane, Project Administrator: smarjane@path.org; Brianna Casciello, Program Assistant: bcasciello@path.org; Pat Taylor, Country Support Team Leader: pat_taylor@jsi.com

Table of Contents

List of Tables and Figures iv
Acronyms and Abbreviations v
Acknowledgments vii
Executive Summary viii
Introduction 1
Major Accomplishments 3
Cross-Cutting Themes 10
Recommendations and Way Forward 11
Annex 1: Indicator Matrix 13
Annex 2: Success Stories 15
Annex 3: List of Presentations at International Conferences and Publications 17
Annex 4: List of Materials and Tools Developed or Adapted by the Program 18

List of Tables and Figures

Figure 1. Effect of Infection Prevention Measures on Proportion of Admissions to the Neonatal Unit Due To Suspected Hospital-Acquired Infections in Two Hospitals in the Dominican Republic..... 4

Figure 2. Improvements in Practices of Essential Care at Birth Elements in 4 Referral Hospitals Implementing HBB in the DR..... 7

Figure 3. Percentage of HIV+ Women and Exposed Newborns Receiving PMTCT Services in Dr Musa Hospital (2010-2012)..... 8

Figure 4. Percentage of HIV+ Women and Exposed Newborns Receiving PMTCT Services in Dr Luis Morillo King Hospital (2010-2012) 8

Acronyms and Abbreviations

AAP	American Academy of Pediatrics
AIDS	Acquired immune deficiency syndrome
ANC	Antenatal care
BASICS	Basic Support for Institutionalizing Child Survival
CDC	U.S. Centers for Disease Control and Prevention
CdEx	USAID's MCH Centers of Excellence Project
CHX	Chlorhexidine
CRMA	Caribbean Regional Midwives Association
DFID	Department for International Development
DHS	Demographic and Health Survey
DR	Dominican Republic
ENC	Essential newborn care
GDA	Global Development Alliance
HBB	Helping Babies Breathe
HCI	Healthcare Improvement
HIV	Human immunodeficiency virus
HSVP	San Vicente de Paul Regional Hospital
HQ	Headquarters
IMNCI	Integrated management of neonatal and childhood illness
KMC	Kangaroo Mother Care
LAC	Latin America and the Caribbean
LDS	Latter Day Saints
M&E	Monitoring and evaluation
MCH	Maternal and child health
MCHIP	Maternal and Child Health Integrated Program
MDG	Millennium Development Goals
MNC	Maternal and newborn care
MNCH	Maternal, newborn and child health
MNH	Maternal and newborn health
MOH	Ministry of Health
NGO	Nongovernmental organization
NMR	Neonatal Mortality Rate
PAHO	Pan American Health Organization
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PMNCH	Partnership for Maternal, Newborn & Child Health

PMTCT	Prevention of mother-to-child transmission of HIV
PNC	Postnatal care
PY	Program Year
QoC	Quality of Care
RMNCH	Reproductive, Maternal, Newborn, and Child Health
ROP	Retinopathy of prematurity
SBA	Skilled birth attendant
SBM-R®	Standards-Based Management and Recognition
SNL	Saving Newborn Lives
TA	Technical assistance
TAG	Technical advisory group
TBA	Traditional birth attendant
TOT	Training of trainers
UN	United Nations
UNICEF	United Nations Children's Fund
URC	University Research Co.
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization

Acknowledgments

This report was made possible by the generous support of the American people through the United States Agency for International Development (USAID). The content is the responsibility of the Maternal and Child Health Integrated Program (MCHIP) and do not necessarily reflect the views of USAID or the United States Government.

MCHIP would like to acknowledge the close collaboration and contributions of the Dominican Republic (DR) USAID Mission, and in particular of USAID DR Team Leader Mr. Damani Goldstein and the dedication and excellent work of MCHIP DR Newborn Health expert Dr Nieves Rodriguez throughout the course of this project. We would like to acknowledge the collaboration and contributions of the implementing partner, USAID Maternal and Child Centers of Excellence (CdEx) Project and its participating centers as well as UNICEF, PAHO, and the Latter Day Saints (LDS) Charities, organizations central to the realization of this project. We would also like to recognize the staff of the DR Ministry of Health (MOH) hospitals that opened their doors and provided their unconditional commitment and skills for the success of the program:

- San Vicente de Paul Regional Hospital (HSVP), San Francisco de Macoris province
- San Lorenzo de los Mina Maternal and Child Hospital, East Santo Domingo province
- Dr Antonio Musa Hospital, San Pedro de Macoris province
- Dr Luis Morillo King Hospital, La Vega province
- Toribio Bencosme Hospital, Espaillat province
- Jaime Mota Hospital, Barahona province
- Teófilo Hernandez Hospital, El Seíbo province
- Alejandro Cabral Hospital, San Juan province
- Luis Bogaert Hospital, Valverde province
- Inmaculada Concepción Hospital, Sánchez Ramirez province

MCHIP would also like to acknowledge the contribution of program staff in Dominican Republic and Washington, D.C.:

- Dr Nieves Rodriguez, Dominican Republic Country Representative, MCHIP and BASICS
- Ms Vilma Soto, Country Program Coordinator
- Dr Goldy Mazia, LAC Newborn Health Team Lead
- Dr Magdalena Serpa, Newborn Health Advisor
- Ms Sarah Marjane, Project Administrator
- Ms Molly Miller Petrie, Program Assistant
- Ms Brianna Casciello, Program Assistant

Executive Summary

The goal of the United States Agency for International Development's (USAID's) Maternal and Child Health Integrated Program (MCHIP) is to assist countries in scaling up evidence-based, high-impact maternal, newborn, and child health (MNCH) interventions and to contribute to significant reductions in maternal and child mortality.

The Dominican Republic (DR) has made significant progress in improving maternal, newborn, and child health over the past decade, but there is still room for improvement. Although more than 98% of all deliveries are attended in health facilities,[1] the DR has one of the highest neonatal mortality rates in the Latin American and Caribbean (LAC) region (23/1,000 live births in 2007, 21/1,000 live births in 2013). These rates suggest serious gaps in the quality of care provided in those public sector health facilities that attend births and care for newborns.

MCHIP's program in the DR focused its efforts on the main causes of newborn mortality in the LAC region and globally—newborn infections, complications of prematurity, and intrapartum deaths, mainly due to birth asphyxia. USAID/DR enlisted MCHIP's support to continue the work started by USAID's Basic Support for Institutionalizing Child Survival (BASICS) project. From 2007–2009, BASICS worked with the Ministry of Health and Abt Associates, UNICEF, and the Pan American Health Organization (PAHO) to address the prevention and treatment of newborn sepsis, the main cause of newborn mortality in the LAC region at the time.

USAID's Peg Marshall accompanies Dr. Ambrosio Rosario and a representative of the local government at a visit to San Vicente de Paul Regional Hospital (HSVP) by the LAC KMC Network event in December 2011.

Starting in 2010, MCHIP worked in collaboration with the USAID bilateral health project (Maternal and Child Health Centers of Excellence) with a continued focus on the prevention and treatment of newborn sepsis, increased attention to Kangaroo Mother Care (KMC) to reduce complications of prematurity, and Helping Babies Breathe (HBB) to teach and implement a simplified method for neonatal resuscitation and to decrease mortality from birth asphyxia. In 2013, the USAID Mission extended MCHIP's newborn work for an additional year, and with U.S. President's Emergency Plan for AIDS Relief (PEPFAR) funding, asked MCHIP to add elements of the prevention of mother-to-child transmission of HIV (PMTCT) to its newborn health scope of work.

MCHIP's primary areas of interventions and support to the Ministry of Health (MOH) and the Maternal and Child Health (MCH) Centers of Excellence Project included:

- Scaling up interventions for quality improvement of the prevention and treatment of newborn sepsis in selected MCH Centers of Excellence as part of the LAC Neonatal Alliance's regional strategy to improve newborn health
- Strengthening and promoting the KMC strategies in selected MCH Centers of Excellence
- Implementing the HBB approach in all MCH Centers of Excellence
- Improving the quality of PMTCT services for newborns in selected MCH Centers of Excellence

[1] Center for Social and Demographic Studies (CESDEM), ICF International, Ministry of Public Health and Social Assistance (Dominican Republic). *Dominican Republic Demographic and Health Survey 2013.*

As a member and current chair of the LAC Neonatal Alliance, and side by side with the project's support to the MCH Centers of Excellence, MCHIP engaged stakeholders at the national level to revitalize the Dominican Neonatal Alliance, which had become inactive. The LAC Neonatal Alliance is an interagency group that was formed to support countries in the region in their efforts to reduce newborn mortality and morbidity. The alliance promotes evidence-based policy and programmatic interventions at the facility and community levels. MCHIP played a key leadership role in providing technical guidance to the alliance from 2009 to 2014.

Objective 1: Scale-up the intervention for quality improvement of prevention and treatment of newborn sepsis in the MCH Centers of Excellence as part of the regional strategy to improve newborn health.

BASICS introduced activities to improve the quality of management of newborn sepsis as part of a LAC regional intervention. A virtual platform (Eluminate) was used to periodically connect participating countries for teaching purposes and the exchange of results. MCHIP continued to organize and facilitate Eluminate sessions that included stakeholders in the DR. This intervention was shared with MCHIP's similar activities in Paraguay.

Infection prevention activities led to a very important reduction in hospital-acquired infections in newborns in one referral center (Dr. Antonio Musa Hospital); the proportion of babies admitted with suspected nosocomial infection was reduced from 42% in 2007 (when the BASICS project started activities) to less than 10% one year later, which was further reduced and sustained below 5%. The center continues to monitor data on a routine basis and has become a mentor for other institutions. Three additional centers implemented these prevention activities and the proportion of admissions to the neonatal unit due to suspected nosocomial infection was reduced to less than 5% in all centers. During MCHIP, this success story was adopted by UNICEF, and currently in the DR, the infection prevention standards recommended by MCHIP are one of the conditions used to certify facilities as Mother and Baby Friendly.

Achievement: MCHIP contributed to the reduction of neonatal mortality rates in facilities in the DR; rates declined from 44/1,000 live births in 2009 to 24.5/1,000 in 2012, mainly due to improved care for and fewer deaths of premature and low birth weight babies.

(Data from San Vicente de Paul Regional Hospital, the national KMC training facility)

As all neonatal sepsis activities were focused on prevention during the last year of programming, MCHIP carried out a baseline assessment of the quality of the treatment of neonatal sepsis in four referral facilities, which showed many gaps and inconsistencies in care partially due to outdated and unenforced national guidelines. MCHIP, together with the MOH and UNICEF, developed/revised new national neonatal infection management guidelines that were launched in March 2014.

Objective 2: Strengthen the implementation of Kangaroo Mother Care strategies in trained Centers of Excellence; initiate expansion.

In the DR, one out of 10 newborns is born premature (23,300 preterm births per year) and 1,200 newborns die because of related complications each year.[2] The KMC program is a low-cost, highly effective standard method of care for all small newborn babies. KMC incudes skin-to-skin contact, exclusive breastfeeding, and close follow-up and support to the mother-newborn dyad. MCHIP addressed prematurity and its complications by rolling out the expansion of the KMC program in four of the DR's nine health regions. The KMC program was first introduced in the DR in 2009 at the regional referral facility, San Vicente de Paul Regional Hospital (HSVP), in

[2] March of Dimes. http://www.marchofdimes.com/mission/global-preterm.aspx

Francisco de Macoris. MCHIP supported the strengthening of HSVP's KMC program and its establishment as a national KMC training facility. Throughout the course of the project, personnel from three additional centers were trained at HSVP, including San Lorenzo de Los Mina Hospital, which is located in East Santo Domingo and serves the poorest area of the capital, covering a population of roughly one million. The other two MCHIP-supported KMC programs were located in Dr. Antonio Musa Hospital in San Pedro de Macoris and in Dr. Luis Murillo King Hospital in La Vega. An electronic database developed by MCHIP for reporting indicators was field-tested and implemented in all KMC programs.

Four thousand eligible babies received KMC services through MCHIP's activities in the DR. These babies were followed through one year of age and received specialty evaluations that included ophthalmology, ear-nose-throat, and neurology exams to minimize disabilities that commonly affect premature babies. Prior to MCHIP, retinopathy of prematurity (ROP), the main cause of acquired blindness in the DR, was not routinely screened for in many of the country's facilities caring for premature babies. MCHIP support contributed to prompt diagnosis of ROP and timely treatment to prevent blindness among premature newborns.

Eighty-five percent of eligible premature and low birth weight babies were admitted to KMC programs in four implementing hospitals. The mortality rate across these sites was 1.5%.

MCHIP support for KMC contributed to significant reductions in newborn mortality in participating facilities. HSVP, for example, achieved a reduction of 45% in newborn mortality and 50% in hospital-acquired infections (mostly in small babies as they are being discharged early from facilities, decreasing the risk of acquiring such infections). Dr. Antonio Musa Hospital also achieved a reduction of 54% in newborn mortality and San Lorenzo de Los Mina achieved a reduction of 36% in newborn mortality.

"My mother said that this baby would not survive, that he was too tiny … everybody said that to me … only here in the program they give me hope and now I know that he will grow and thrive."

-Mother participating in KMC program

Hospitals staff reported that the program also had a positive influence on mental health and social problems such as postpartum depression (particularly in adolescent mothers). Staff also reported that the program promoted fathers' involvement in the care of babies and may have improved behaviors related to domestic violence and delinquency.

Dr. Nathalie Charpak and Dr. Goldy Mazia during an evaluation visit of the KMC program at Dr. Luis Morillo King Hospital in La Vega province in January 2014.

In recognition of the successes of the country's KMC programs, an event leading to the creation of the LAC KMC network was held in the DR in 2011. Ten countries at various levels of KMC implementation participated in the three-day event.[3] The KMC network currently

[3] First Latin America and Caribbean Regional Kangaroo Mother Care Conference. http://www.healthynewbornnetwork.org/resource/first-latin-america-and-caribbean-regional-kangaroo-mother-care-conference

interacts through a virtual community of practice and meets annually at an in-person event organized by MCHIP and partners, with stakeholders in the DR playing an important role. The KMC program also gained increased visibility by earning the President's Quality Award in 2012, which was featured by several national media sources. Several non-implementing facilities have expressed interest in developing KMC programs; one university hospital in the second biggest city in the country (Cabral y Baez Hospital in Santiago) will be trained by the HSVP team with funds from La Leche League and others.

Objective 3: Implement the Helping Babies Breathe curriculum in MCH Centers of Excellence.

To address neonatal intrapartum deaths, MCHIP supported the DR to implement and scale up HBB. By the end of the MCHIP award, HBB had covered referral hospitals in eight of the nine health regions in the DR, and the trained staff committed to train their referring facilities. At the time of the launch—led by the American Academy of Pediatrics (AAP) and partners in June 2010 in Washington, D.C.—four master trainers from the DR were accredited. Following the launch, MCHIP, in collaboration with the MCH Center of Excellence Project, trained 59 facilitators and 573 providers through more than a dozen basic newborn resuscitation training sessions. MCHIP and MCH Centers of Excellence also provided technical indicators related to newborn resuscitation and essential newborn care at birth. MCHIP, with support from the USAID Mission, established a collaborative relationship with the Latter Day Saints Charities (LDSC), for further expansion of the HBB strategy. Continued scale-up of the HBB curriculum will be facilitated with training equipment and supplies donated by LDSC.

Objective 4: Improve the quality of prevention and treatment of HIV/AIDS (PMTCT) in the MCH Centers of Excellence as part of the regional strategy to improve newborn health.

MCHIP utilized PEPFAR funding in 2013 to conduct an assessment of PMTCT services to identify links with maternal and neonatal activities in four hospital facilities. Emphasis was on the potential for KMC services to address missed opportunities for care and treatment of families living with HIV/AIDS. The results of the evaluation showed gaps and challenges during labor and delivery, as well as during the postnatal period and beyond. For example, in these facilities MCHIP found that only 31% of HIV-positive pregnant women underwent an elective cesarean section, and that only 62% of exposed newborns received prophylactic antiretroviral therapy. Recommendations included solutions that could be implemented in labor and delivery rooms, in maternity services (rooming-in), in neonatal units, and, most important, through KMC services due to the extended contact time with families during follow-up. Findings and recommendations were included in a report and disseminated during MCHIP's dissemination meeting and closeout, which was held in January 2014, in Santo Domingo.

Objective 5: National workshop to present results of implemented newborn strategies, ratify commitments, and advocate for scaling-up and sustainability of newborn health priority interventions.

The MOH, USAID, UNICEF, and LDSC participated in MCHIP's national dissemination meeting in January 2014. During this one-day event, staff from the facilities where MCHIP had provided technical assistance showed that they are clearly owners of the activities and demonstrated their commitment to continue implementing, measuring, and scaling up the strategies that MCHIP promoted. For example, the regional trainers left the meeting with a work plan that called for taking HBB trainings to more peripheral health facilities; MCHIP donated the equipment and supplies to facilitate the trainings. The KMC training institution also plans to train and implement another KMC program in one of the university hospitals. The MCHIP team is committed to supporting the DR activities through the LAC Neonatal Alliance and LAC regional activities.

Introduction

Although neonatal mortality is lower in Latin America and the Caribbean (LAC) than in other developing regions in the world (15/1,000 live births), there is great variability among and within countries, with the newborn mortality rate (NMR) being as high as 31/1,000 live births (Haiti), and as low as 5/1,000 live births (Cuba and Chile)[4]. There is an important inequity factor in the region, where the NMR is double in the poorest quintile of the population compared to the richest[5]. In many countries in LAC, this poorest quintile is represented by a very large underserved indigenous and rural population who face geographic, financial, and cultural barriers to accessing health care. This results in a low proportion of skilled birth attendance in some countries (as low as 24 percent in some areas)[1].

In general, there is an inverse correlation between NMR and skilled birth attendance in the LAC Region, but there are exceptions, as is the case in the Dominican Republic (DR). Although 98 percent of the deliveries take place in health facilities with skilled birth attendants, the DR's NMR continues to be high at 21/1,000 live births (DHS, 2013), indicating the need for improvement in the quality of care. The 3 main causes of newborn deaths in the region are similar to the global scenario (sepsis, birth asphyxia and complications of prematurity), though there is an upward trend in the rate of prematurity which also contributes to newborn deaths (60-80% of newborn deaths occur in low birth weight/premature babies). Though many countries in the region have experienced significant improvements in technology for newborn care, some elements of essential newborn care are still lacking. For example, in the DR only 12 percent of newborn babies are exclusively breastfed, and only 1 percent for the first 6 months of life (DHS, 2013).

Building on the successes of the Basic Support for Institutionalizing Child Survival (BASICS) Project and focusing on the main causes of newborn mortality in the country, which reflect the LAC regional and global situation, MCHIP efforts in the DR addressed mortality due to newborn infections, complications of prematurity and intra-partum deaths (mainly due to asphyxia). At the same time, as part of the responsibilities of the Latin America and Caribbean (LAC) Neonatal Alliance, efforts were placed on revitalizing the Dominican Neonatal Alliance which had been inactive for a period of time. In addition, by the end of the planned two years, the USAID Mission provided a cost-extension for strengthening newborn health activities further, and integrating some elements of prevention of mother to child transmission (PMTCT) of HIV/AIDS activities with President's Emergency Plan for AIDS Relief (PEPFAR) funds.

Between 2006 and 2009, BASICS supported the implementation of a regional strategy to improve the quality of prevention and treatment of newborn sepsis at the facility (El Salvador and Dominican Republic) and community (Honduras) levels, using elements of the USAID Health Care Improvement (HCI) Project's quality improvement collaborative model and distance learning technologies. Four regional hospitals participated in the intervention in the DR, covering about 30 percent of the country's total population (3.3 million). Quality improvement teams were established with staff of various disciplines in facilities. Local technical support was provided through a full-time, in-country coordinator, Dr Nieves Rodriguez, who was assisted by local experts and BASICS headquarters (HQ) technical staff. A distance learning network was created using the Eluminate software to connect the country teams and BASICS HQ for technical updates (including capacity building on basic quality improvement methods) and regional sharing of results and experiences every 4-8 weeks.

[4] LAC Situational Analysis, 2006.
[5] Lawn et al, 2005.

MCHIP conducted a baseline assessment in 2007 to identify key gaps in the prevention and management of infections. For example, while very expensive equipment had been purchased, the hand-washing practices and needed supplies for its implementation were deficient and elements of clean delivery were not practiced appropriately. Quality improvement activities were directed at these areas. Six months after starting the intervention, BASICS found a 39 percent increase in observed hand washing by staff before examining a newborn. This element of infection prevention has been recently shown to have important impact on newborn mortality rates[6]. Important improvements were also noted in delivery practices, such as use of sterile linen and cutting the cord with a sterile instrument, even two years after initiation of the program. As a result of the increased awareness of the facilities staff on issues of infection prevention in hospitals, other improvements were progressively instituted. These changes contributed to a 30 percent reduction over time in the proportion of admissions due to suspected cases of hospital-acquired newborn infections in the nurseries in two of the intervention hospitals. In addition, the team at the HSVP regional facility received training from the Colombian Kangaroo Mother Care Foundation and initiated implementation of the program in July 2009.

Before MCHIP, Newborn Health Advisor Dr. Goldy Mazia worked with in country technical advisor Dr. Nieves Rodriguez on the BASICS Project.

At USAID/DR's request, MCHIP started work in the DR in 2010. Building upon the experiences and successes in prevention of infections and the initial introduction of KMC described above, MCHIP was asked to collaborate with and provide technical newborn health support to USAID's Maternal and Child Centers of Excellence (CdEx) Project. MCHIP and CdEx implemented activities focusing in 10 regional and municipal hospitals, located in 8 of the 9 health regions in the country. Three of the Centers of Excellence had participated in past activities with the BASICS Project (San Vicente de Paul, Antonio Musa, and San Lorenzo de Los Minas Hospitals), and therefore MCHIP built on their experiences.

The objectives of the MCHIP DR country program were: (1) To scale-up the intervention for quality improvement of prevention and treatment of newborn sepsis in the MCH Centers of Excellence as part of the regional strategy to improve newborn health; (2) To strengthen the Implementation of Kangaroo Mother Care Strategies in trained Centers of Excellence and continue expansion; (3) To implement the "Helping Babies Breathe" (HBB) Curriculum in Centers of Excellence; (4) To improve the quality of prevention and treatment of HIV/AIDS (PMTCT) in the MCH Centers of Excellence as part of the regional strategy to improve newborn health; and (5) To carry out a national workshop to present results of the newborn strategies supported by MCHIP, to ratify commitments and to advocate for scale-up and sustainability of priority newborn health interventions.

[6] In a recent study it was shown that hand washing by mothers and birth attendants reduced newborn mortality by 41% (Rhee V et al, Arch Pediatr Adolesc Med, 2008).

Major Accomplishments

Quality improvement strategy to prevent and treat newborn sepsis scaled up in four selected MCH Centers of Excellence

Although the proportion of facility deliveries is high in the DR (98%), the neonatal mortality rate in the country is also one of the highest in the region at 21/1,000 live births (DHS, 2013). This suggests gaps in the quality of maternal and newborn care in facilities in the country. Newborn sepsis was one of the main causes of newborn morbidity and mortality in the DR when the BASICS project initiated activities in 2007. In referral hospitals, about 50 percent of newborn deaths were due to sepsis, and over 40 percent of admissions to neonatal units were due to suspected infections. Using quality improvement methods adapted from the HCI project (quality improvement collaboratives), BASICS worked on improving infection prevention by implementing a package of changes in four referral hospitals in the DR. This resulted in improved practices for clean/sterile deliveries, hand washing and other related activities, and reduced the proportion of admissions to the nursery due to sepsis to 5 percent in one center (Dr Antonio Musa Hospital).

Utilizing similar quality improvement methods, MCHIP continued supporting the implementation of a package of changes to reduce hospital acquired infections in newborns in selected USAID MCH Centers of Excellence referral hospitals. The proportion of admissions to the neonatal unit due to possible nosocomial infection was reduced to less than 5 percent in the four facilities where MCHIP implemented the strategy Possible nosocomial infections were defined as those occurring more than 48 hours after birth in babies with no maternal infections (vaginosis, chorioamnionitis, and premature rupture of membranes). The center that started implementing the changes during the BASICS Project (Dr Antonio Musa Hospital), incorporated the changes and their monitoring into routine care, and maintained the results until the end of MCHIP's involvement. At a national referral hospital (San Lorenzo de los Mina), 37 percent of admissions to the nursery were due to infections in 2011 (baseline) and reduced to <5 percent after implementation of changes during MCHIP activities. The changes were implemented with existing facility resources without the need for external investments.

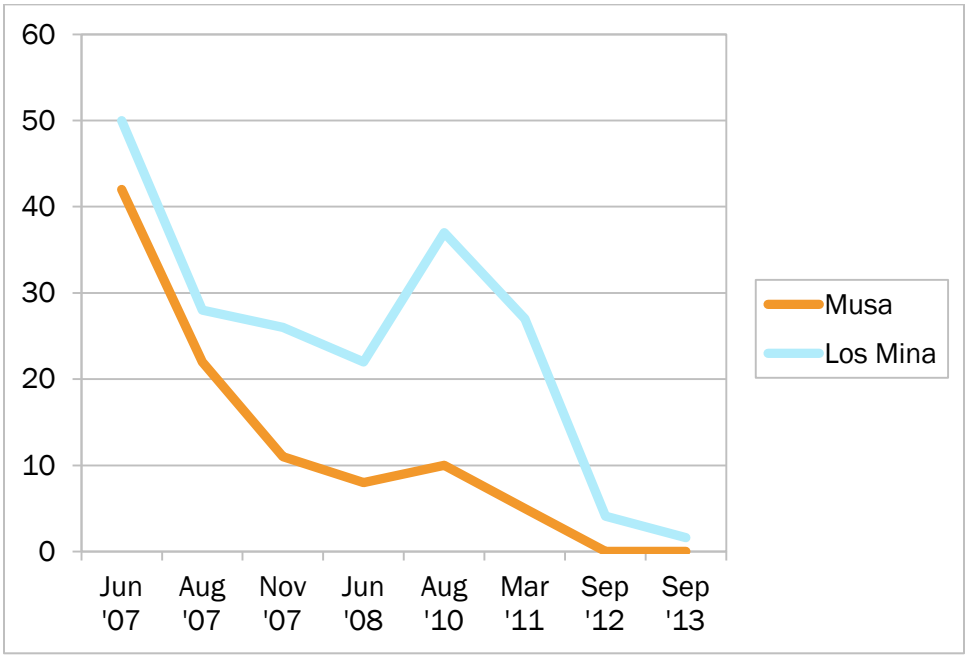
Collecting data in a disaggregated manner for newborn infections (hospital acquired vs. acquired from the mother during delivery) allowed the identification of gaps in treatment of maternal infections during antenatal care. This was corroborated by an assessment of quality of treatment of newborn infections carried out in 2012-2013 by MCHIP.

The successes of the intervention captured UNICEF DR's interest, and together with the MOH similar interventions were implemented in other centers. UNICEF incorporated MCHIP's infection prevention strategy as part of the requirements for certification in the Mother Baby Friendly Hospital Initiative.

MCHIP identified various gaps in the diagnosis and treatment of newborn infections through an assessment carried out in 3 hospitals in a sample of close to 500 newborns admitted to neonatal units with sepsis as the initial diagnosis. Findings include: of the 40 percent of women diagnosed with vaginal or urinary tract infections during pregnancy, only 40 percent received treatment during antenatal care (ANC), despite the fact that the majority of mothers had 4+ ANC visits. Also, in over 50 percent of cases the first line of antibiotic treatment for newborn sepsis recommended by WHO was not being followed. During the data collection period, the staff became aware of the gaps and initiated changes.

MCHIP participated in a MOH consultation with other partners to revise the national management of neonatal sepsis guidelines that will be launched in March 2014.

Figure 1. Effect of Infection Prevention Measures on Proportion of Admissions to the Neonatal Unit Due To Suspected Hospital-Acquired Infections in Two Hospitals in the DR



Kangaroo Mother Care Centers of Excellence established and continuing program expansion

Nurse evaluates KMC newborn.

The proportion of premature births and of full term low birth weight babies (<2,500 g) was 10.8 percent and 7.2 percent respectively (DHS 2007). One contributing factor is adolescent pregnancy which corresponds to 20.6 percent nationally, though some referral centers indicate adolescent pregnancy levels above 30 percent.

In response to this situation, MCHIP continued the work initiated by BASICS by strengthening KMC implementation in HSVP, and facilitating scale-up through the use of this regional referral center as the national level training institution. To this end, MCHIP employed the services of the Colombian Kangaroo Foundation to train the HSVP team in Bogota, Colombia. MCHIP/ DR achieved full scale KMC program implementation in 3 public regional hospitals and 1 maternal and child national referral hospital. Throughout the life of the project, MCHIP trained 150 staff in KMC including pediatricians, neonatologists, registered nurses, auxiliary nurses, and support staff. More than 4,000 eligible newborns enrolled in the four KMC programs. The proportion of eligible babies that joined the program increased from 11 percent in 2010, to 87 percent in 2013. 1,200 babies have graduated from MCHIP's KMC programs in the DR (discharged after 1 year of age and walking).

MCHIP support for the implementation and scale up of KMC and activities related to the prevention of hospital- acquired infections contributed to significant newborn mortality reductions in participating facilities. HSVP achieved a reduction of 45 percent in newborn mortality and 50 percent in hospital acquired infections (mostly in small babies due to early discharge in KMC); Dr.

Antonio Musa Hospital achieved a reduction of 54 percent in newborn mortality and; San Lorenzo de Los Mina achieved a reduction of 36 percent in newborn mortality.

Dr Nathalie Charpak, founder of KMC Foundation, signs the accreditation for training institution, HSVP in January 2014.

In coordination with in country partners, MCHIP developed a sustainable decentralized KMC program that includes local data collection using an electronic database, indicators reporting, analysis and dissemination. During the life of the project, MCHIP sponsored 2 assessments conducted by experts from the KMC Foundation to evaluate the status of implementation and provide technical assistance for improvements. During the most recent visit in January 2014, HSVP received accreditation from the Colombian Kangaroo Foundation. Implementation plans in an additional national referral hospital are underway (training occurred February 2014); a foundation is being developed and other facilities have requested training and implementation.

> *"KMC not only supports appropriate feeding of the premature baby, but also provides education to the mother. The family feels supported, the mother gets empowered to care for her baby and outcomes are better and long standing."*

Coordinated with MCHIP's technical support, free ophthalmology and ENT services are provided to premature babies in KMC programs for identification and treatment of retinopathy of prematurity and hearing impairment. The main cause of acquired blindness in the DR has been retinopathy of prematurity and hence the importance of this added service.

The KMC program empowered families and created demand for these services by communities. Nevertheless, there are still financial and other gaps to compliance with the ambulatory follow-up at the implementing centers due to geographic and financial barriers. Around 17 percent of families drop out, but some are brought back to the program using a cell phone service provided by MCHIP. This situation has been observed in KMC programs in many developing countries which emphasizes the need to implement KMC follow-up closer to the community, a recommendation that will be addressed by the country programs.

Ms. Leoviligilda Reyes discussed the success of the scale up of the KMC program in the Dominican Republic at the MDG Countdown 2013 event in September in New York.

MCHIP supported KMC programs have received national and global media attention through printed newspapers, televised news reports and presentations at international conferences. For example: telenoticias.com.do/video/sabias-que-para-un-bebe-prematuro-hay-mejor-incubadora-que-el-calor-de-mama), This high visibility resulted in support from the office of the First Lady and La Leche League, among others, who participated in subsequent MCHIP KMC regional meetings and provided resources for implementation in new centers. Additionally, the DR KMC program has received international recognition through showcasing as a success story at a KMC regional event to develop a LAC KMC network in December 2011, and as a case study at the MDG countdown event in September 2013 in New York (http://www.usaid.gov/unga/mdg-countdown-2013/mdg-4).

The DR KMC programs will continue to receive TA and support as required, including continued advocacy for uptake of the KMC program from the MOH, through the LAC regional platform, the LAC Neonatal Alliance.

"Helping Babies Breathe" (HBB) Curriculum taken to all Centers of Excellence in eight health regions

Neonatal asphyxia, the lack of spontaneous breathing at birth, is one of the main 3 causes of deaths in newborn babies in the DR. Between 700 and 1,000 deaths from birth asphyxia have occurred in the DR every year since 2000 (13% of all deaths in newborns) with no observable improvements in the last decade (WHO Global Health Observatory Data Repository. http://apps.who.int/gho/data/view.main.gbdc-CH11?lang=en).

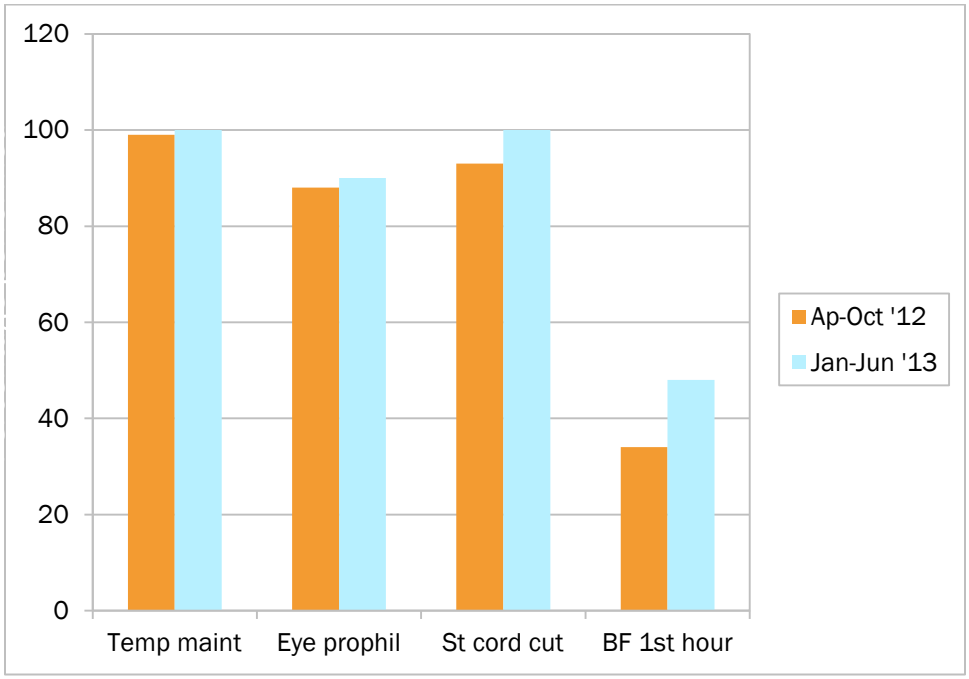
HBB training at a hospital.

When the Global Development Alliance (GDA) launched the American Academy of Pediatrics' Helping Babies Breathe (HBB) basic newborn resuscitation course in 2010, MCHIP and USAID's Centers of Excellence Project supported the training of 4 Master Trainers from the DR under the premise that the country would pioneer HBB implementation in the LAC Region. To this end, HBB curriculum materials were translated into Spanish and the pictures adapted to the various ethnicities of the LAC region. MCHIP DR coordinated and facilitated 23 training sessions, 1 for facilitators and 22 for providers, throughout the life of the project, resulting in a total of 52 regional facilitators and 573 providers trained in country. Providers include registered and auxiliary nurses, pediatricians, neonatologists, obstetricians- gynecologists, anesthesiologists, general practitioners, residents in various programs, and interns. A solid group of trainers was formed which replicates the trainings in various regions of the country, including staff of peripheral facilities attending deliveries. In collaboration with the bilateral, MCHIP supported the procurement of equipment and collection of data.

Data collection register for HBB-ENC at birth.

Data collection on a register developed by MCHIP (right) allowed for the analysis of new neonatal indicators for basic resuscitation and essential care at birth. This analysis demonstrated the need to improve some practices. For example, of 19,200 live births from April 2012 to March 2013, 677 newborns in 4 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. Elements of essential care at birth (ECB) in the 4 hospitals, namely temperature maintenance, eye prophylaxis, and cord cutting with a sterile instrument, were reported high at baseline with slight increases at the end line assessment; breastfeeding in the first hour was low at baseline and improved some at end line (see Figure 2 below).

Figure 2. Improvements in Practices of Essential Care at Birth Elements in 4 Referral Hospitals Implementing HBB in the DR



Quality of Prevention of Mother to Child Transmission of HIV/AIDS (PMTCT) in MCH Centers of Excellence documented with recommendations to improve newborn care

MCHIP received funding from the President's Emergency Plan for AIDS relief (PEPFAR) to conduct an assessment to identify areas of integration among newborn health services and PMTCT programs. HIV prevalence among pregnant women in participating centers is between 1.4 and 2.8 percent, and there are national efforts to maintain or reduce these levels; efforts to prevent mother-to-child transmission (PMTCT) of the virus are also in place.

A baseline assessment of the quality of PMTCT and KMC services in 4 referral hospitals, with recommendations for integration activities was carried out by in- country experts working with MCHIP. The main goal of the assessment was to find missed opportunities for identification, care, and treatment of families living with HIV/AIDS through hospital maternal and newborn services such as rooming-in and the KMC program. The latter presents a great opportunity to interact with families as the follow-up continues for a year and involves interactions with various family members. The results and recommendations were shared in a written report and a presentation during the MCHIP/ DR program close-out meeting.

During the data collection period the staff of the HIV/AIDS clinic and of neonatal services identified gaps in information sharing and referral/counter-referral that needed improvement. For example, it was clear that the centers were doing very well in pre and post- test counseling and in testing pregnant women during ANC (most over 90%), but that services during labor and delivery and the postnatal period had compliance gaps with respect to the national PMTCT guidelines for HIV positive pregnant women and their exposed babies. The figures below illustrate low percentages of C-sections performed, women and babies receiving ARVs, and babies receiving formula feeding as recommended by the MOH in 2 facilities assessed.

Figure 3. Percentage of HIV+ Women and Exposed Newborns Receiving PMTCT Services in Dr. Musa Hospital (2010-2012)

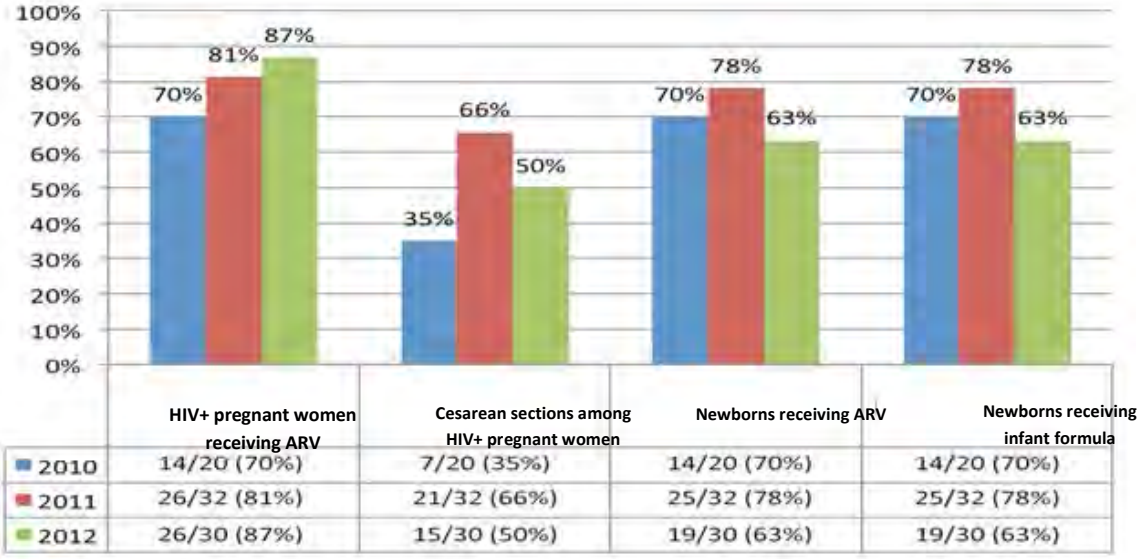
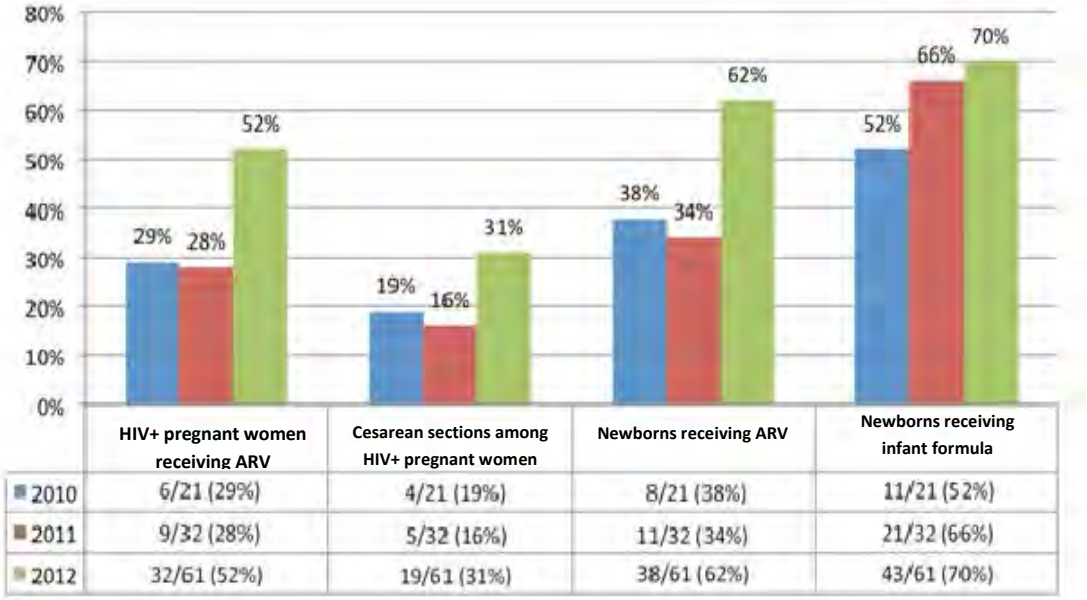


Figure 4. Percentage of HIV+ Women and Exposed Newborns Receiving PMTCT Services in Dr. Luis Morillo King Hospital (2010-2012)



There were clear missed opportunities to address HIV/AIDS issues within the KMC program. The following story illustrates a few of these issues:

"Marie, a 22 year old Haitian woman started ANC visits in a Health center when she was almost 7 months pregnant. When she was identified as HIV+, she was referred to the PMTCT program in one of the referral centers, where she had to wait to receive an appointment. When she was finally seen, she started ARV treatment, and on week 37 she underwent an emergency C-section due to pre-eclampsia. The baby was born with low birth weight (1,800 g). She was referred to the KMC program, where she never disclosed her status and nothing was written on the baby's file regarding her exposure to HIV. The KMC program recommended exclusive breastfeeding, and when Marie went to the PMTCT clinic for follow-up, she was instructed to feed her baby with formula

exclusively. She also didn't receive instructions on how to prepare the feeds. Her HIV status was disclosed to the KMC program by the PMTCT clinic at that time, so she was excluded from the former (HIV+ status was an exclusion criteria from the KMC program in that center)".

After this story was known by both services, it became clear that there was an urgent need for coordination among them, and also that babies that were exposed to HIV could still be part of the KMC program. Currently both services carry periodic coordination meetings to discuss shared cases.

The results of this evaluation and recommendations were shared with the DR Mission PEPFAR program, which will continue to follow on the findings and needed changes.

National workshop conducted to present results of newborn strategies, ratify commitments and advocate for scaling-up and sustainability of priority newborn health interventions

Damani Goldstein, USAID DR Team Health leader gave opening remarks at the MCHIP DR close out meeting in January 2014.

The close out meeting was an all-day event held on Wednesday, January 22, 2014 at the Hotel Crowne Royal Plaza in Santo Domingo. The close out meeting was led by in country program implementers and moderated by Dr. Goldy Mazia. The 53 attendees included health professionals from the four implementing hospitals as well as representatives from USAID, the Maternal and Child Centers of Excellence Project (Abt Associates), Ministry of Health, UNICEF, and the Latter Day Saints Charities.

To encourage further uptake and scale up of interventions, the results of each program objective were presented; flash drives- including meeting presentations and the results of the management of sepsis and PMTCT evaluations- all of which are available in Spanish, were also distributed. During the presentations it was evident that the programs are owned by the institutions and regions and future plans are underway to continue running these programs in the regions involved. For example, the KMC programs implementers are creating a Foundation to receive support for sustainability and the scale-up of the strategy and here is a locally funded training plan to develop a KMC program in one of the largest referral hospitals in the country.

MCHIP intervention in newborn health contributed to a reduction in NMR in 3 main referral hospitals serving a population of close to 2 million. The impact of the newborn health interventions in the DR have received both regional (LAC) and global visibility, with lessons learned shared in several international events, including the KMC Acceleration meeting sponsored by Saving Newborn Lives (SNL) and the Gates Foundation in Istanbul, Turkey, the Global Newborn Conference in Johannesburg, South Africa and the Millennium Development Goals (MDG) Countdown 2013 event in New York.

Participants at the national dissemination included representatives from the four implementing hospitals, MOH, USAID, CdEx and LDS Charities, among others.

Cross-Cutting Themes

- Integration: MCHIP's newborn activities in the DR were integrated with maternal health through: (1) infection prevention strategies during labor and delivery and (2) training maternal health professionals in newborn resuscitation; integration took place also with HIV/AIDS programs through assessment and recommendations to address missed opportunities in PMTCT and care and treatment via newborn services (particularly KMC); and nutrition was addressed through the promotion and improvement of exclusive breast feeding in first 6 months through KMC programs.

The KMC program promotes exclusive breastfeeding.

- Gender: Empowerment of men to become main caregivers of their premature newborns through the KMC program; empowerment of female nurses to lead programs; empowerment of mothers to be main caregivers of high risk babies.
- Equity: Access to basic newborn resuscitation skills for all categories of birth attendants (including less skilled workers such as auxiliary nurses).
- Quality improvement: Use of QI methods adapted from URC's collaborative for newborn sepsis intervention. The intervention was introduced as a multi-country strategy as part of the regional LAC approach; the initiative has continued between facilities in the country. The concepts of quality improvement have been incorporated into other strategies in the participating referral facilities.
- M&E: tested feasibility of electronic-based data collection for KMC; collected KMC and HBB/ENC new indicators providing lessons learned. Advocacy resulting in the addition of newborn indicators to the national M&E plan.

Recommendations and Way Forward

The DR KMC program has been established and is owned by the implementing facilities/regions, with a number of national champions for the follow-up and expansion. MCHIP advocated for national uptake with the MOH in various opportunities but a decision is yet to be made by the government. The sustainability of the KMC program is at risk without the endorsement and funding at the central MOH level. The January 2014 evaluation funded and facilitated by MCHIP and conducted by the Colombian KMC Foundation accredited the program in the training institution (HSVP) and habilitated the program in the San Lorenzo de los Mina Hospital. The Foundation provided the other 2 national programs, formed recently in San Pedro de Macoris and La Vega provinces, with recommendations to strengthen and improve the program.

The ongoing data collection and analysis facilitated by the data collection tools developed by MCHIP will contribute to further tracking the interventions to reduce neonatal morbidity and mortality rates. The outcome and impact indicators can serve as an advocacy tool for uptake of the KMC program by the central authorities. The Colombian Foundation will provide assistance with information on a sellable KMC package of services for the health insurance companies to promote further sustainability. The DR KMC Program will continue to be part of the LAC KMC Network and receive technical assistance through that mechanism as needed and feasible, as well as through the virtual community of practice (created and managed by the URC/ASSIST Project). As observed at the closeout meeting, the four hospitals have ownership of newborn priority programs (HBB, KMC and quality improvement of management of newborn infections) as they were the presenters of their own experiences and led the discussions. The KMC champions have expressed their commitment to develop/adapt KMC guidelines for the country based on the Colombian KMC Foundation and ACCESS materials.

The HBB program implemented by MCHIP and partners in the DR, trained a critical mass of trainers and providers in 8 of the country's 9 regions. More than 70 sets of equipment and educational materials were donated at the closure of the program for further expansion. Joint advocacy efforts by MCHIP and the USAID Mission with the MOH for the incorporation of HBB in the national Integrated Management of Neonatal and Child Illness (IMNCI) guidelines have been unsuccessful to date. MCHIP also recommends the inclusion of HBB as part of the national IMNCI pre-service program. To promote sustainability of the program, MCHIP and the USAID Mission facilitated the coordination with the LDS Charities for continuation of activities and monitoring. Data collection about basic resuscitation and essential newborn care at birth developed and implemented by MCHIP will continue to generate valuable new information for program adjustments. The LAC HBB virtual community of practice, created and managed by USAID's ASSIST project, provides an avenue to continue engagement among program implementers at the facility level.

The prevention of infections activities have been incorporated into UNICEF's Mother and Baby Friendly Hospital Initiative. The new MOH guidelines for the management of neonatal sepsis will be disseminated and if adequately enforced, there will be an improvement in the quality of the case management of neonatal infections.

The report on the integration of facility-based PMTCT and maternal and newborn services was disseminated through a presentation during the closeout event, and also as a soft copy to all the participants including other partners participating in the national HIV/AIDS program (including PEPFAR, MOH, USAID, and Centers for Disease Control [CDC]). Clear recommendations for links between PMTCT and neonatal/postnatal services were contained in the document.

The LAC Neonatal Alliance will hire a consultant for the strengthening of national Alliances in the region. The DR is a priority for the renewal of the committee in the coming year.

The office of the Dominican Republic's First Lady has expressed interest in supporting newborn health strategies in the country after participating in events organized by MCHIP. These types of strategic alliances can be strengthened to ensure the sustainability of priority newborn health programs.

Annex 1: Indicator Matrix

LIST OF INDICATORS FOR MCHIP DOMINICAN REPUBLIC, 2011-2014

INDICATOR NO.	MCHIP CROSS CUTTING INDICATORS (INVESTING IN PEOPLE/OPERATIONAL PLAN INDICATORS)	BASELINE 2011	END LINE 2014 (CUMULATIVE)
0.1	Number of special studies completed	0	2
0.2	Number of people trained in maternal/newborn health through USG supported programs (disaggregated by gender)	610	2,005
	Female	475	1,581
	Male	135	424
0.3	Number of people trained in monitoring & evaluation (disaggregated by gender)	24	447
	Female	19	423
	Male	5	24
Objective 1. Scale-up the intervention for quality improvement of prevention and treatment of newborn sepsis in the Maternal and Child Centers of Excellence as part of the regional strategy to improve newborn health			
1.1	Proportion of all admissions to the nursery due to possible nosocomial infections	Musa 5%; Los Minas 37%	<5% in 3 centers (Musa, MSLM, HSVP)
1.2	Number of deliveries with a skilled birth attendant (SBA) in USG-assisted Programs	20,000	68,502
1.3	Proportion of observed deliveries with essential newborn care	65%	79%
1.4	Proportion of observed deliveries where the elements of sterile/clean delivery were correctly applied	80%	80%
Objective 2. Strengthen the Implementation of Family Centered Maternity and/or Kangaroo Mother Care Strategies in trained Centers of Excellence; initiate expansion			
2.1	Number of hospitals in which KMC strategy is implemented.	1	4
2.2	Number of hospitals in which Family Center Maternity strategy is implemented	1	1
2.3	Proportion of LBW (<2,500 g) babies who started KMC, by birth weight category	11%	87%
2.4	Number of newborns who received KMC that graduate from the program, by birth weight category	0	1,200
2.5	Proportion of deaths in newborns who received KMC, by birth weight category	0.45%	1.5%
2.6	Proportion of newborns who received KMC lost to follow up (missed 2 consecutive visits)	7%	20%

INDICATOR NO.	MCHIP CROSS CUTTING INDICATORS (INVESTING IN PEOPLE/OPERATIONAL PLAN INDICATORS)	BASELINE 2011	END LINE 2014 (CUMULATIVE)
Objective 4: Initiate implementation of the "Helping Babies Breathe" (HBB) Curriculum in Centers of Excellence (suggested indicators, still being defined)*			
4.1	Number of Master Trainers certified in the HBB curriculum by the American Academy of Pediatrics	4	4
4.2	Number of facilities with the necessary equipment and supplies for newborn resuscitation with the HBB curriculum	TBD	Not able to determine (CdEx indicator)

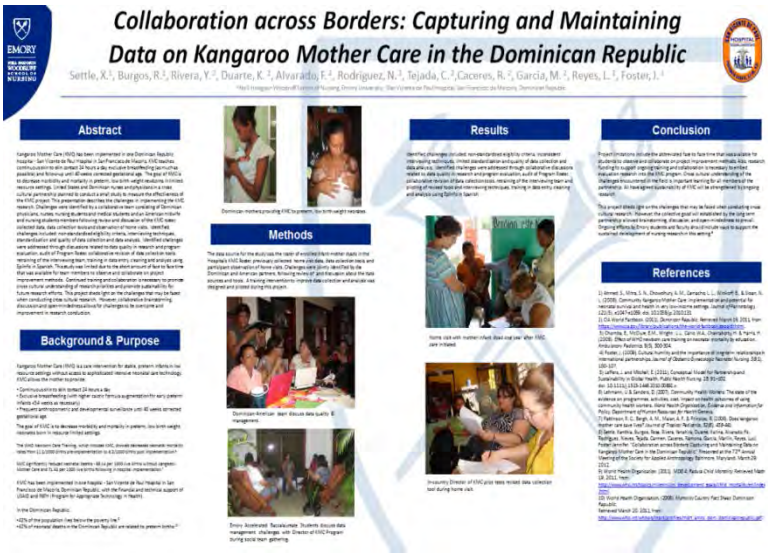
Annex 2: Success Stories

DR MCHIP NEWBORN HEALTH EXPERT DR NIEVES RODRIGUEZ SAYS:

- "There was an enormous change in the openness of hospital administration staff, which became sensitized to emphasize maternal and neonatal health as a priority in their budgets and strategic planning. These include hospital directives, administrators, and nursing chiefs: the latter were critical champions in the successes of the interventions. They are empowered, tireless workers, focused on saving mothers and babies, committed to improve quality of care. They are just excellent!"
- "It was amazing to see how non-pediatric professionals such as registered nurses, obstetricians-gynecologists, and less qualified personnel such as auxiliary nurses became empowered to care for the newborn after being trained in HBB. Before, they would wait until a specialist arrived to start resuscitation efforts, often resulting in neonatal deaths. Obstetricians report that they only cared about the mother before HBB but now they are aware of delaying cord clamping for 1-3 minutes and are able to resuscitate and provide care to the newborn as well."
- "In the DR the proportion of adolescent pregnancy is around 30 percent, much higher than other countries. Often these girls give birth to small babies and are eligible for KMC. We have observed that many of these girls are depressed and also have problems with their families. In the program we are able to address these issues and also empower the girls to care for the babies. It is also a good opportunity to give sex education and advice on family planning".
- "Women are so happy carrying their babies in Kangaroo position that they don't want to let go for other family members to carry, or stop when the baby is ready to get out. As one mother said, "*I want another baby that I can place between my breasts*."

SUCCESS STORIES LINKED TO THE DOMINICAN KMC PROGRAM:

- Stimulated by the DR KMC program success and facilitated by MCHIP DR, Dr Jenny Foster, from the Nell Hodgson Woodruff School of Nursing, Emory University, mentored a PhD candidate from the University on qualitative research related to the KMC program at HSVP (home visits). The results of the research were presented in a poster at the Annual Conference of Medical Anthropology co-authored by MCHIP technical staff in the country.



- Nurse Lucy Reyes, main trainer and coordinator of KMC programs in the DR, was interviewed by the NY Times reporter Nicholas Kristof during a panel presentation, "Girls and Women Transforming Societies" at The Ford Foundation during the MDG Countdown 2013 events. USAID administrator, Director of Department for International Development (DFID), the Finance Minister of Nigeria, the Executive Director of UN Women, Princess Sarah of Jordan, actress Gena Davies, and other personalities attended the event. Lucy wrote: "I am in love with this program, I feel so happy when I see a mother smiling with her baby in Kangaroo Mother Care, and when the child is big, and the mother stops by to show us the child, and says to the hospital staff – one of your children. My dream is that the Ministry of Health expands this program throughout the country, so that all children who are born too soon have the chance to live." Lucy's participation in this event was the result of the submission of a case study based on the MCHIP supported KMC program by an initiative of the DR Mission.

THE MEDIA HAS GIVEN GREAT ATTENTION TO THE DOMINICAN KMC PROGRAMS:

- http://www.francomacorisanos.com/VerNoticias.aspx?ID=30471&ImagenesNoticiaType#.Uwux_WeYa1s
- http://eldia.com.do/maternidad-de-los-mina-recibe-apoyo-de-fundacion-canguro-para-reducir-mortalidad-infantil/
- http://maternidaddelosmina.blogspot.com/2014/01/maternidad-de-los-mina-recibe-apoyo-de.html
- http://www.telenord.com.do/index.php/noticias/locales/33362-onu-selecciona-hospital-san-vicente-de-paul-como-panelista-programa-canguro
- http://www.eljaya.com/index.php/noticias/local/1609-madre-canguro-un-programa-que-salva-ninos-prematuro
- http://hoy.com.do/el-contacto-con-loscuerpos-de-madres-salva-abebes-de-morir/
- http://www.listin.com.do/la-vida/2012/3/11/224841/print
- http://www.diarionoticia.com.do/noticias/2014/abril/celebranenelmusa.htm

Annex 3: List of Presentations at International Conferences and Publications

- The Dominican Republic KMC Program (under the Women's Leadership in Health theme), presented by Ms Lucy Reyes, MDG Countdown, New York, USA, September 2013
- LAC Regional Neonatal Alliance technical meeting, San Salvador, El Salvador, June 2013
- KMC LAC regional network meetings, Santo Domingo, DR December 2011, San Salvador, El Salvador, June 2013
- Global Newborn Health Conference, Johannesburg, South Africa, April 2013
- International KMC conference, Ahmedabad, India, November 2012
- LAC regional KMC meeting, Bogota, Colombia, November 2013
- MCHIP Learning Workshop, Washington DC, USA, November 2011
- Poster presentation in collaboration with Emory University "*Collaboration across borders. Capturing and maintaining data on Kangaroo Mother Care in the Dominican Republic",* Atlanta, April 2012

Annex 4: List of Materials and Tools Developed or Adapted by the Program

- KMC paper and electronic register for KMC indicators
- HBB register for HBB/ENC indicators
- Data collection tool for management of newborn sepsis
- Baseline assessment for newborn services data collection tool
- Baseline assessment for PMTCT services data collection tool
- Data collection tools for hand washing and clean delivery observations
- Spanish translation of HBB materials (collaboration with Abt Associates and the AAP)