Saving the Newborn in Sierra Leone

A Continuum of Care Program

Final Report Prepared for the Project HOPE Swiss International Foundation

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project HOPE®

Contents

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Acronyms

CHW	Community Health Workers
DHMT	District Health Management Teams
ENC	Essential Newborn Care
HCW	Health Care Worker
HOPE	Project HOPE
LMIC	Low and Middle-Income Countries
KMC	Kangaroo Mother Care
MCGs	Mother Care Groups
M&E	Monitoring and Evaluation
MoHS	Sierra Leone Ministry of Health and Sanitation
NGOs	Non-governmental Organizations
NNE	Neonatal Nursing Education
PHSIF	Project HOPE Swiss International Foundation
PHU	Peripheral Health Unit
SDG	Sustainable Development Goal
SCBU	Special Care Baby Units
VSL	Village Savings and Loan
WHO	World Health Organization

Background

Sierra Leone is one of the poorest countries in the world, ranking 180 out of 187 countries on the Human Development Index. Life expectancy is just 57 years. The maternal mortality ratio is the highest in the world (1,360 per 100,000 live births) and the neonatal mortality rate is 31 per 1,000 live births. With just 245 doctors for 7.6 million people, Sierra Leone has one of the world's lowest health worker-to-population ratios. Many of the poor health outcomes can be tied to the community's lack of confidence in—*and avoidance of*—the health system.

The following major challenges contribute to Sierra Leone's unacceptably high maternal and neonatal mortality rates:

- Sierra Leone is largely rural with poor roads, particularly during the rainy season. While improving, the community has a high level of mistrust in the health care system. Community involvement is essential to addressing Sierra Leone's health challenges.

- The primary health care level in Sierra Leone's health network is known as the Peripheral Health Unit (PHU), which serves as the first line of clinical care, but remains the weak link in the continuum of care for high-risk newborns.

- The district and referral hospitals are critical for more advanced care. Preterm and low birth weight are the leading cause of mortality in children under five years in Sierra Leone, as the majority of these newborns do not have access to specialized care because of a scarcity of skilled health care providers, outdated knowledge, and inadequate resources to deliver safe, simple and low-technology life-saving interventions.

- Essential Newborn Care (ENC) and Kangaroo Mother Care (KMC) have not been well integrated in the PHU and community and mothers using the KMC approach for their small babies have minimal support when they are discharged from the health facility to return home.

In early 2017, after a District-wide facility assessment and many months of consultation and planning with the government of Sierra Leone and other key stakeholders, Project HOPE launched the Saving the Newborn Initiative in Bo District. The Initiative was designed to demonstrate models for saving the lives of mothers and newborns and to reduce their risks of dying from preventable causes, with the intention to scale to other districts based on the results in Bo District. The three-year initiative focused on improving healthcare facilities, building the skills of healthcare workers, and expanding community support for mothers and newborns by strengthening the continuum of care with increased access and quality of care at each level.

The Initiative was made possible with the generous support of the Project HOPE Swiss International Foundation (PHSIF). HOPE received additional, supplementary funding from a broad variety of donors and partners, including individual donors, Latter-Day Saint Charities, Eli Lily, a contract with the government of Sierra Leone, and the Project HOPE Alumni Fund.

Program Overview

Primary Objectives

- **Objective I**: Improve facilities to ensure health professionals have the necessary equipment, facilities and supplies and procedures to be responsive health care providers

- **Objective II**: Build the skills of health care workers at all levels in evidence-based antenatal, safe labor and delivery, and postnatal and newborn care, including care of sick, preterm or low-birthweight infants

- **Objective III**: Expand support for mothers and newborns by engaging communities and leaders to support health behavior change to prevent illness and complications, recognize health emergencies, and address gaps in services

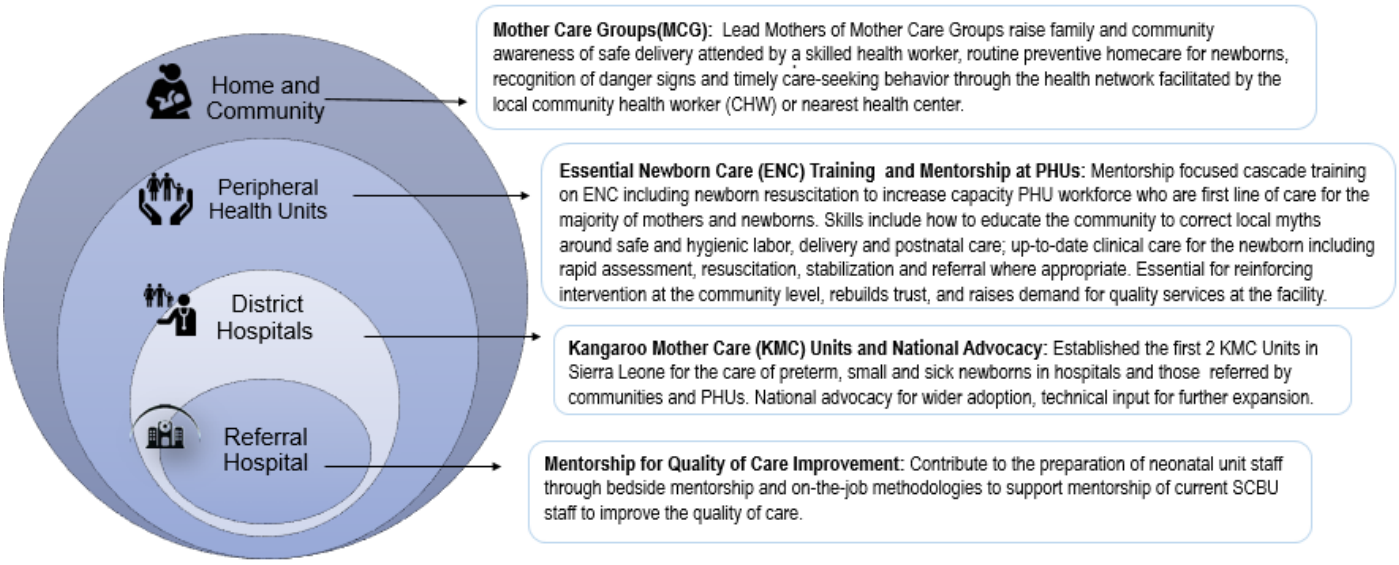
Strategies to Achieve Objectives

Strategy I: Focus on evidence-based interventions throughout the continuum of care

According to the World Health Organization (WHO), over two-thirds of newborns can be saved with interventions that require simple technology. Most of these interventions can be effectively provided by a single skilled birth attendant caring for the mother and the newborn. Basic care of all newborns includes hygienic birth and newborn care practices including cord care (cord clamping and cutting after birth), thermal care (immediate and thorough drying, skin-to-skin contact between mother and baby), and early initiation of breastfeeding, and exclusive breastfeeding. And finally, for up to 10 percent of newborns, timely provision of resuscitation may be critical for survival.

Additionally, small and sick newborns require timely and high-quality in-patient care to survive. This includes provision of temperature control, breastfeeding and nutritional support, safe oxygen therapy, effective phototherapy, and prevention and prompt treatment of serious infections. In-patient care for newborns requires dedicated ward space, staffed by health workers with specialist training and skills, and must be part of the continuum of care available to the growing number of newborns who survive birth and need more advanced care.

Working in collaboration with the Sierra Leone Ministry of Health and Sanitation (MoHS), HOPE has taken a holistic view of the continuum of care for newborns to ensure that we can address gaps in prompt quality of care at each level and save newborn lives. The following diagram represents our interventions in Bo District:



Strategy II: Build effective and wide-reaching collaborations and promote local ownership of the program

HOPE has widely collaborated with MoHS, Bo District Health Management Team, Hospital management, UNICEF and the WHO, local and international NGOs such as CEDA-SL, for wide consultation, facilitation and implementation of solutions, and to find the best methods to reach more beneficiaries. Partners know HOPE to always consult, not impose solutions, and truly let counterparts own strategies and initiatives by co-planning, co-raising or co-committing resources, and co-implementing together. The above two strategies weave through our three categories of interventions or objectives areas discussed below.

Key Interventions

Improve Health Facilities

Prior to 2017, Sierra Leone did not have any health facilities with Kangaroo Mother Care (KMC) Units in the country to support babies who need extra thermal care through skin-to-skin contact with the mother and may need special feeding approaches. KMC is a model of care that can save 80 percent of small babies who are born prematurely or with low birth weight by ensuring maintenance of warmth, especially when incubators are not practical because of lack of electricity and poor infection control practices. In 2017, HOPE established the first two KMC Units at the National Ola During Children's Referral Hospital in Freetown and Bo Government Hospital. The KMC units offer an evidence-based approach to reducing mortality and morbidity in preterm infants and has been fully thriving.

Since the establishment of the KMC Units, HOPE has done periodic maintenance and repairs at both sites and helped the units with infection prevention and control practices. We have also performed the following renovations and installations:

- Site repair and remodeling needed to temporarily transfer the Bo Hospital Neonatal Ward to Ward 6 while a permanent site was under planning and preparation. The new site will be adjacent to the Maternity Ward, cutting down the distance and exposure to elements for vulnerable newborns in need of emergency medical attention.

- Once the temporary neonatal ward was vacated, in consultation with the hospital, HOPE converted the ward space into an interactive learning space with simulation equipment, media, training materials and equipment. The new learning space allows practicing hospital nurses and other professionals learn and practice technical skills around to become proficient practitioners and providers of basic and comprehensive emergency obstetric and neonatal services, with special emphasis on skills needed to care for sick, pre-term birth, and low birthweight infants.

- In collaboration with the Sextant Foundation and the MoHS, HOPE coordinated and oversaw the installation of a backup solar power that enables oxygen concentrators to remain functional during frequent power outages.

- HOPE provided various routine essential care, lifesaving resuscitation and training equipment to all Bo District PHUs as part of a mentorship-focused newborn training program in 2019. This allowed many PHUs to set up a newborn corner in their delivery rooms, offering easy access in case of an emergency during birth.

Build the Capacity of Health Care Workers

As part of the KMC Units setup, staff at both facilities and community health workers, required training on the identification of small babies needing KMC, assessment and stabilization; guidelines for admission and discharge; and preparation for home-based care. In 2019, HOPE worked closely with the District Health Medical Team (DHMT) to train PHU-level mentors and cascade ENC training to all Bo District health staff working in the 134 PHUs.

There is universal agreement between the MoHS and partners that it is important to apply theory to practice immediately after the introduction of new skills. To offer opportunities to practice these new skills under the supervision of a mentor, all trainers and practitioners have access to the Learning Center to assist in building their skill level and confidence to improve their performance.

Strengthen Community Support

HOPE has also been tackling this issue from the community side in Bo District by mobilizing Mother Care Groups (MCGs) in 22 communities associated with six PHUs. The groups are coordinated by Lead Mothers who link up with Community Health Workers (CHWs) to educate the community on safe maternal-neonatal behaviors and to recognize warning signs of a sick or premature newborn. HOPE worked with MCGs to improve healthcare seeking behavior, on preparation for birth, routine newborn care (including discontinuation of unsafe practices), to encourage continued home care for small/preterm babies after discharge from KMC units, and help address transportation and referral challenges in emergencies.

Lead mothers visit families discharged from the KMC units to provide support for essential care of newborns and small babies. They also visit pregnant women and new mothers to promote antenatal care, exclusive breastfeeding, and infection control practices and identify danger signs. MCGs help ensure that essential follow-up care is provided.

To help address transportation and other financial hardships related to emergencies, HOPE helped the MCGs initiate Village Savings and Loans Associations (VSLAs). Fifteen of the groups have thriving savings and they are now lending at low- or no-interest rates for community members with emergency needs. The groups also lend for other needs at higher interest rates, helping grow their savings and capital and better taking care of their families.

Snapshot of Activity Implementation

The following table represents a timeline of notable activities by objective.

Activities by Objective	2017				2018				2019			
	1	2	3	4	1	2	3	4	1	2	3	4
Objective I: Improve facilities to ensure health professionals have the necessary equipment, facilities and supplies and procedures to be responsive health care providers												
Established KMC units in Bo and Freetown Ola During Hospitals	●	●										
Renovation, repair and upkeep on KMC Units				●		●			●			●
Renovated and relocated temporary area for newborn unit			●									
Installed solar power backup for SCBU					●							
Established skills lab for nurses at Bo Government Hospital with simulation and training equipment							●					
Provided newborn weighing scales, baby manikins, training charts and flip books to all 36 Community Health Center (CHC) PHUs in Bo District		●	●				●			●		
Provided resuscitation, suction, feeding equipment and stethoscopes to all 136 Bo District PHUs										●		
Supplied infection prevention and control supplies for KMC units				●	●	●	●	●	●	●	●	●
Restocked bedding, cups, wraps, baby hats in KMC units				●	●	●	●	●	●	●	●	●
Objective II: Build the skills of health care workers at all levels in evidence-based antenatal, safe labor and delivery, and postnatal and newborn care, including care of sick, preterm or low-birthweight infants												
Trained KMC unit staff	●	●	●									
HOPE Master Trainers provided Essential Newborn Care Training-of-Trainers at the request of the MoHS - 280 HCW trained		●										
Volunteer Nurse Neonatal Training and Mentorship visits from Ghana, Malawi, US	●	●	●	●		●			●			●
Hired HOPE Newborn Technical Consultant in Sierra Leone				●								
Provided continuous mentorship and supervision to KMC unit and staff				●	●	●	●	●	●	●	●	●
Provided Special Baby Care Unit mentorship activities	●		●	●		●			●	●		
Participated in KMC Practice and Adoption advocacy actions and taskforces							●	●	●	●		
Collaborate on running KMC TOT Training for national adoption								●	●			
ENC Training of PHU mentors from Community Health Center PHUs by HOPE and DHMT - 72 HCW									●			
Cascade ENC Training by CHC Mentors to all PHU staff - 620 HCW trained										●		
Mentorship of PHU staff										●	●	●

Supportive supervision of Mentors by HOPE and DHMT											•	•
Objective III: Expand support for mothers and newborns by engaging communities and leaders to support health behavior change to prevent illness and complications, recognize health emergencies, and address gaps in services												
Pilot implementation of mother care groups and evaluation – 6 communities 2 PHUs				•	•	•						
Community sensitization before each PHU training or MCG implementation				•				•		•		
Nine-month expanded care group implementation with CEDA SL - 22 communities 6 PHUs							•	•	•			
Start of Village Savings and Loans Associations (VSLA) with MCGs								•	•			
Group meetings and home visits by lead mother to educate, advise and/or refer					•	•	•	•	•	•	•	•
HOPE and DHMT monitored and supervised community activity						•	•	•	•	•	•	•
Grants and loans provided for emergency medical needs of families								•	•	•	•	•
Lead Mother referrals from home and community to PHUs and Hospitals							•	•	•	•	•	•
Transition planning, dissemination, handoff, meetings, program closing												•

Results & Analysis

Over the course of the Saving the Newborn Initiative in Sierra Leone, we achieved the following outputs:

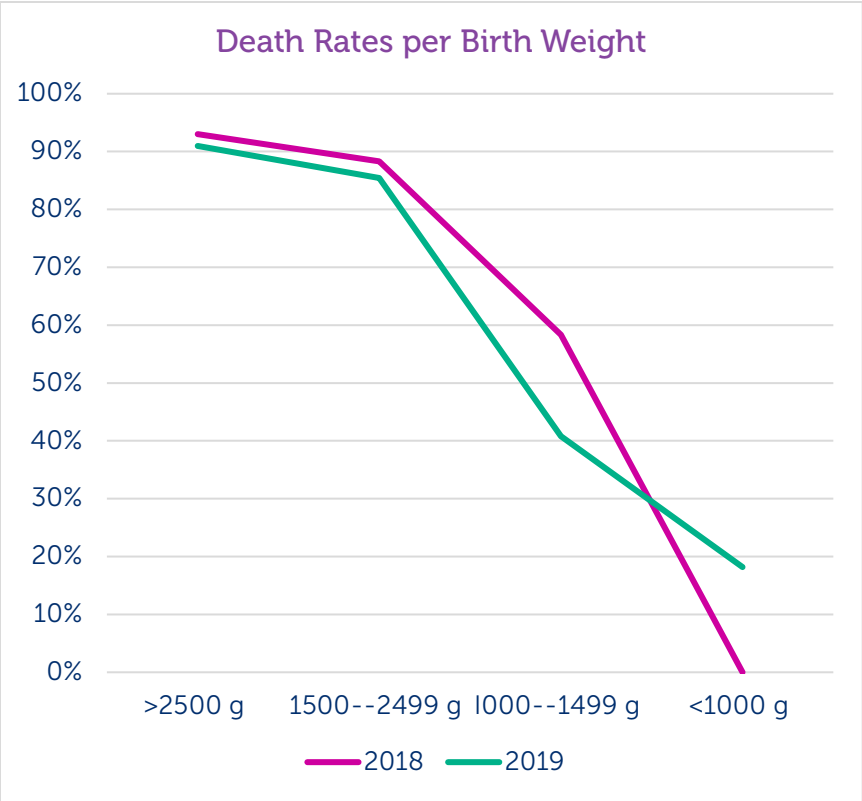
- 762 newborns received care in the KMC units, along with their mothers
- 2,668 sick newborns received care in the SBCUs in 2018 and 2019
- 1,369 healthcare workers received training and mentoring in essential and other newborn care
- 228 mothers participated in MCGs
- 136 Peripheral Health Units received Essential Newborn Education
- 15 functional Village Saving Loans Associations were established
- 46 families received VSLA grants/loans to assist with medical emergencies in 2019
- 14 expert HOPE volunteers provided services in Sierra Leone

Overall increases or decreases in mortality rates can never be associated with the impact of one specific program as these changes are the result of multiple challenges and/or interventions. However, national figures show improving trends of newborn mortality over the past few years. While we can't claim a direct like to the Saving the Newborn program on its own, we believe HOPE's efforts were catalytic in Bo District and at the national level through our work at the Ola During National Children's Hospital, as well as advocacy and participation for the adoption of KMC practices which will have a lasting contribution.

The preliminary 2019 Demographic Health Survey for Sierra Leone (SL DHS 2019) indicated newborn mortality of 31/1000 livebirths as compared to 39/1000 for the SL DHS 2013. There has been no newborn deaths in the KMC units and the data available from 2018 and 2019 from the Special Care Baby Units show improving trends as follows:

- Survival rate in the SBCUs are very encouraging with 87 percent survival rate in 2018 and 86.5 percent survival rate in 2019.
- Survival rates among low birth babies were 78 percent and 76 percent in 2018 and 2019 respectively.
- When death rates are further disaggregated by different birth weight categories, there is significant survival rate improvement in the most vulnerable weight category of extremely low birth weight:
    - In 2018, survival rates among the low birth weight (1500-<2500gms), very low birth weight (<1500-1000gms) and extremely low birth weight were 88.3 percent, 58 percent, and 0 percent respectively.
    - In 2019, survival rates among the low birth weight (1500-<2500gms), very low birth weight (<1500-1000gms) and extremely low birth weight were 85.4 percent, 41 percent, and 18.2 percent respectively.

- The survival rate among very low birth weight at 46 percent for the past two years is very encouraging. In 2019, three out of nine extremely low birth weight babies survived, indicating that the quality of care has improved.



Mariama's Story

Mariama Kengo was seven months pregnant when she began to bleed and went to Bo Government Hospital. Upon examination, the doctor did not detect fetal movement or a heartrate, and immediately began an emergency C-section under general anesthesia. When Mariama woke up, she asked her mother if they were back from burying the baby. To her surprise, her mother told her that the baby has been successfully resuscitated in the right after delivery and was alive in the Special Baby Care Unit.

Baby Fatmata weighed just 0.9 kg at birth and spent her first few days in the SCBU. She was then discharged to the KMC unit where Mariama could care for her around the clock with skin-to-skin contact to promote growth and immunity. Initially, Baby Fatmata was not able to breastfeed. However, the KMC staff helped Mariama express breastmilk and feed Baby Famata regularly. At first, Mariama thought being in the unit was restrictive. However, as she watched her baby grow, she understood the benefits of being there. After a two week stay, Mariama and Farmata went home with a discharge weight of 1.9kg. Before leaving, the KMC unit nurses were able to help Mariama with getting Baby Fatmata to successfully breast feed.

Following their discharge, Mariama kept up their weekly follow-up appointments and Baby Fatmata is thriving. Mariama proudly told us that her baby is seven months, two weeks and three days old. She sits up and is very active. When Mariama goes to the KMC unit, the nurses show her off to the new mothers to help them understand the benefits of KMC and motivate them. In her neighborhood and throughout her community, Mariama she tells people to let her know if they see a baby that is too small and she will show the new mothers how to wrap their babies and provide skin-to-skin contact to help them thrive like Baby Fatmata.

Financial Report

Year 3 (January – December 2019)

Line Item	PHSIF	Other Donors	Total
Program Staff	$ 78,041	$ 7,077	$ 85,118
Equipment & Supplies	$ 29,123	$ 24,567	$ 53,690
Program Consultant Fees	$ 13,339		$ 13,339
Travel	$ 38,780	$ 31,480	$ 70,260
Trainings	$ 22,279	$ 28,296	$ 50,575
Office Running Costs	$ 10,942	$ 120	$ 11,062
Indirect & Exchange Rate*	$ 28,876	$ 8,654	$ 37,530
TOTAL EXPENSES	$ 221,380	$ 100,194	$ 321,574

Years 1 – 3 (March 2017 – December 2019)

Line Item	PHSIF	Other Donors	HOPE Contribution	Total
Program Staff	$ 147,524	$ 65,544		$213,068
Equipment & Supplies	$ 43,418	$ 80,262		$123,680
Program Consultant Fees	$ 34,815	$ 37,416		$ 72,231
Travel	$ 102,992	$ 70,681		$ 173,673
Trainings	$ 39,709	$ 29,179		$ 68,888
Office Running Costs	$ 22,846	$ 6,109		$ 28,955
Indirect & Exchange Rate*	$ 58,696	$ 54,056	$ 138,938	$251,690
TOTAL EXPENSES	$ 450,000	$ 343,247	$ 138,938	$ 932,185

* Project HOPE charges an indirect rate of 15% on grant funds from PHSIF. Indirect rates on other grant funds vary according to the requirements/agreement with each donor.

Leveraged Services (March 2017 – December 2019)

Donated Services	Value
Training – April 2017 (Three volunteers)	$ 22,197
Solar Panel Installation – January 2018 (1 Electrical Engineer)	$ 10,137
Training – October 2018 (Two volunteers)	$ 19,129
Training – January – March 2019 (Five volunteers)	$ 32,007
Training – July – December 2019 (Three volunteers)	$ 38,990
TOTAL VALUE	$ 122,460

Looking to the Future

Requested Support for 2020 and Beyond

The Saving the Newborn program made tangible advances in the continuum of care for newborns in Bo District. This involved working at the hospital level by establishing KMC units, training health care workers, forming community mother care groups, encouraging better home care for small babies after discharge from KMC units, and helping address transportation and referral challenges in emergencies.

While the in-service training HOPE and partners have been providing to newborn unit staff was necessary, and similar transitionary work will continue, it is not sufficient or sustainable. A highly skilled medical and nursing stuff is needed to care for vulnerable and sick newborns in the SBCUs. Like nearly all African countries, Sierra Leone lacks a neonatal nursing workforce to provide specialized care for vulnerable newborns that cannot be managed at the community or PHU level. Existing SCBU are over-crowded and staffed by personnel who lack specialized training and mentorship.

To tackle the glaring lack of a skilled neonatal nurse cadre in a sustainable way, HOPE has been providing leadership and technical assistance to the MoHS to establish a specialized neonatal nurse training program that will resolve a crucial national health workforce challenge in the long term that is according to high clinical standards of World Health Organization and the Council for International Neonatal Nurses.

Interventions along the Continuum of Care: A Health Network Model for Maternal-Newborn Care