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HEALTH CARE
IMPROVEMENT
PROJECT

IMPROVING OUTCOMES OF PREMATURE AND LOW BIRTH WEIGHT BABIES THROUGH KANGAROO MOTHER CARE

BACKGROUND

Kangaroo Mother Care is a method of care for low birth weight and premature infants that emphasizes skin-to-skin contact and exclusive breastfeeding. The method was invented in 1979 by Dr. Edgar Rey Sanabria and Dr. Hector Martinez Gomez in response to the severely overcrowded Neonatal Unit at the Mother and Child Institute in Bogota, Colombia. Because babies were forced to share incubators, infection transmission was common among the neonates, and the death rate was alarmingly high. Dr. Rey and Dr. Martinez also wanted to address the feelings of abandonment caused by the separation of the baby from its mother and father, and provide a low-technology, low-cost solution.

The WHO estimates that 8.1% of live births in Latin America and the Caribbean are premature, defined as delivery prior to 37 weeks gestation, though these rates are even higher among poor and marginalized populations. Premature babies are more likely to suffer from respiratory conditions and have a higher prevalence of sensory deficits or learning disabilities than babies born at term. Globally, premature births comprise 28% of neonatal deaths. The effects of prematurity can extend well beyond childhood, further contributing to the high cost of prematurity in health systems that may not be able to meet these needs.

In El Salvador, the primary maternity hospital serves more than 14,000 deliveries each year. 18% of these babies



“My baby was born prematurely, but thanks to the KMC plan, he is breastfeeding, has gained weight, and is healthy.”

Mother, Guatemala

are born prematurely, and the neonatal nurseries consistently operate at capacity. These babies frequently have long periods of hospitalization and high levels of health care-related infections. Nicaragua faces a similar situation with equally high rates of premature babies and overcrowded neonatal wards.

The goal of Kangaroo Mother Care (KMC) is to reduce newborn mortality by preventing hypothermia and infections in low weight and premature newborns and to promote weight gain through increased

breastfeeding. In the KMC method, the baby, wearing only a diaper, socks and hat, is held upright against the mother or father's chest, simulating the environment of a warm incubator.

Newborns stay warm as their temperature is better regulated when they are held in close contact with their mother's chest; better thermo-regulation helps the newborn avoid hypothermia. The upright position central to KMC helps prevent reflux, and babies are better able to stabilize their own heartbeats in response to the rhythm of the mother. Finally, as the newborn is held close to the mother's breast, she is in an optimal position to feed. Kangaroo babies are able to initiate breastfeeding early, and mothers naturally produce more milk due to the close, constant contact.

To participate in KMC, babies must be in stable condition, swallowing properly, and weigh at least 1,300 grams, depending on country norms. Ideally, the mother or father supports the baby 24 hours per day.

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THE BENEFITS OF KANGAROO CARE

Kangaroo Mother Care offers a low cost, effective alternative to more conventional care for premature and low birth weight newborns. Over the last two decades, numerous studies have supported it as an effective method for both low-weight and premature newborns. A Cochrane review of Kangaroo Care studies demonstrated a reduction in mortality and nosocomial infections among premature and low-weight newborns receiving Kangaroo care as compared to babies receiving traditional care. KMC is beneficial to the whole family unit: close contact, the warmth of the parents' skin, and being held and talked to builds the emotional bond between parents and their baby. It encourages early integration of the baby into the family unit and lessens the effects of a risky, lengthy hospital stay.

In addition to its benefits for the newborn and his or her family, KMC is advantageous for the hospitals that implement the program. It is less costly to support than incubators, and the program decreases the likelihood of readmission for babies as they become healthier and avoid nosocomial infections. It also reduces the length of stay as compared to premature neonates who do not receive this type of care.

Kangaroo Mother Care is an important strategy to address prematurity and low birth weight, and support improved health outcomes for newborns. HCI also works to improve the quality of essential newborn care in these five countries through quality improvement activities and trainings, including scale-up of Helping Babies Breathe (HBB) to prevent neonatal asphyxia. Together, these activities reduce neonatal morbidity and mortality.

THE HCI APPROACH

As a component of its work to address neonatal mortality, the USAID Health Care Improvement Project (HCI) is working with five Latin American countries to implement national Kangaroo Mother Care programs:



Parents practice the Kangaroo method together in El Salvador.

Photo by Patricia de Quinteros, URC.

Guatemala, El Salvador, Honduras, Nicaragua, and Ecuador. In these countries, HCI supports the work of each Ministry of Health.

Through the KMC Program, HCI aims to achieve the following objectives:

- Reduce nosocomial and other infections among low birth weight babies
- Reduce incidence of hypothermia among low birth weight babies
- Increase breastfeeding and weight gain among low birth weight babies

HCI provides technical assistance to support the implementation and scale-up of the program throughout all phases. Many countries in LAC had previously received training from the Kangaroo Care Foundation in the 1990s, but in many of these countries the efforts to establish KMC programs failed. HCI works closely with each hospital technical team and Ministry of Health (MOH) to carefully design and evaluate the implementation plan at each step to ensure the sustainability of the program.

First, HCI engages the MOH and builds support for the introduction of KMC programs, linking them to larger MOH objectives and programs to reduce infant mortality, given that neonatal mortality is the greatest contributor to

infant mortality in Latin America. The MOH selects a priority hospital to pilot the program, and a team from that hospital is identified to attend training at the Kangaroo Foundation in Bogota, Colombia. The teams are comprised of a neonatologist, a head neonatal nurse, and a psychologist. This intensive, two-week training focuses on the clinical aspects of care for the premature or low birth weight newborn using the Kangaroo Care protocols.

After training, the first phase of implementation is the roll-out of a Kangaroo Mother Care program by the national team and HCI. This includes training other neonatology and hospital staff, building support for Kangaroo Care and the KMC program among staff, developing educational materials for staff and families, setting up a dedicated physical program space, procuring basic supplies, organizing in-hospital activities and follow-up visits, and setting up an information system to monitor basic indicators. A later phase of implementation in the pilot hospital is to create an ambulatory component to provide continued support for KMC patients after they leave the hospital.

Once the program is successfully established in one hospital, it can be scaled up to hospitals in other regions. Eventually,

the goal is to develop a community-based Kangaroo Mother Care program that can be implemented across the country.

Each participating hospital has a dedicated KMC unit, where families can provide Kangaroo Care to their newborn and receive support from the hospital staff. Participants are taught KMC concepts and while in the program, attend daily meetings held in the program unit. These educational workshops cover such topics as breastfeeding and baby care, among others.



A father holds his newborn in the Kangaroo position in Nicaragua.

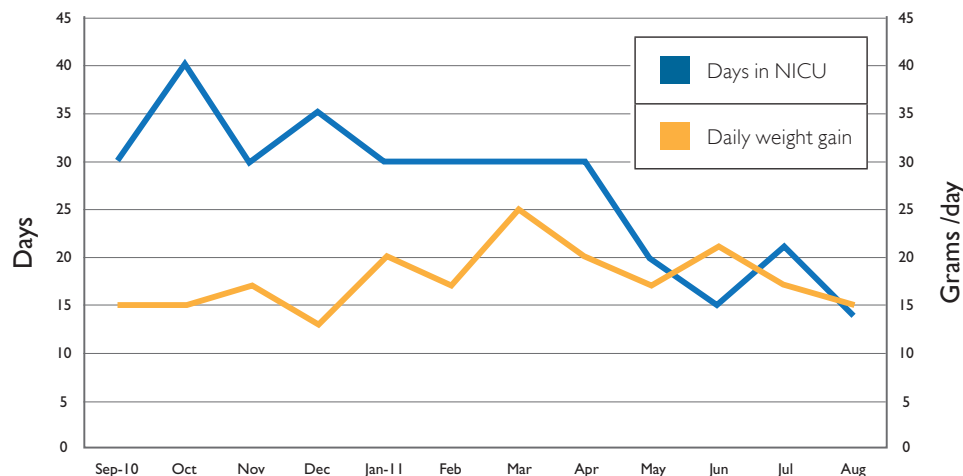
Photo by Yudy Wong, URC.

CARE FROM THE WHOLE FAMILY

Traditionally, the burden of care and contact in the KMC method has fallen to mothers. However, it is critical for both parents to participate in Kangaroo Care as it fosters a family bond and allows each parent to take necessary breaks and provide better support to each other and their newborn.

HCI takes a family approach to Kangaroo Care: both parents are encouraged to actively participate in the care of the newborn. Fathers provide skin-to-skin contact for the newborn so that the mother can rest, shower, and take care of other needs. This also allows the father to develop the same emotional bond with the baby. Participating hospitals in Nicaragua, El Salvador, Guatemala, and Honduras promote their Kangaroo Care programs as “Kangaroo Family Care,” stressing the importance of the family

Figure I. Average number of days in NICU and average daily weight gain for 246 low-weight babies at Kangaroo Care Unit, Bertha Calderon Hospital, Nicaragua, 2010 - 2011



unit and the involvement of the father or another family member. The manuals and educational materials developed by these programs also emphasize the participation of both parents.

PROGRESS OF KMC PROGRAMS

KMC programs receiving support from HCI are in various stages of implementation. Under this experience, Nicaragua was the first country to open a KMC Program; the Bertha Calderon Hospital in Managua began its program in July 2010. Since then, 246 preterm babies have been admitted into the program, 77% of preterm infants seen in the hospital during the period. As seen in Figure I, the hospital has been able to cut the average number of days these babies spent in the Neonatal Intensive Care Unit in half while at the same time maintaining a steady average weight gain. Many of the babies remained in the program for an average of three weeks, a full 15 days less than before the program was implemented. HCI Nicaragua is currently evaluating the cost-effectiveness of the KMC Program and has designed and implemented an ambulatory care program for babies participating in the program. Originally, some doctors were hesitant about the benefits of KMC, but after seeing successful results, are now frequently

referring patients to the program.

In El Salvador, the program was inaugurated at the Dr. Raul Arguello Escalan Specialized National Maternity Hospital in January 2011. Participants are taught Kangaroo Care concepts and while in the program, attend daily meetings held in the program center, where educational workshops cover such topics as breastfeeding and baby care. El Salvador is currently focusing on expanding the KMC program to two regional public hospitals. Teams from these hospitals were trained by the team from the National Maternity Hospital, HCI, and the Ministry of Health.

The Guatemala team attended training at the Kangaroo Foundation in March 2011 and launched its KMC program at the Western Regional Hospital of Quetzaltenango in July 2011. The hospital also started an ambulatory program at that time. After the implementation of the program, the hospital saw a 50% reduction in incubator use.

The Honduras team attended training at the Kangaroo Foundation in August 2011. Though a Kangaroo program was implemented at the Hospital Escuela in Tegucigalpa previously, the existing program has few resources and no physician supervision. The strengthened KMC program will be implemented in the coming months at the hospital, one of

the two largest hospitals in the country. The team is in the process of setting up the physical area for the program, training staff, developing protocols, and procuring supplies.

The Ministry of Health in Ecuador has authorized the program and selected a team for training. The KMC program will be implemented at the Cotopaxi Provincial Hospital in Latacunga.

THE HCI EXPERIENCE

HCI intentionally used a staggered approach to train country teams so that an implementation road map could be tested and refined by each country team. This allows teams to determine the optimal approach given their country context and needs prior to regional and national scale-up, assuring

a more sustainable and successful outcome. It also fosters transfer of lessons learned between countries, promoting implementation of best practices.

In addition to a more gender equitable approach that promotes the involvement of fathers, as promoted by the Kangaroo Foundation, each program has developed its own materials and educational workshops for participating parents. HCI promotes the inclusion a psychologist on each country team to provide psycho-social support to participating families. The programs in Nicaragua and El Salvador provide a Lycra belt to help parents maintain the baby in the correct position. The soft, elastic material is worn around the torso and makes it easier to keep the baby upright against the chest. In Nicaragua, hospital staff developed entry



Materials developed by HCI and staff from Bertha Calderon Hospital in Nicaragua provide critical information on Kangaroo Care for providers and parents.

and exit identification cards for families participating in the KMC Program so that they can gain quick access to the KMC area inside the hospital.

THE WAY FORWARD

HCI continues to support each country team throughout their implementation and scale-up phases. The project will continue to test innovations and promote those that are successful. Sharing knowledge, lessons learned, materials, and innovations among the countries is a priority. HCI's goal is to develop a Kangaroo Care Community of Practice across participating Latin American countries, supported by the Salud Materno-Infantil website, <http://www.maternoinfantil.org>. Such a community will allow practitioners and implementers to share their experiences about successes and failures during implementation and scale up in each country.

HCI works in close coordination with national Ministries of Health, the Bureau for Latin America & the Caribbean (LAC) of the United States Agency for International Development (USAID), the LAC Newborn Alliance, and the USAID Maternal and Child Health Integrated Program (MCHIP). The KMC initiative in Latin America is supported by the American people through USAID. To learn more about HCI's work with Kangaroo Care in Latin America, please contact Dr. Jorge Hermida at jhermida@urc-chs.com.

Current Status of Kangaroo Care Program Implementation at a main hospital

Implementation stages developed by HCI	Country				
	NIC	ES	GUA	HON	EC
Obtain MOH approval & hospital selection	✓	✓	✓	✓	✓
Select staff to be trained	✓	✓	✓	✓	
Attend training in Bogota	✓	✓	✓	✓	
Procure of basic equipment & supplies	✓	✓	✓	✓	
Establish dedicated KMC area in the hospital	✓	✓	✓	✓	
Advocate for KMC within the Neonatology Ward	✓	✓	✓	✓	
Train Neonatology Ward staff	✓	✓	✓	✓	
Start KMC activities with patients	✓	✓	✓	✓	
Develop hospital KMC guidelines & standards	✓	✓	✓		
Develop KMC guidelines & tools for counseling parents	✓	✓	✓		
Develop KMC process & impact indicators	✓	✓			
Evaluate hospital KMC		✓			
Plan scale-up to satellite hospitals		✓			

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University Research Co., LLC • 7200 Wisconsin Ave, Suite 600 • Bethesda, MD 20814 • USA
Tel: 301-654-8338 • Fax: 301-941-8427 • www.hciproject.org • www.maternoinfantil.org • www.urc-chs.com