

**CLINICAL COURSE AND PROGNOSIS AT ONE
YEAR OF A COHORT OF LOW BIRTH WEIGHT
INFANTS DISCHARGED HOME IN
KANGAROO POSITION, ACCORDING TO
HEALTH CARE INSURANCE IN COLOMBIA.**

Nathalie Charpak¹, Sylvia Fernandez ^{1,2}, Adriana Montealegre¹

On behalf of the Kangaroo Foundation research team.

*¹ Kangaroo Foundation, ²Kangaroo Mother Care Program-
Hospital Infantil Universitario San José*

Bogotá, Colombia.

fundacion.canguro@gmail.com.



Background: Implementation of interventions as the kangaroo mother care (KMC) method considered effective in decreasing neonatal mortality and morbidity in LBW infants should be implemented with the same quality standards in the different types of health care regimes in Colombia.

Objective: clinical course and prognosis at one year of corrected age of a cohort of LBWI cared in an ambulatory KMC program between 2002 and 2013, according to the health care insurances.

Method:

- Prospective cohort of 17004 LBWI discharged home in kangaroo position with follow-up until 1 year of corrected age to determine survival, growth, development and morbidity.
- Three forms of affiliation health system exist in Colombia: Private prepaid plan (high income-HI), Contributive regimen (middle and low income-MLI) and subsidized regime (very low income-VLI).



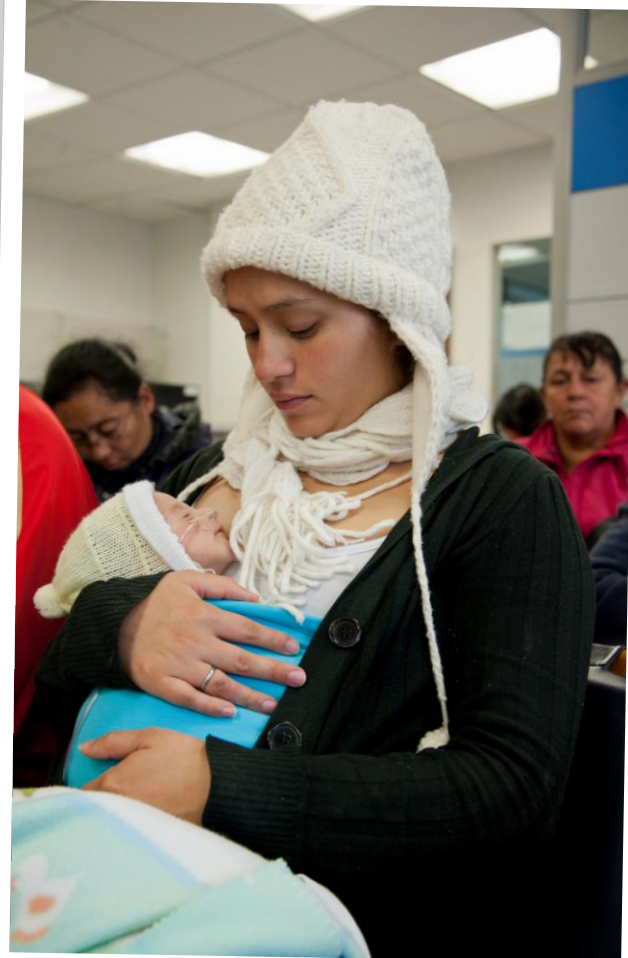
© ERIKA PIÑEROS/ Save The Children

Intervention

Kangaroo Mother Care Method has three fundamental components:

- 1) **Kangaroo position (KP)** - ideally 24hrs/day
- 2) **Kangaroo nutrition** and feeding strategy based on breastfeeding (KN)
- 3) **Kangaroo discharge policy:** Timely (early) discharge in kangaroo position with close and strict outpatient follow-ups.

**Same KMC guidelines were implemented independently of the health care insurance.



Results

- 17004 eligible infants (≤ 37 weeks of gestational age or weight ≤ 2000 at birth) were admitted in the ambulatory KMC program.
- 5.8% from HI, 71.7% from MLI and 22.5% from VLI plans.
- Birth weight $\leq 1000\text{g}$ was 8.0%-3.8%-4.1% according to health plans (HI-MLI-VLI) and gestational age ≤ 30 weeks 19.3% -11.5% -11.6%.
- Post-natal age at entry was in average 19 days in HI, 19 days in MLI and 33 days in VLI group.
- NICU graduates were 45.1%-44.3%-40.3% and 11.8%-11.4%- 8.8% have been ventilated.



Results

- History of nosocomial infection at entry was higher in VLI group with 8.6%-8.1%-10.0% as malnutrition at entry 15.6%-15.8%-25.1%.
- In average, mortality during the follow up was 0.9% for the three groups, mainly between discharge and 6 months. More than 90% of deaths occur during readmission for the 3 groups.
- Readmission rate (at least one during the year) was higher in the VLI (24%) than in the MLI (7.3%) and HI (12.9%) groups. Main causes of readmission before 40 weeks GA were anemia and jaundice for all groups.
- While nearly half of patients in MLI (58.4%) and VLI (54.9%) received exclusive breastfeeding up to term, in HI 43.2% did.
- Weight, length and head circumference at birth didn't show great variation between groups neither at one year of corrected age: 8699g, 71.8cm and 45.9cm for HI, 8656g, 71.7cm and 45.7cm for MLI and 8614g, 71.9cm and 45.2cm for VLI infants.



Results

- Retinopathy was detected in 7.2% of infants in HI, 5.5% in MLI and 6.2% in VLI.
- Diagnosis of cerebral palsy risk was higher in the VLI group (3.0%-2.7%-6.0%). Mean developmental coefficient at 12 months didn't show great variation between groups (96.5/95.7/93.6).



Anthropometric and nutritional characteristics of the cohort

Health Insurancy	Private- Prepaid Scheme(HI)	Contributory Scheme (MLI)	Subsidized Scheme(VLI)
Mean Birth Weight, gr	1761(464)	1920(424)	1993(471)
Mean Weight KMC program entry, gr	2269(513)	1814(419)	2306(837)
Mean Weight 40 weeks ,gr	2941(461)	2867(456)	3082(508)
Mean Weight 12 months, gr	8699(1174)	8656(1110)	8614(1190)
Mean Birth Length, cm	42,7 (3,9)	44(3,6)	43,6(3,7)
Mean Length KMC program entry, cm	44,1(2,6)	43,4(4,7)	45,3(6,7)
Mean Length 40 weeks, cm	46,9(2)	47(2)	48(2)
Mean Length 12 months, cm	71,8(3)	71,7(2,9)	71,9(3,2)
Mean Birth HC, cm	30,4(2,7)	31,1 (2,3)	30,8 (2,5)
Mean HC KMC program entry, cm	32,5(1,7)	31(2,7)	32,8(7,5)
Mean HC 40 weeks, cm	34,7(1,4)	34,6(1,3)	34,7(1,5)
Mean HC 12 months, cm	45,9(1,6)	45,7(1,6)	45,2(1,7)
Exclusively breastfed -40 weeks	43,2%	58,4%	54,9%
Exclusively formula milk 40 weeks	2,7%	1,70%	7,10%

**General characteristics,
morbidity and mortality
of the cohort: 17004
infants in three
Kangaroo Programs
followed between 2001
to 2013**

Health Insurance	Private-Prepaid Scheme(HI)	Contributory Scheme(MLI)	Subsidized Scheme (VLI)
%	5,8%	71,7%	22,5%
per cápita/2013-USD	805	409	199
BW≤ 1000g	8,0%	3,8%	4,1%
GA ≤30ss	19,3%	11,5%	11,6%
Hospital Stay (in days)	22	15	15
KMC Program entry during the 3 days after hospital discharge	54,1%	78,10%	51,50%
Postnatal age entry KMC program (mean days)	29	19	33
ICU	45,1%	44,3%	40,3%
Rehospitalization up to 40 weeks	9,2%	8,90%	10,30%
Rehospitalization up to 1 year of follow up	12,9%	7,3%	24%
Desertion	23%	14%	22%
Ventilation	11,8%	11,4%	8,8%
Ambulatory O2	49,1%	38%	9,50%
Nosocomial Infection	8,6%	8,10%	10%
Malnutrition at entry	15,6%	15,8%	25,1%
General mortality	0,9%	0,80%	1%
Mortality discharge-40 weeks	0,1%	0,30%	0,40%
Mortality >40ss-3m	0,4%	0,40%	0,20%

Neurological Outcome

Health Insurancy	Private Prepaid Scheme	Contributory Scheme	Subsidized Scheme
ROP	7,2%	5,5%	6,2%
Cerebral Palsy Risk	3,0%	2,7%	6,0%
Mean developmental coefficient at 12 months	96,5	95,7	93,6

Conclusion

- KMC method is equally effective regardless type of health insurance and parents income.
- In this cohort of 17004 infants the mortality rate during first year of follow up and anthropometric measures at twelve months of corrected age were similar for the three groups studied .

