

***Quality of care of Kangaroo Mother Care  
intervention evaluated in a cohort of 2424 infants  
born with a birth weight  $\leq$  1000 gr or a gestational  
age  $\leq$  30 weeks and care for in a KMC program in  
Colombia from 2002 to 2014.***

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# Background

- Low birth weight (LBW) deliveries are highly prevalent, particularly in middle and low-income countries (12% in Colombia).
- Since 1993 The Kangaroo Foundation is monitoring around 1500 LBW infants per year in the outpatient KMCPs, 14% of them  $\leq 1000$  gr or  $\leq 29$  weeks of gestational age.



## Objective

- To evaluate the performance of a Kangaroo Mother Care Program in terms of selected health outcome achieved and compliance with evidence-based processes in infants with a birth weight  $\leq 1000\text{g}$  or a gestational age  $\leq 30$  weeks .

## Design

- Cohort from a population of 20835 infants less than 37 weeks and/or less 2500 g, followed up to one year of corrected age in the outpatient Kangaroo Mother Care Programs in Bogota and Medellin, Colombia between 1993 and 2014

## Intervention

- KMC method : 1) Continuous skin-to-skin contact 2) Exclusive breastfeeding whenever possible 3) Early discharge home in Kangaroo position once the infant is eligible (able to suck and swallow coordinately and family willing to participate to the KMC program) 4) Outpatient follow up including a psychomotor and neurologic evaluation up to 1 year of corrected age.

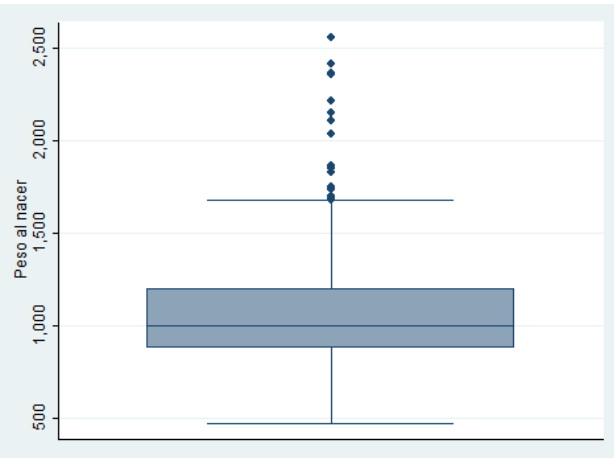
# Results

- 2424 eligible infants ( $\leq 1000$ gr at birth or  $\leq 30$  weeks of GA) of 20835 LBWI admitted in the ambulatory KMC programs.
- Post-natal age at entry was between 1-15 days for 1.4%, 15-30 days for 10.4 % and more than 1 month for 88.1% of infants.
- 83.7 % were NICU graduates and 65.9% of them had been ventilated.

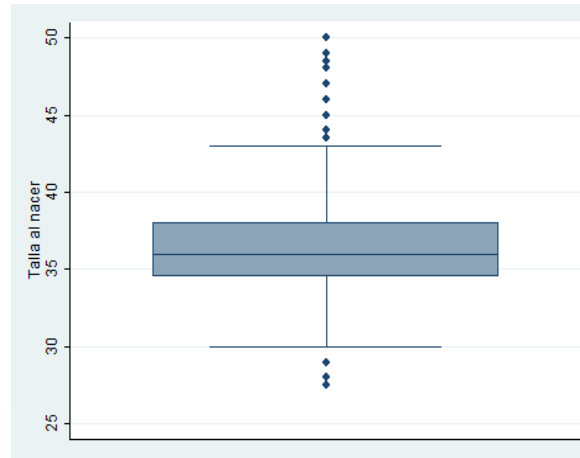
# Results

- Lost to follow up was 24.9% from entry into KMC up to one year of corrected age, mainly because the insurance did not authorized the complete follow-up up to one year (12.9%) .
- Overall mortality in the cohort was 1.8% up to one year, 1.5% of deaths occurring between discharge and 6 months (4.8% in 2004 versus 0.7% in 2014).
- 33.8% of patients were readmitted at least once.

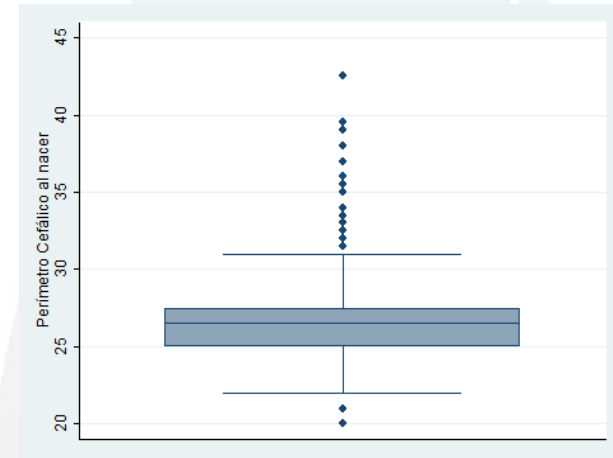
# Anthropometric Measures at Born



Weight



Length

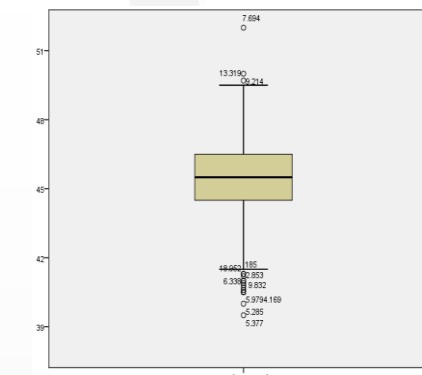
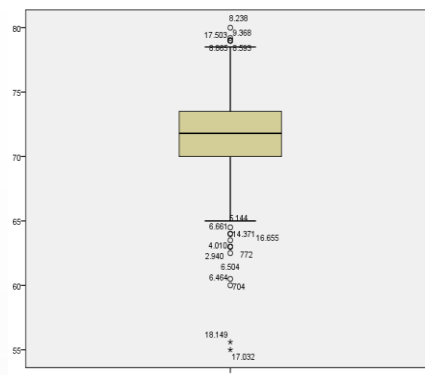
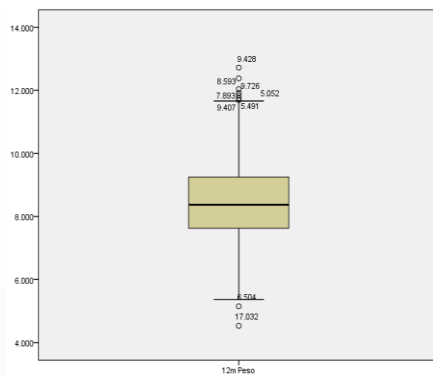
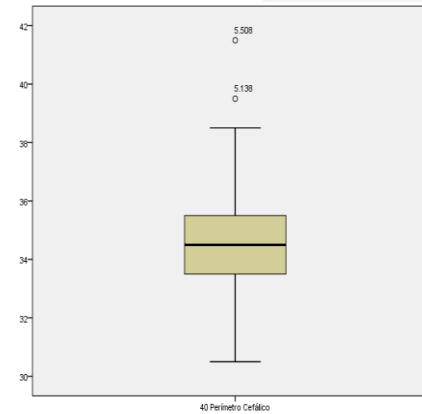
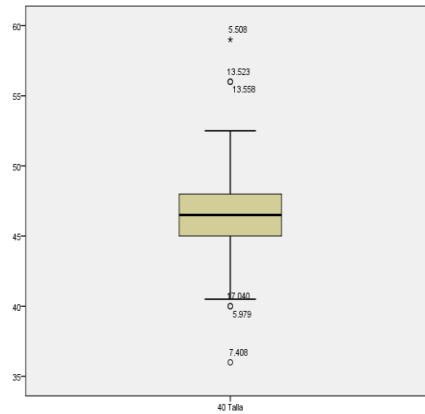
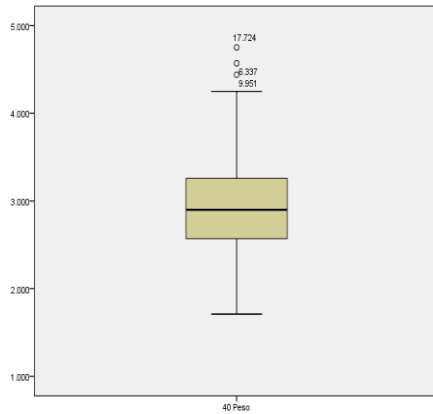


Head Circumference

GESTACIONAL (AGE)	BORN WEIGHT (MEDIAN)	BORN LENGTH (MEDIAN)	BORN HC (MEDIAN)
24.6-25.6 (3s)	804 (PC50)	35 (PC75)	24.5 (PC75)
26.0-27.0 (3s)	900 (PC50)	35 (PC50)	25.0 (PC75)
27.1-27.6 (3s)	1040 (PC50)	36 (PC25)	26.0 (PC75)
28-28.6 (3s)	865 (PC25)	35 (PC10)	25.0 (PC25)

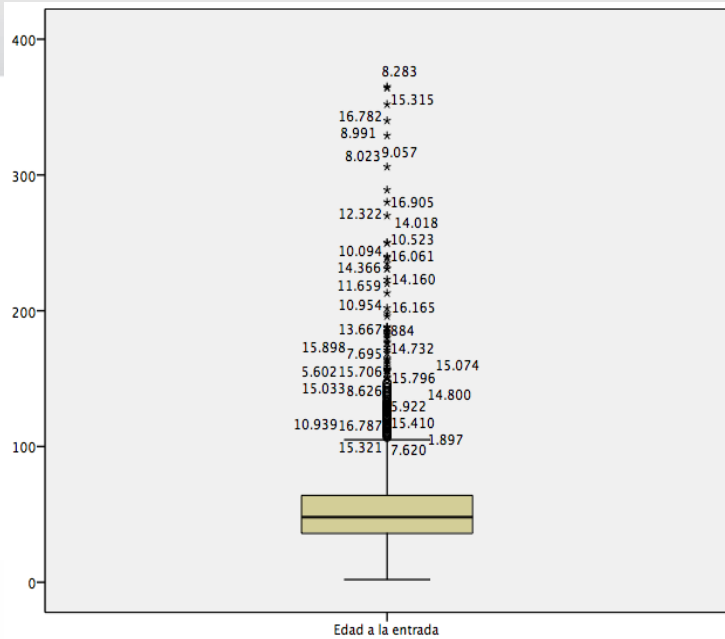
\*\*Percentiles by Dr Fenton tables

# Anthropometric Measures 40 weeks-12 months



\*Average weight, length and head circumference were :

- 2926 g (1710-4750), 46.3cm(36-59), 34.6cm (30.5-41.5) at term
- 8456g(4530-12720), 71.5cm (55-80) and 45.5 cm(39.5-52) at one year of corrected age.



Statistic	Median	Min	Max
Hospitalization (days)	44	8	188
Age KMC entry (days)	48	9	189
Weight-KMC entry (gr)	1980	836	4830
Length-KMC entry (cm)	42.2	34	58,7
HC-KMC entry (cm)	31.5	27	40

Days Between Discharge and KMC entry	%
≤ 3 days	78.6%
4-7 days	10.7%
> 7 days	10.6%

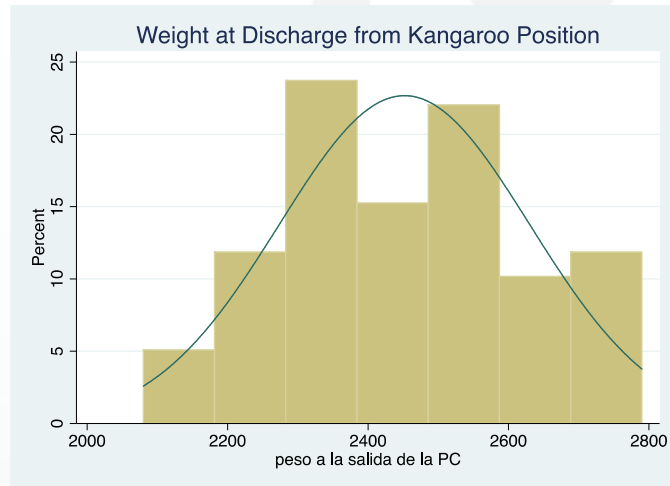
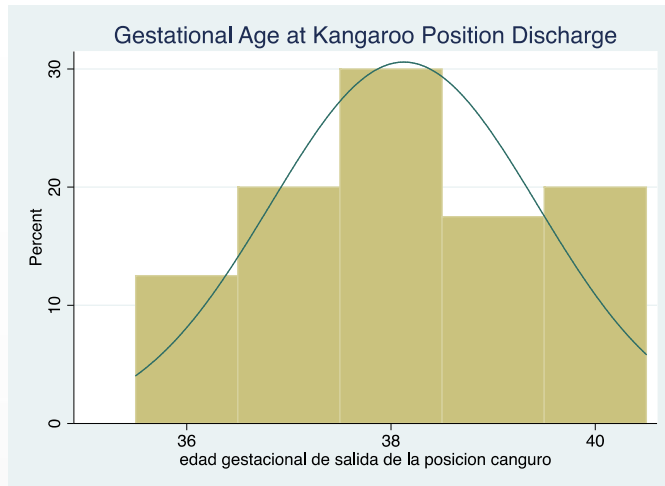


# Problems at KMC program Entry

- 75 % of infants were oxygen-dependent at entry.
- 24.8 % had any grade of intraventricular hemorrhage. (30.8% in NB  $\leq$ 1000 gr, 24.9% in  $\leq$ 30 weeks).
- In 50% of patients we have data of HIV severity: GI 56%; GII 13.7%; GIII 19.4% and GIV 11%.
- 41.3% in NB  $\leq$ 1000g and 28.6% in NB  $\leq$ 30 weeks had history of nosocomial infection at entry.

# Kangaroo Position Discharge

- Gestational Age: 38 weeks (36-43)
- Weight: 2534g (2000-3470g)



## Feeding Pattern

Corrected Age	EBF	BF+AF	EAF
40 Weeks	23.6%	69.3%	7%
3 months	14.1%	54.5%	31.4%
6 months	7.6%	33.3%	59.1%
9 months	5.4%	25.1%	69.5%
12 months	2.8%	21%	76.5%

## Accumulated Visits to the KMC program

Age	Median	Min	Max
40 weeks	9	1	25
3 months	12	1	37
6 months	16	1	38
9 months	19	1	39
12 months	21	3	56

# Results

- 45.7% had BPD diagnosis at KMC program entry.
- 2.8% had oxygen dependence at 12 months.
- Diagnosis of high risk of cerebral palsy at 12 months was 7%.
- Mean developmental coefficient at 12 months had a median of 97.8 (3.8-133).
- ROP in 29.6%
- Abnormal Audiometry in 4.2%

Rehospitalization Up to 12 months	%
0	66.2%
1	18%
2	9.3%
≥3	6.5%

**\*\*34% one or more rehospitalizations**

Ophthalmologic Outcome	%
ROP	23.2
Laser surgery or Criotherapy	6
Blindness	0.4
No ROP	70.5

Audiometry	%
Normal	95.8%
Abnormal	4.2%

# Conclusions

- KMCP is a good strategy and unique opportunity for the follow up of these high-risk infants as the extreme premature or extremely low birth weight newborn in Colombia.
- One year of corrected age is the minimum acceptable follow up for these children, taking into account the data obtained from this quality monitoring.
- The opportunity for close monitoring and intervention is essential to detect and reduce reversible alterations in growth and development.

