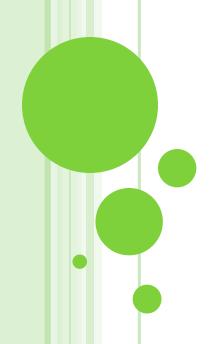
NEONATAL NEAR MISS IN THE WHO GLOBAL SURVEY BRAZIL: A PILOT STUDY TO EVALUATE THE QUALITY OF PERINATAL CARE



Cynthia Pileggi Training Course in Sexual and Reproductive Health Research

Research Project of Participant

Geneva, 2 March 2009

Introduction

Globally:

- o 10 million infant deaths/year
- Vast majority occur in developing countries
- 38% of the total infant deaths occur in the neonatal period
- Most of them take place in the 1st week of life

In Brazil:

36,000 early neonatal deaths/year

Introduction

- As key concepts for the present analysis:
 - Early Neonatal Death: the infant death that occur in the first week of life
 - Neonatal Near Miss Case: the neonate that survived a life-threatening condition
- Lack of standard definition for neonatal near miss
- But, it could be useful to improve perinatal health care

OBJECTIVES

- To develop the concept of neonatal near miss
- To adapt the WHO maternal near miss indicators to the neonatal context
- o To test this approach as a tool:
 - To evaluate quality of perinatal care
 - To identify priority facilities for health care strengthening

METHODS

 Secondary analysis of the 2005 WHO Global Survey on Maternal and Perinatal Health

- o In Brazil:
 - 19 randomly selected hospitals
 - Short period of data collection (2-3 months)
 - Information on 15,169 neonates
- Two-step strategy:
 - Individual level
 - Facility level

METHODS

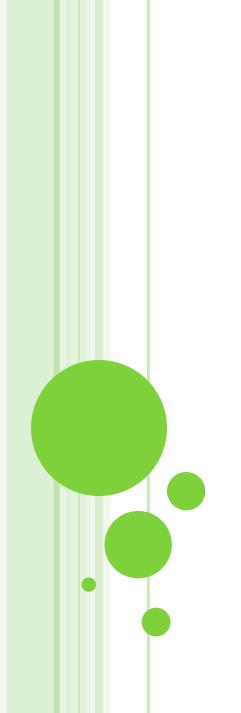
- Analysis at individual level:
 - Comparison:

NEONATES THAT DIED IN THE FIRST WEEK OF LIFE

VS

NEONATES THAT SURVIVED THIS FIRST WEEK

- Odds ratios and positive likelihood ratios were calculated
- Identification of life-threatening conditions at birth strongly associated with Early Neonatal Deaths.
- Analysis at facility level:
 - For each facility, the near miss indicators were calculated



RESULTS

	Early neona		Alive at 7th day	OR (95% CI)
	Rate of ENM %	N	n	
All live births	0.8	124	15045	
Gender				
Male	0.9	66	7479	1.17 (0.82-1.67)
Female	8.0	57	7541	1.00
Gestational age at bi	rth			
< 30 weeks	43.0	52	69	415.65 (242.60-712.15)
<37weeks	7.1	89	1164	42.17 (26.76-66.45)
37 - 41 weeks	0.2	24	13237	1.00
>41 weeks	1.0	3	286	5.78 (1.73-19.32)
Birth weight				
< 1500g	34.9	74	138	331.08 (198.26-552.91)
<2500g	6.6	102	1437	43.83 (27.31-70.31)
2500 – 4000g	0.2	21	12966	1.00
>4000g	0.2	1	598	1.03 (0.14-7.69)
Apgar score < 7 at 5	minutes			
< 7	25.4	66	194	99.54 (67.14-147.59)
≥7	0.3	50	14630	1.00
Any congenital malfo	ormation			
Yes	12.7	30	207	24.06 (15.56-37.21)
No	0.6	89	14775	1.00
Product of a multiple	pregnancy			
Yes	4.7	16	323	6.75 (3.95-11.55)
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COULD WE DEFINE A NEONATAL NEAR MISS CASE AS A BABY THAT WAS BORN WITH <30 WEEKS OF GESTATIONAL AGE OR <1500G OR HAD AN APGAR 5' <7 AND SURVIVED ?

		•	eonatal aths	Sensitivity	Specificity	Positive likelihood ratio	Availability of the information in the medical records
		+	-				
Condition -	+	а	b	·	ط//b ، ط/	_sensitivity_	(a+b+c+d)
Condition	-	С	d	a/(a+c)	d/(b+d)	1-specificity	15169
Gestational age	+	52	69	44.8%	99.5%	95.4	97.6%
at birth <30wks	-	64	14618	44.0 /0	99.570	93.4	97.070
Very Low Birth	+	74	138	59.7%	99.1%	64.9	99.7%
Weight	-	50	14863	33.7 70	33.170	04.5	33.1 /0
Apgar 5' <7	+	66	194	56.9%	98.7%	43.5	98.5%
Apgul 0 41	-	50	14630	00.070	33.1 70	10.0	00.070
Any of the	+	100	324	82.6%	97.8%	37.0	96.4%
above	-	21	14175	32.070	37.370	07.0	00.170

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THIS COULD BE A VALID PRAGMATIC DEFINITION!

NEONATAL NEAR MISS AND EARLY NEONATAL DEATHS

- A similar pattern of associations with maternal characteristics was found
- Both conditions may share key determinants
 - severe maternal complications
 - mode of delivery
- Then, the pragmatic definition could be useful

EVALUATION OF QUALITY OF PERINATAL CARE

Facility	Neonatal near miss incidence rate	Severe neonatal outcome rate	Early neonatal mortality index
	(cases per 1,000 LB)	(cases per 1,000 LB)	(%)
BR1	30.6	30.6	0.0%
BR2	4.5	6.0	0.0%
BR3	12.4	16.0	0.0%
BR4	13.1	13.6	3.7%
BR5	34.2	37.5	6.1%
BR6	18.6	20.4	8.7%
BR7	38.7	48.4	14.3%
BR8	28.3	34.7	13.9%
BR9	4.5	5.6	20.0%
BR10	21.7	29.0	25.0%
BR11	16.8	23.3	27.8%
BR12	10.2	16.3	28.6%
BR13	29.8	45.3	28.9%
BR14	12.8	18.2	30.0%
BR15	42.3	61.6	30.4%
BR16	30.0	44.9	33.3%
BR17	28.3	51.6	37.8%
BR18	7.8	16.8	41.7%
BR19	19.6	51.0	50.0%
Overall	21.4	29.5	23.6%

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NNM Cases	BR1	30.6	30.6	0.0%
Total	BR2	4.5	6.0	0.0%
number of live births	BR3	12.4	16.0	0.0%
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«AMOUNT OF CARE NEEDED»

END + NNM

Total number of live births

NNM Cases
Total
number of
live births

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«QUALITY OF PERINATAL CARE »

Neonates with life-threatening conditions at birth that died

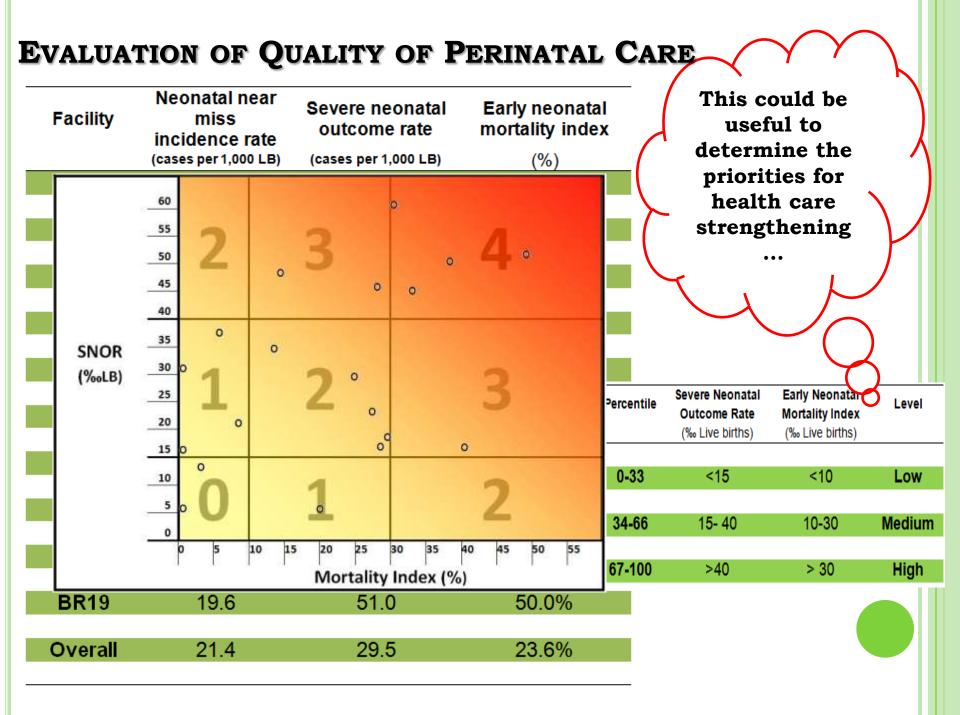
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BR10	21.7	29.0	25.0%	Percentile	Severe Neonatal	Early Neonatal	Level
BR11	16.8	23.3	27.8%	reiceittie	Outcome Rate	Mortality Index	Level
BR12	10.2	16.3	28.6%		(‰ Live births)	(‰ Live births)	
BR13	29.8	45.3	28.9%	0.22	-15	~10	Laur
BR14	12.8	18.2	30.0%	0-33	<15	<10	Low
BR15	42.3	61.6	30.4%	04.00	45 40	10.00	Ma alicena
BR16	30.0	44.9	33.3%	34-66	15- 40	10-30	Medium
BR17	28.3	51.6	37.8%	67.400	S 40	S 20	Himb
BR18	7.8	16.8	41.7%	67-100	>40	> 30	High
BR19	19.6	51.0	50.0%				
Overall	21.4	29.5	23.6%				

EVALUATION OF QUALITY OF PERINATAL CARE Neonatal near This could be Early neonatal Severe neonatal Facility miss useful to mortality index outcome rate incidence rate determine the (cases per 1,000 LB) (cases per 1,000 LB) (%)priorities for BR1 30.6 0.0% 30.6 health care 0.0% BR2 4.5 6.0 strengthening BR3 12.4 16.0 0.0% BR4 13.1 13.6 3.7% BR5 34.2 37.5 6.1% BR6 18.6 20.4 8.7% BR7 38.7 48.4 14.3% BR8 28.3 34.7 13.9% 5.6 BR9 4.5 20.0% **BR10** 21.7 29.0 25.0% Severe Neonatal Early Neonatar Level Percentile 16.8 23.3 27.8% **Outcome Rate** Mortality Index **BR11** (% Live births) (% Live births) 10.2 16.3 **BR12** 28.6% **BR13** 29.8 45.3 28.9% 0 - 33<15 <10 Low **BR14** 12.8 18.2 30.0% 42.3 **BR15** 61.6 30.4% 15-40 34-66 10-30 Medium 44.9 **BR16** 30.0 33.3% **BR17** 28.3 51.6 37.8% 67-100 >40 > 30 High 41.7% **BR18** 7.8 16.8 **BR19** 19.6 51.0 50.0%

Overall	21.4	29.5	23.6%



CONCLUSIONS

This is an ongoing work!

 It seems that the near miss concept could be useful to assess the quality of perinatal care and identify priorities

 We intent to test this approach in the Global dataset of the WHO Global Survey

THANK YOU!