Óbito e Prematuridade: abordagem preventiva

Anelise Steglich Souto

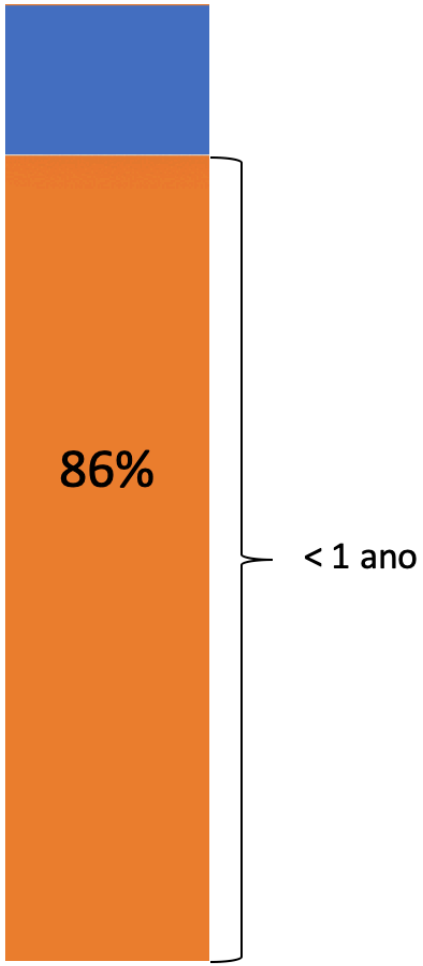
World Health Organization

2022

A despeito do progresso, uma estimativa de 4,9 milhões de crianças morrem antes de completar 5 anos de idade, ou 1 morte em cada 6 segundos.

Recém-nascidos: 6.300 mortes por dia

BRASIL: mortalidade < 5anos



BRASIL

2.536.281 NV

32.257 óbitos em < 1 ANO

m.n.=8,5

21.566 óbitos neonatais (67,0%)

59 RN/dia – 2,5 a cada hora

2022 – DATASUS www.datasus.gov.br

SANTA CATARINA

98202 NV

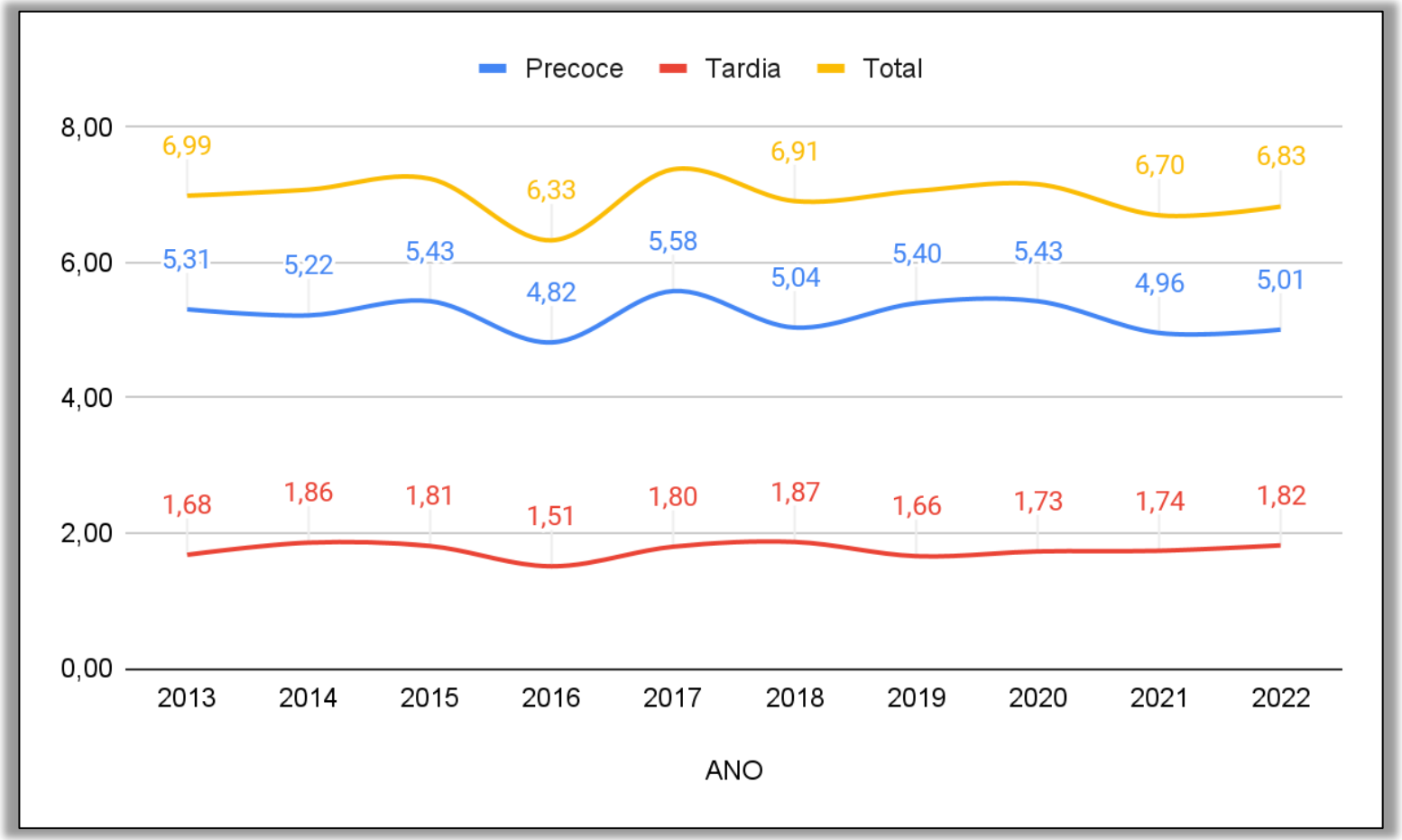
961 óbitos em < 1 ANO

671 óbitos neonatais (70%)

Taxa mortalidade neonatal: 6,83

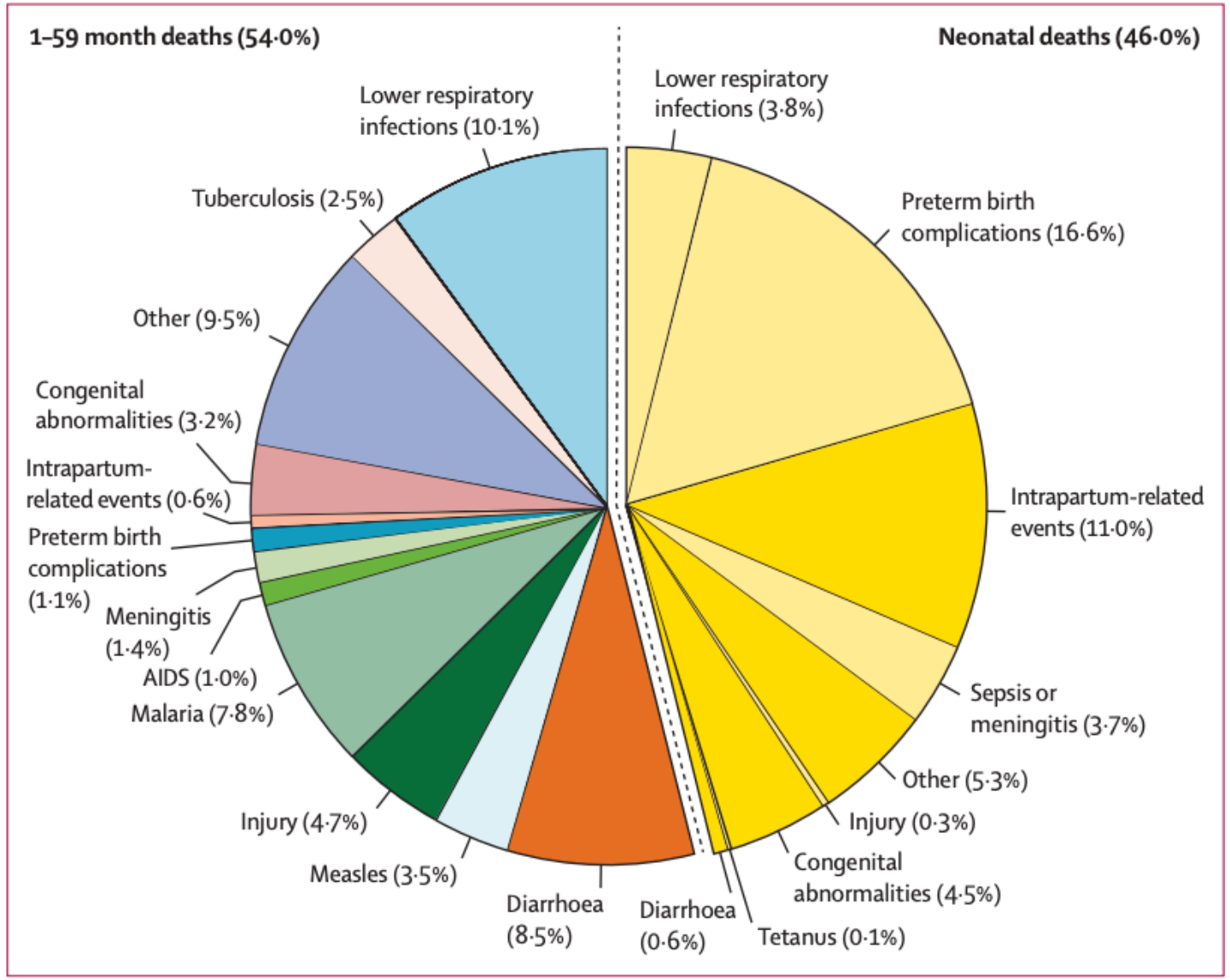
2022 – DATASUS www.datasus.gov.br

Mortalidade Neonatal em Santa Catarina – 10 anos
(retirados < 22 semanas e < 500g)



DATASUS

Causas de mortalidade global abaixo 5 anos de idade, 2000-2019



Lancet Child Adolesc Health 2022;6:106-15

PREMATURIDADE

A partir de 2015 - principal causa de morte em < de 5 anos

1 milhão de bebês morrem anualmente por prematuridade

2023 – DATASUS www.datasus.gov.br

Óbitos neonatais

Causa: transtornos relacionados à duração da gestação – 9%

Idade Gestacional < 37 semanas: 68%

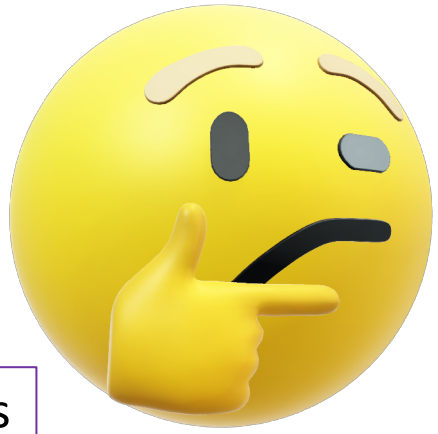
Sepse

Hemorragia pulmonar

Insuficiência renal

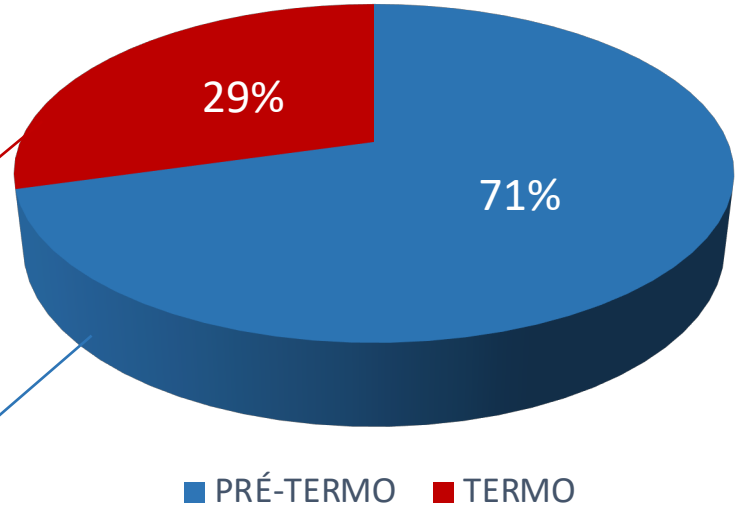
Falência de múltiplos órgãos

Etc...



TRÊS ÚLTIMOS ANOS

51 óbitos neonatais



15 a termo – 14 com malformações graves

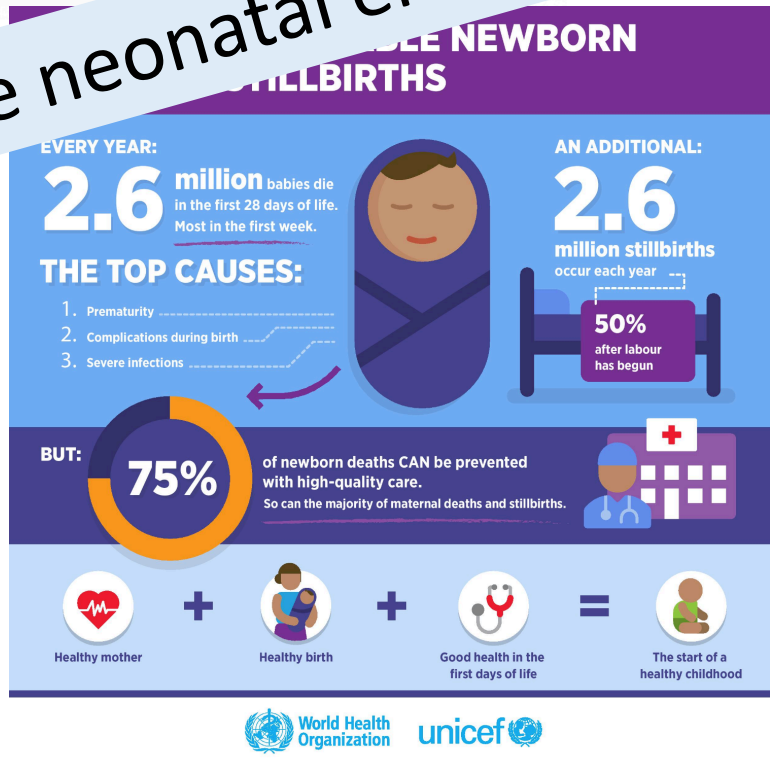
36 pré-termos – 9 com malformações graves

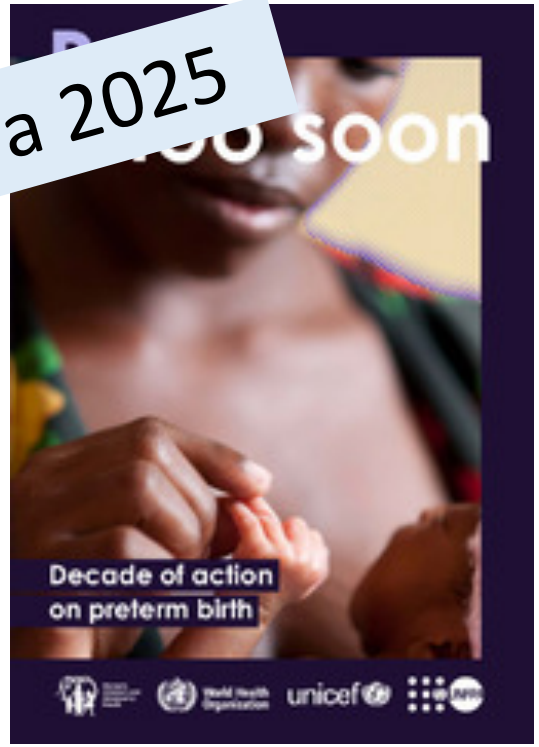
EUA, causa morte até 1 ano de idade (CDC, 2021): malformações/desordens genéticas: 20%, prematuridade: 14,8%

Prematuridade

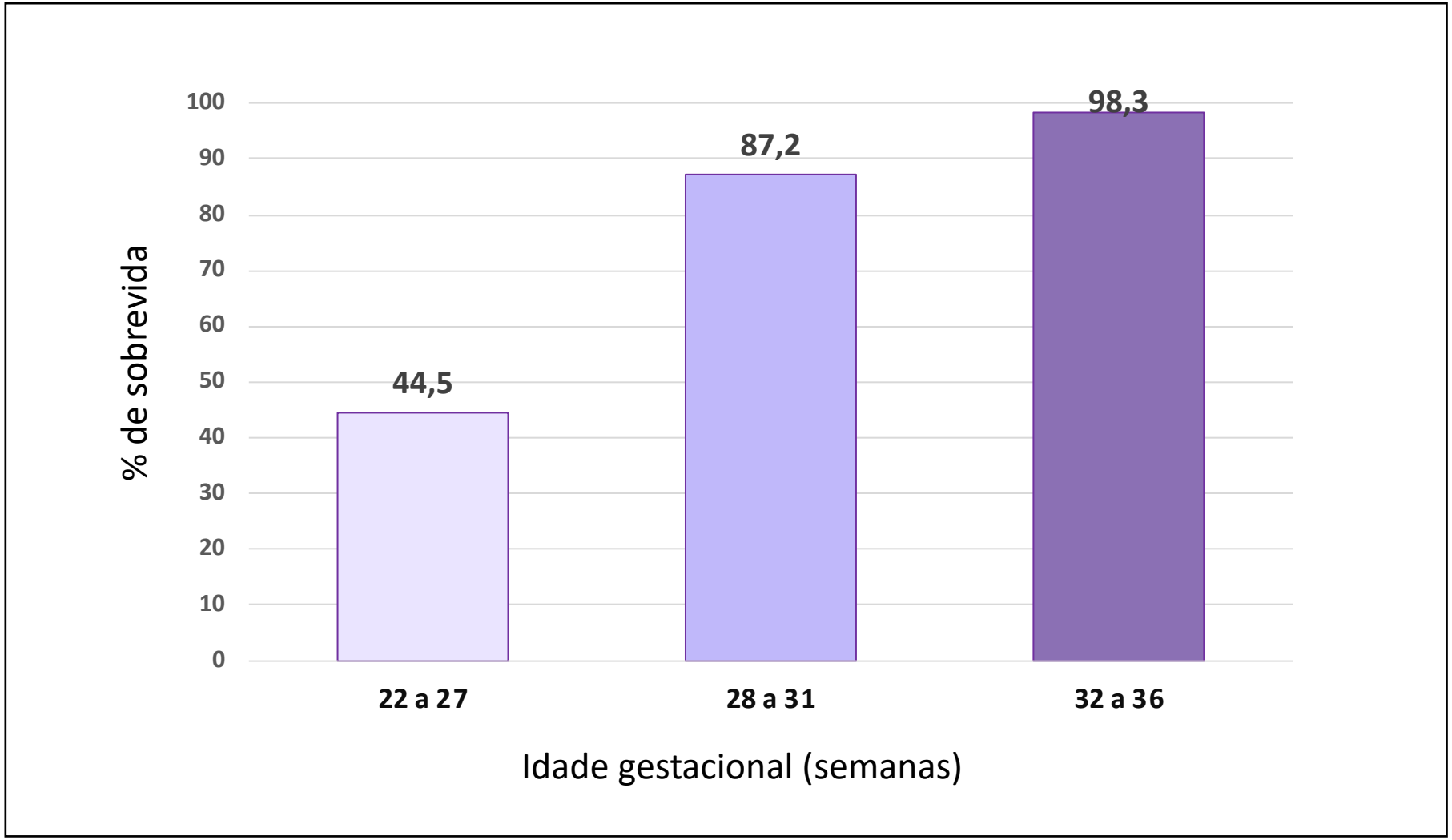
OBJETIVO: reduzir morte neonatal em 50% 2010 a 2025

Ending pr
deaths an ths by 2030





Sobrevida PT - Santa Catarina 2013 a 2022



DATASUS

PT EXTREMOS (<28 semanas)

mortalidade

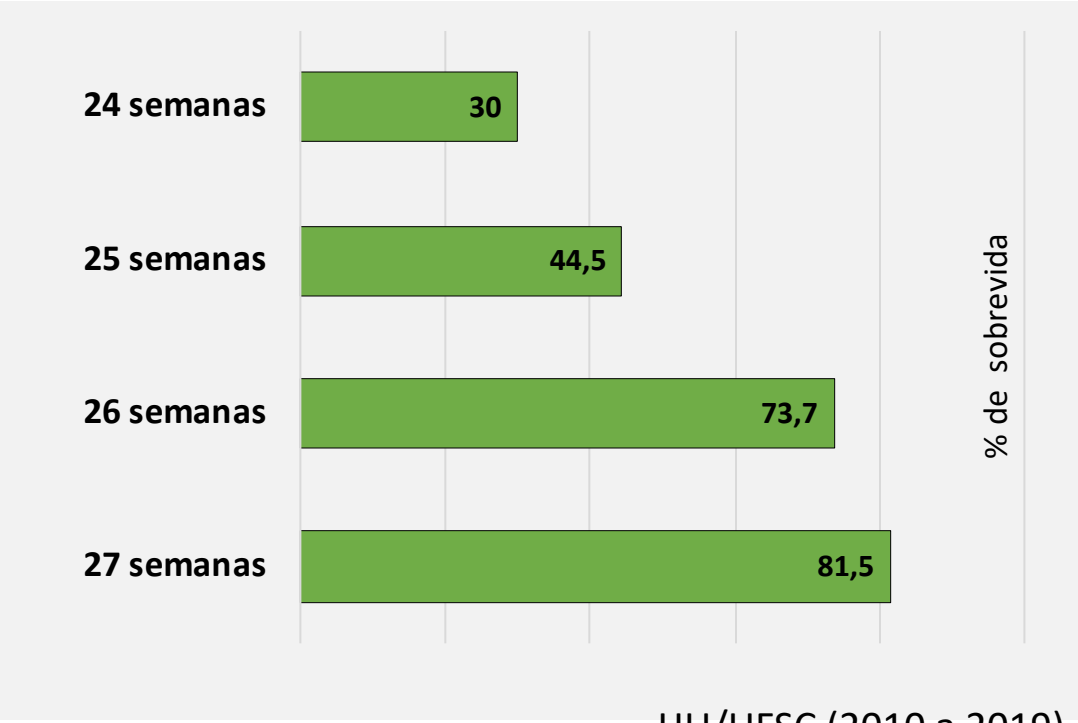
Países de alta renda: 10%

Países de baixa renda: 90%

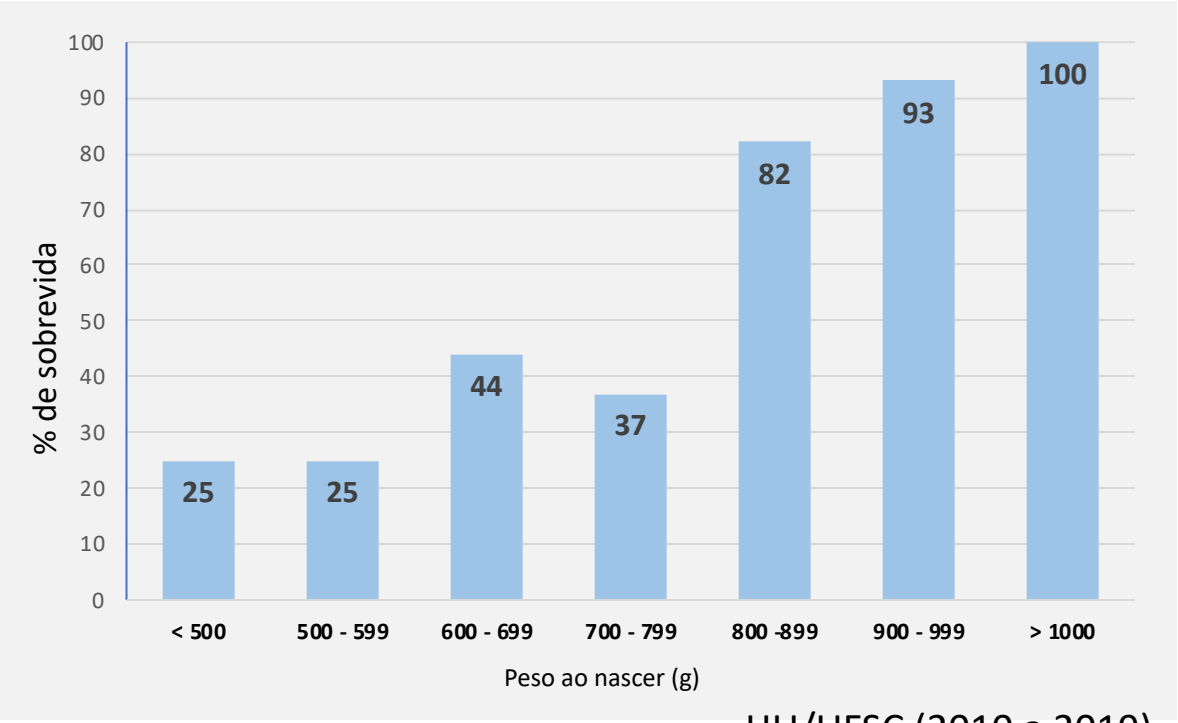
PT EXTREMOS (<28 semanas)
mortalidade

SC (2013 a 2022) : 55,5%

HU/UFSC (2010 a 2019): 36,5%

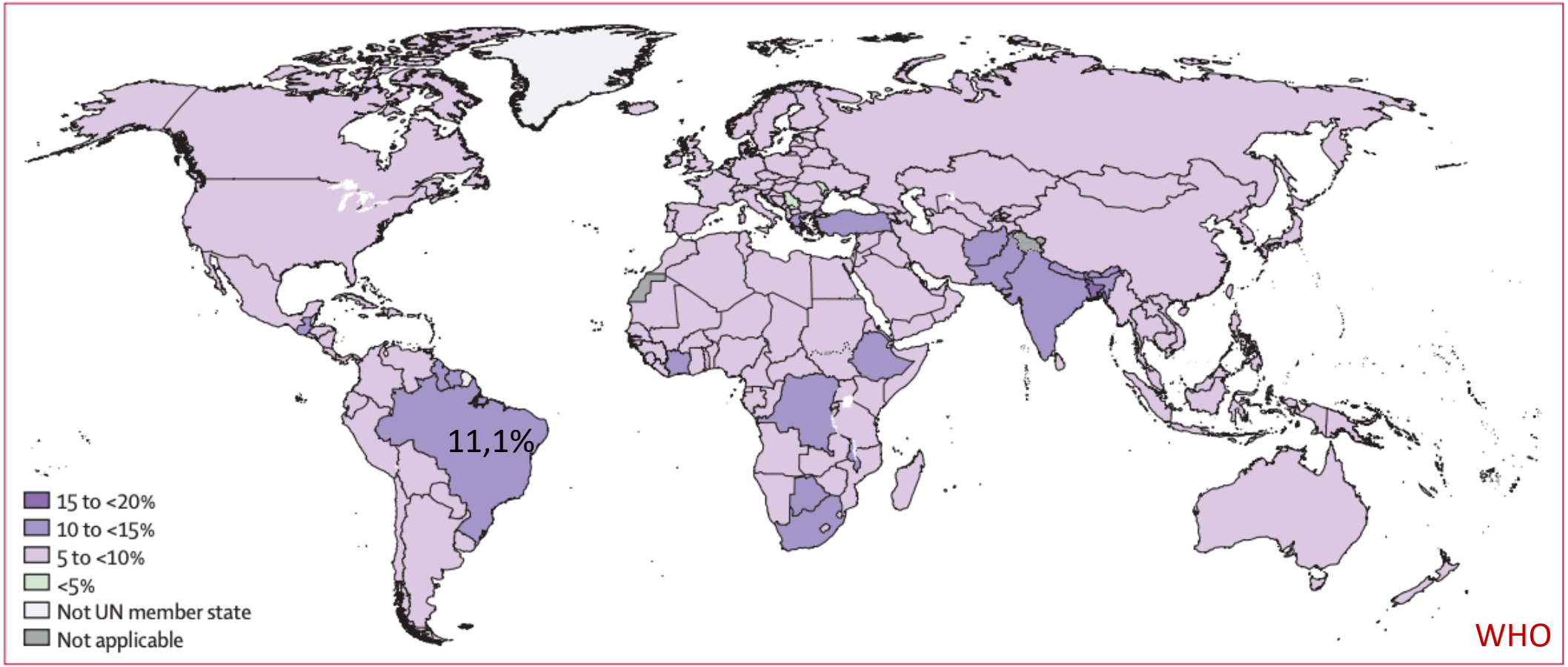


HU/UFSC (2010 a 2019)



HU/UFSC (2010 a 2019)

PREMATURIDADE



Bangladesh: 16.2%
India: 13%
South Africa 13%

United States of America: 10%
Canada: 7,9%
Alemanha: 8,4%

Dinamarca: 6%.
Japão: 5,6%
Noruega: 5,5%

Cuba:6%

Lancet 2023;402:1261-71

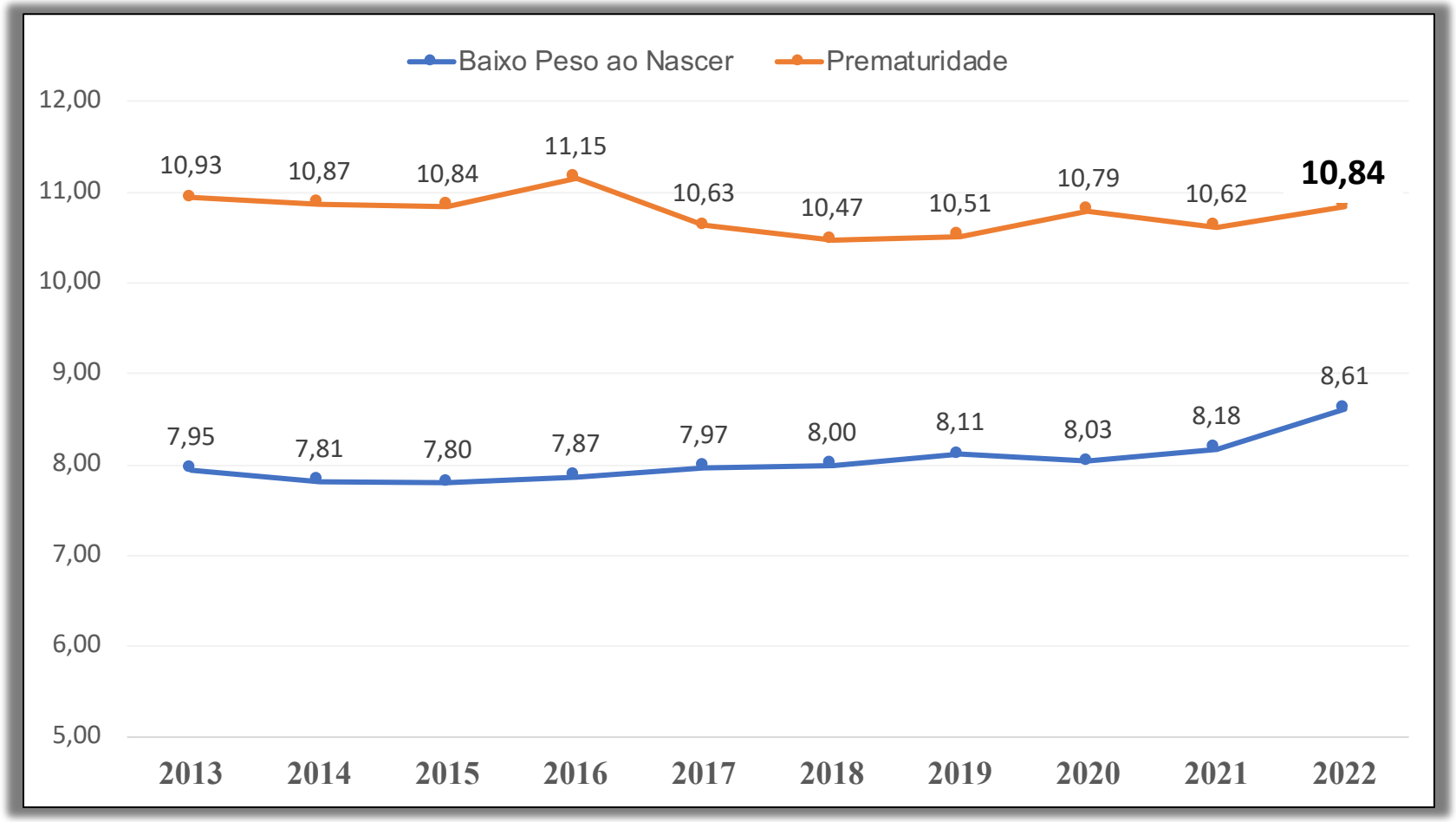
Fatores de risco associados ao nascimento prematuro de Muito Baixo Peso: uma análise de 33 anos

Prevalence of very low birth weight according to family income, maternal age, and type of delivery. Pelotas, Brazil, 1982-2015.

Income	% VLBW	Prevalence ratio					
		Raw			Adjusted for the cohort		
		PR (95% CI)	Lower limit	Upper limit	PR (95% CI)	Lower limit	Upper limit
1st Quintile	1.3	1.68	1.06	2.65	1.67	1.06	2.64
2nd Quintile	1.6	2.14	1.38	3.31	2.16	1.40	3.33
3rd Quintile	1.3	1.69	1.07	2.68	1.68	1.06	2.66
4th Quintile	0.9	1.17	0.72	1.92	1.17	0.71	1.91
5th Quintile	0.7	1.00			1.00		
p-value		0.004			0.003		
Maternal age							
<20 years	1.4	1.10	0.70	1.72	1.12	0.71	1.76
20-34 years	1.0	0.79	0.54	1.17	0.81	0.55	1.20
≥35 years	1.3	1.00			1.00		
p-value		0.11			0.13		
Type of delivery							
Vaginal	1.1	1.00			1.00		
C-section	1.2	1.14	0.88	1.48	1.07	0.82	1.39
p-value		0.32			0.61		

J Pediatr (Rio J). 2020;96:327---32

Prematuridade e Baixo Peso ao nascer em Santa Catarina – 10 anos



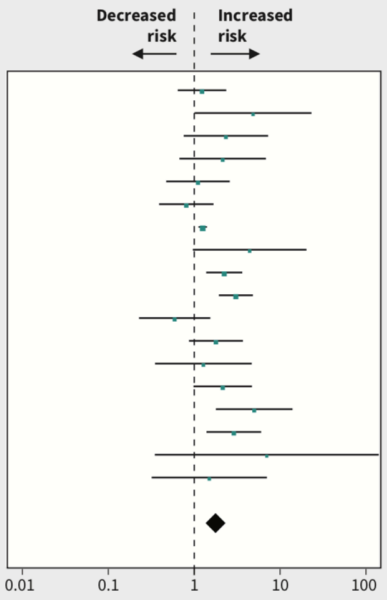
DATASUS

Uruguai 9.3

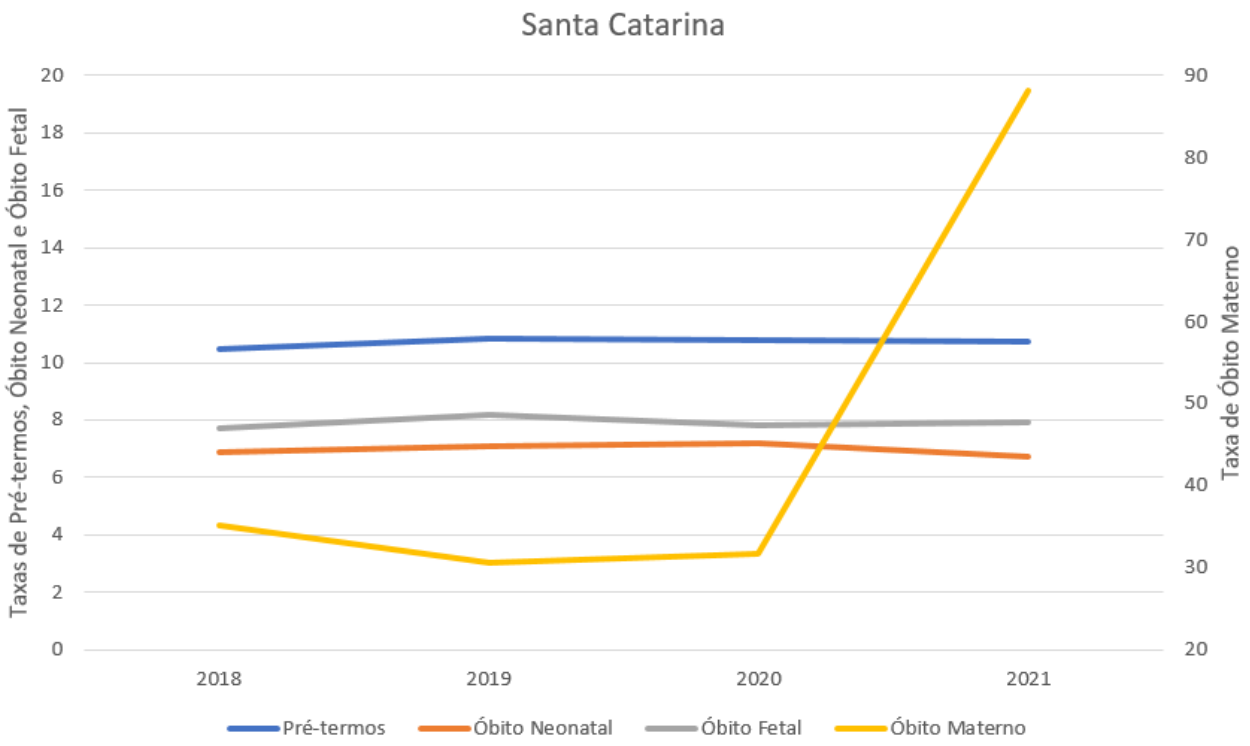
Argentina 8,9

Peru 6,7

Study or subgroup	COVID-19 Events	COVID-19 Total	No COVID-19 Events	No COVID-19 Total	OR (95% CI)
Ahlberg et al.[43]	14	155	45	604	1.23 (0.66 to 2.31)
Cunarro-Lopez et al.[44]	13	68	2	43	4.85 (1.04 to 22.66)
Diaz-Corvillon et al.[15]	4	37	27	549	2.34 (0.77 to 7.09)
Edlow et al.[49]	10	64	5	63	2.15 (0.69 to 6.69)
Flaherman et al.[27]	21	179	9	84	1.11 (0.48 to 2.53)
Hcini et al.[51]	11	137	36	370	0.81 (0.40 to 1.64)
Jering et al.[53]	459	6380	23 234	400 066	1.26 (1.14 to 1.38)
Li et al.[31]	3	16	6	121	4.42 (0.99 to 19.82)
Martínez-Perez et al.[18]	34	246	51	763	2.24 (1.41 to 3.55)
Nayak et al.[35]	38	141	90	836	3.06 (1.99 to 4.71)
Pineles et al.[54]	5	77	90	858	0.59 (0.23 to 1.51)
Prabhu et al.[11]	11	70	57	605	1.79 (0.89 to 3.61)
Smithgall et al.[13]	10	51	4	25	1.28 (0.36 to 4.57)
Wang et al.[39]	9	53	66	760	2.15 (1.01 to 4.60)
Woodworth et al.[46]	8	16	99	594	5.00 (1.83 to 13.64)
Yang et al.[42]	9	65	579	11 013	2.90 (1.43 to 5.88)
Yazihan et al.[47]	3	95	0	92	7.00 (0.36 to 137.43)
Zhang et al.[40]	3	16	6	45	1.50 (0.33 to 6.87)
Total (95% CI)		7866		417 491	1.82 (1.38 to 2.39)
Total events	665		24 406		
Heterogeneity: $I^2 = 64\%$					



CMAJ 2021 April 19;193:E540-8



DATASUS

REDUZIR NASCIMENTOS PREMATUROS

- ✓ Prevenir gestação na adolescência, gestações próximas e não planejadas
- ✓ Promover dieta saudável, nutrição adequada
- ✓ Prevenir e tratar infecções
- ✓ Evitar fumo, álcool e outras substâncias não lícitas
- ✓ Acompanhamento pré-natal (início precoce) com US precoce
- ✓ Diagnosticar e tratar condições crônicas como diabetes e hipertensão
- ✓ Prevenir cesáreas desnecessárias

OMS, Consenso Europeu, Febrasgo

Cochrane Database Syst Ver. 2018 Nov 14;2018(11)

REDUZIR MORTALIDADE EM PREMATUROS

REDUZIR MORTALIDADE EM PREMATUROS

- ✓ Local de nascimento
- ✓ Corticoide antenatal
- ✓ Controle térmico
- ✓ Cuidado canguru
- ✓ Clampeamento oportuno do cordão umbilical
- ✓ Alimentação precoce
- ✓ CPAP

WHO recommendations for care of the preterm or low-birth-weight infant

Web Supplement. Evidence base

World Health Organization

2022

WHO recommendations on interventions to improve preterm birth outcomes

World Health Organization

2015

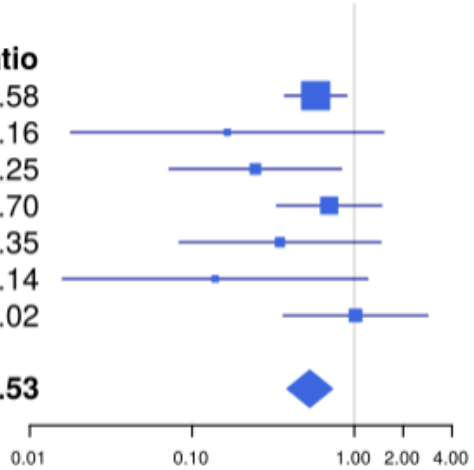
REDUZIR MORTALIDADE EM PREMATUROS

- ✓ Gestantes em risco de parto prematuro devem ser transferidas a hospitais equipados e seguros

✓ Corticoide antenatal

REVISÃO SISTEMÁTICA

Study	Deaths (corticosteroid)	Deaths (placebo)	Odds ratio
Auckland	36	60	0.58
Block	1	5	0.16
Doran	4	11	0.25
Gamsu	14	20	0.70
Morrison	3	7	0.35
Papageorgiou	1	7	0.14
Tauesch	8	10	1.02
Summary			**0.53**



Crowley P. *British J Obstet Gynaecol. 1990 jan;97(1):11-25*
Crowley P. *Cochrane Database Syst Rev 1996;1:CD000065*

Cochrane Database of Systematic Reviews, 2020

22 estudos
10.609 neonatos prematuros

Corticoide reduz a **morte neonatal**
RR 0,78 (IC 95% 0,70 a 0,87)

✓ Corticoide antenatal

SUÉCIA - Nascimentos prematuros, período de 4 anos

95% gestantes receberam corticoide

Acta Obstet Gynecol Scand. 2018;97(5): 591–597.

Vermont Oxford Network – 2016. 91,6% receberam CT

Estudo Nascer no Brasil – 48,7% com IG < 34 semanas receberam CT

Rev Paul Pediatr. 2022;40:e2020126

HU/UFSC - Pré-termos extremos, período de 10 anos

50% gestantes receberam corticoide

Cochrane Database of Systematic Reviews, 2020

22 estudos
10.609 neonatos prematuros

Corticoide reduz a **morte neonatal**
RR 0,78 (IC 95% 0,70 a 0,87)

✓ Controle térmico

- Índia – Recém-nascidos transferidos
  Mortalidade 39,3% em hipotermia moderada e 80% em hipotermia severa
  J Trop Pediatr. 2005; 51(6): 341–5
- Hospitais Universitários no Iran
  Hipotermia aumentou risco de morte OR = 3.1 (95% CI 1.9 - 5.2)
  Saudi Med J. 2005;26:1367–1371
- Hospital Universitário Recife
  Hipotermia aumentou risco de morte OR = 3.5 (95% CI 3.18 a 3.81)
  J Trop Pediatr. 2003;49:115–120
- 9 Hospitais Universitários Brasileiros (1764 RN entre 22 e 33 semanas)
  Controlando variáveis: hipotermia aumentou mortalidade em 1,6X (95% CI 1.03 a 2.61)
  J Pediatr 2014;164:271-5)
- Minas Gerais – 149 PT <1500g
  Mortalidade: hipotermia 44.3% X normotermia 18.6% (<0.001)
  Rev Paul Pediatr. 2022;40:e2020349
- Índia – 538 < 1500g
  Controlando para variáveis: aumenta 42% se <34,°C e 23% se <35,5°C
  Matern Fetal Neonatal Med. 2022;35(16):3096-3104

✓ Controle térmico

PRN | PROGRAMA DE REANIMAÇÃO NEONATAL
SBP

Controlar temperatura ambiente (Sala de parto) – 23 a 25°C

Uso de saco plástico no RN

Uso de touca no RN

✓ Cuidado Canguru

✓ Cuidado Canguru

A.1 KANGAROO MOTHER CARE

World Health Organization

Recommendation and remarks

RECOMMENDATION A.1a (UPDATED)

Any KMC:
Kangaroo mother care (KMC) is recommended as routine care for all preterm or low-birth-weight infants. KMC can be initiated in the health-care facility or at home and should be given for 8–24 hours per day (as many hours as possible). *(Strong recommendation, high-certainty evidence)*

RECOMMENDATION A.1b (NEW)

Immediate KMC:
Kangaroo mother care (KMC) for preterm or low-birth-weight infants should be started as soon as possible after birth. (Strong recommendation, high-certainty evidence) *(Strong recommendation, high-certainty evidence)*

2022

✓ Cuidado Canguru

Original research

BMJ Global Health

Kangaroo mother care for preterm or low birth weight infants: a systematic review and meta-analysis

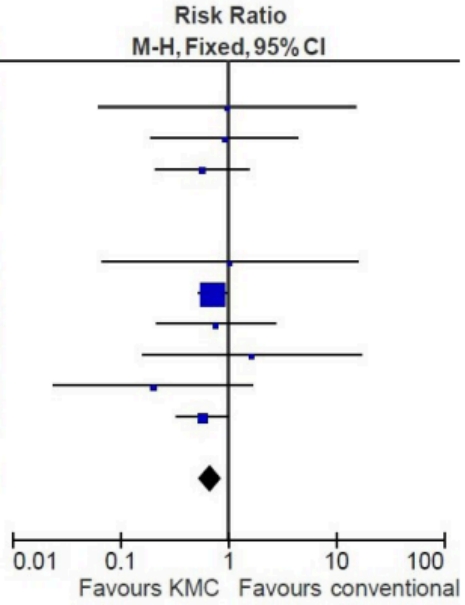
Sindhu Sivanandan [1], Mari Jeeva Sankar [2]

BMJ Global Health 2023;8:e010728

Study or Subgroup	KMC Events	KMC Total	Conventional care Events	Conventional care Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Acharya 2014	0	63	0	63		Not estimable
Boo 2007	1	65	1	63	0.7%	0.97 [0.06, 15.16]
Cattaneo 1998	3	149	3	136	2.1%	0.91 [0.19, 4.45]
Charpak 1997	6	364	10	345	7.0%	0.57 [0.21, 1.55]
Eka Pratiwi 2009	0	48	0	45		Not estimable
Ghavane 2012	0	68	0	68		Not estimable
Kadam 2005	1	44	1	45	0.7%	1.02 [0.07, 15.85]
Mazumder 2019	73	4470	90	3914	65.4%	0.71 [0.52, 0.96]
Mwendwa 2012	4	85	5	81	3.5%	0.76 [0.21, 2.74]
Rojas 2003	2	33	1	27	0.7%	1.64 [0.16, 17.09]
Suman 2008	1	103	5	103	3.4%	0.20 [0.02, 1.68]
Worku 2005	14	62	24	61	16.5%	0.57 [0.33, 1.00]
Total (95% CI)		**5554**		**4951**	**100.0%**	**0.68 [0.53, 0.87]**
Total events	105		140			

Heterogeneity: Chi² = 2.67, df = 8 (P = 0.95); I² = 0%

Test for overall effect: Z = 3.11 (P = 0.002)



KMC - Mortalidade durante internação até 28 dias ou 40 semanas de IPC: reduziu 32%

KMC precoce (<24 horas de vida) X KMC tardio: reduz mortalidade 23%

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Immediate "Kangaroo Mother Care" and Survival of Infants with Low Birth Weight

WHO Immediate KMC Study Group*

ABSTRACT

BACKGROUND

"Kangaroo mother care," a type of newborn care involving skin-to-skin contact with the mother or other caregiver, reduces mortality in infants with low birth weight (<2.0 kg) when initiated after stabilization, but the majority of deaths occur before stabilization. The safety and efficacy of kangaroo mother care initiated soon after birth among infants with low birth weight are uncertain.

METHODS

We conducted a randomized, controlled trial in five hospitals in Ghana, India, Malawi, Nigeria, and Tanzania involving infants with a birth weight between 1.0 and 1.799 kg who were assigned to receive immediate kangaroo mother care (intervention) or conventional care in an incubator or a radiant warmer until their condition stabilized and kangaroo mother care thereafter (control). The primary outcomes were death in the neonatal period (the first 28 days of life) and in the first 72 hours of life.

RESULTS

A total of 3211 infants and their mothers were randomly assigned to the intervention group (1609 infants with their mothers) or the control group (1602 infants with their mothers). The median daily duration of skin-to-skin contact in the neonatal intensive care unit was 16.9 hours (interquartile range, 0.3 to 3.3) in the control group and 1.5 hours (interquartile range, 13.0 to 19.7) in the intervention group. Neonatal death occurred in the first 28 days in 191 infants in the intervention group (15.7%) and in 249 infants in the control group (15.7%) (relative risk, 0.75; 95% confidence interval [CI], 0.64 to 0.89; P=0.001); neonatal death of death, 0.75; 95% confidence interval [CI], 0.64 to 0.89; P=0.001); neonatal death in the first 72 hours of life occurred in 74 infants in the intervention group (4.6%) and in 92 infants in the control group (5.8%) (relative risk of death, 0.77; 95% CI, 0.58 to 1.04; P=0.09). The trial was stopped early on the recommendation of the data and safety monitoring board owing to the finding of reduced mortality among infants receiving immediate kangaroo mother care.

CONCLUSIONS

Among infants with a birth weight between 1.0 and 1.799 kg, those who received immediate kangaroo mother care had lower mortality at 28 days than those who received conventional care with kangaroo mother care initiated after stabilization; the between-group difference favoring immediate kangaroo mother care at 72 hours was not significant. (Funded by the Bill and Melinda Gates Foundation; Australian New Zealand Clinical Trials Registry number, ACTRN12618001880235; Clinical Trials Registry-India number, CTRI/2018/08/015369.)

The members of the writing committee (S. Arya, H. Naburi, K. Kawaza, S. Newton, C.H. Anyabolu, N. Bergman, S.P.N. Rao, P. Mittal, E. Assenga, L. Gadama, R. Larsen-Reindorf, O. Kuti, A. Linnér, S. Yoshida, N. Chopra, M. Ngarina, A.T. Moussa, A. Boakye-Yiadom, B.P. Kuti, B. Morgan, N. Minckas, J. Suri, R. Moshiro, V. Samuel, N. Wireko-Brobby, S. Rettedal, H.V. Jaiswal, M.J. Sankar, I. Nyanor, H. Tiwary, P. Anand, A.A. Manu, K. Nagpal, D. Ansong, I. Saini, K.C. Aggarwal, N. Wadhwa, R. Bahl, B. Westrup, E.A. Adejuyigbe, G. Plange-Rhule, Q. Oube, H. Chellani, and A. Massawe) assume responsibility for the overall content and integrity of this article. The full names, academic degrees, and affiliations of the members of the writing committee are listed in the Appendix. Address reprint requests to Dr. Bahl or Dr. Rao at the World Health Organization, 20 Avenue Appia, CH1211 Geneva, Switzerland, or at bahlr@who.int or srao@who.int.

*A complete list of the collaborators in the WHO Immediate KMC Study is provided in the Supplementary Appendix, available at NEJM.org.

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N Engl J Med 2021;384:2028-38

✓ Cuidado Canguru

3211 bebês com PN 1000g a 1799g
Ensaio clínico randomizado controlado
Unidades Neonatais com suporte

Contato pele a pele imediato x convencional

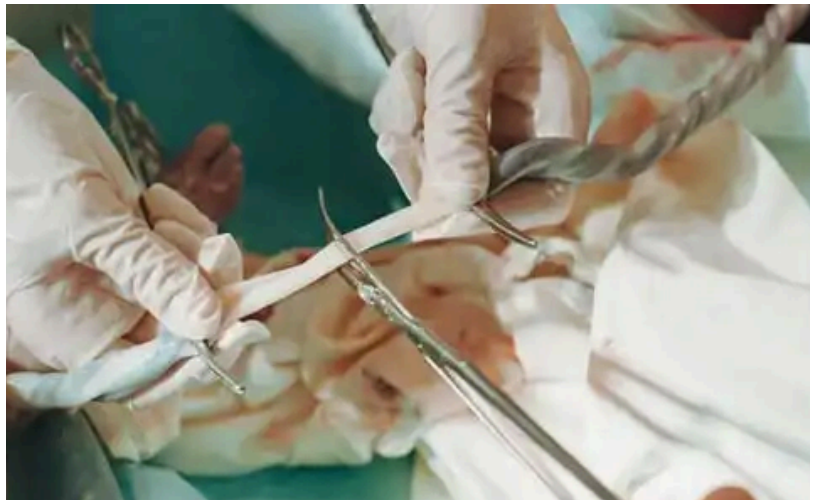
Imediato: tempo médio de início pele a pele: 1,3h

Convencional: tempo médio de início pele a pele: 53,6h

Mortalidade – CPP imediato: 12%
CPP convencional: 15,7%

RR 0,75 (IC95% 0,64 – 0,89; p=0,001)

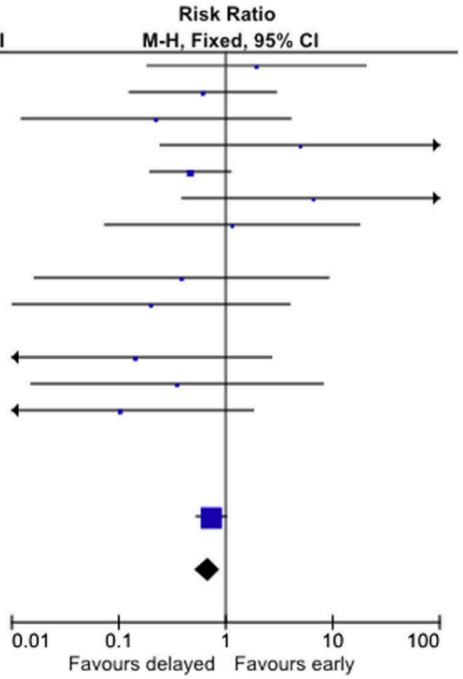
✓ Clampeamento oportuno do cordão umbilical



Meta-analyses showing effect of delayed clamping on mortality

Study or Subgroup	Delayed Events	Delayed Total	Early Events	Early Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Armanian 2017	2	32	1	31	0.9%	1.94 [0.18, 20.30]
Backes 2016	2	18	4	22	3.1%	0.61 [0.13, 2.96]
Baenziger 2007	0	15	3	24	2.3%	0.22 [0.01, 4.04]
Datta 2017	2	60	0	60	0.4%	5.00 [0.25, 102.00]
Duley 2016	7	135	15	135	12.8%	0.47 [0.20, 1.11]
Hofmeyr 1988	5	24	0	14	0.5%	6.60 [0.39, 111.10]
Hofmeyr 1993	1	40	1	46	0.8%	1.15 [0.07, 17.80]
Kinmond 1992	0	17	0	19		Not estimable
Kugelman 2007	0	30	1	35	1.2%	0.39 [0.02, 9.16]
McDonnell 1997	0	23	2	23	2.1%	0.20 [0.01, 3.95]
Mercer 2003	0	16	0	16		Not estimable
Mercer 2006	0	36	3	36	3.0%	0.14 [0.01, 2.67]
Rabe 2000	0	19	1	20	1.2%	0.35 [0.02, 8.10]
Ranjit 2015	0	44	5	50	4.4%	0.10 [0.01, 1.81]
Strauss 2003	0	45	0	60		Not estimable
Tanprasertkul 2016	0	42	0	44		Not estimable
Ultee 2008	0	18	0	19		Not estimable
WTM APTS 2017	58	784	79	782	67.3%	0.73 [0.53, 1.01]
Total (95% CI)		**1398**		**1436**	**100.0%**	**0.68 [0.52, 0.90]**
Total events	77		115			

Heterogeneity: Chi² = 10.28, df = 12 (P = 0.59); I² = 0%
Test for overall effect: Z = 2.75 (P = 0.006)



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✓ Alimentação precoce

Early Enteral Feeding for Preterm or Low Birth Weight Infants: a Systematic Review and Meta-analysis

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Karen M. Edmond, PhD, MBBS[b] Emily R. Smith, ScD, MPH[a]

CONTEXT: Early enteral feeding has been associated with adverse c
enterocolitis in preterm and low birth weight infants.

OBJECTIVES: To assess effects of early enteral feeding initiation wit
compared to delayed initiation.

DATA SOURCES: Medline, Scopus, Web of Science, CINAHL from ince

STUDY SELECTION: Randomized trials (RCTs) were included. Primary
morbidity, growth, neurodevelopment, feed intolerance, and du

DATA EXTRACTION: Data were extracted and pooled with random-eff

RESULTS: We included 14 randomized controlled trials with 1505
analysis comparing early (<72 hours) to delayed (≥72 hours) e
initiation likely decreased mortality at discharge and 28 days (1
relative risk 0.69, 95% confidence interval [95% CI] 0.48–0.99,
and duration of hospitalization (1100 participants, 10 trials, me
95%CI −5.74 to −0.66, moderate certainty evidence). The inter
sepsis and weight at discharge. Based on low certainty evidence
to no effect on necrotizing enterocolitis, feed intolerance, and da
evidence is very uncertain regarding the effect of initiation time
hemorrhage, length, and head circumference at discharge.

CONCLUSIONS: Enteral feeding within 72 hours after birth likely rec
length of hospital stay, may reduce the risk of sepsis, and may r

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Dr Smith, Ms Chitale, and Ms Ferguson conceptualized the study, designed the data collection instruments, designed and carried out the initial analysis, drafted the initial manuscript, and reviewed and revised the manuscript; Dr Edmond assisted with the conceptualization of the study, analyzed the data, and reviewed and revised the manuscript; Ms Talej, Dr He, and Dr Yang collected data, carried out the initial analysis, and reviewed and revised the manuscript; and all authors approved the final manuscript as submitted and agree to be accountable for all aspects of this work.

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14 ensaios clínicos randomizados e controlados

Europa, América do Norte, América do Sul, Ásia

Início < 72 horas de vida

X

Início ≥ 72 horas de vida

Mortalidade com 28 dias/alta:
30% menor com início precoce

PEDIATRICS Volume 150, number S1, August 2022:e2022057092E

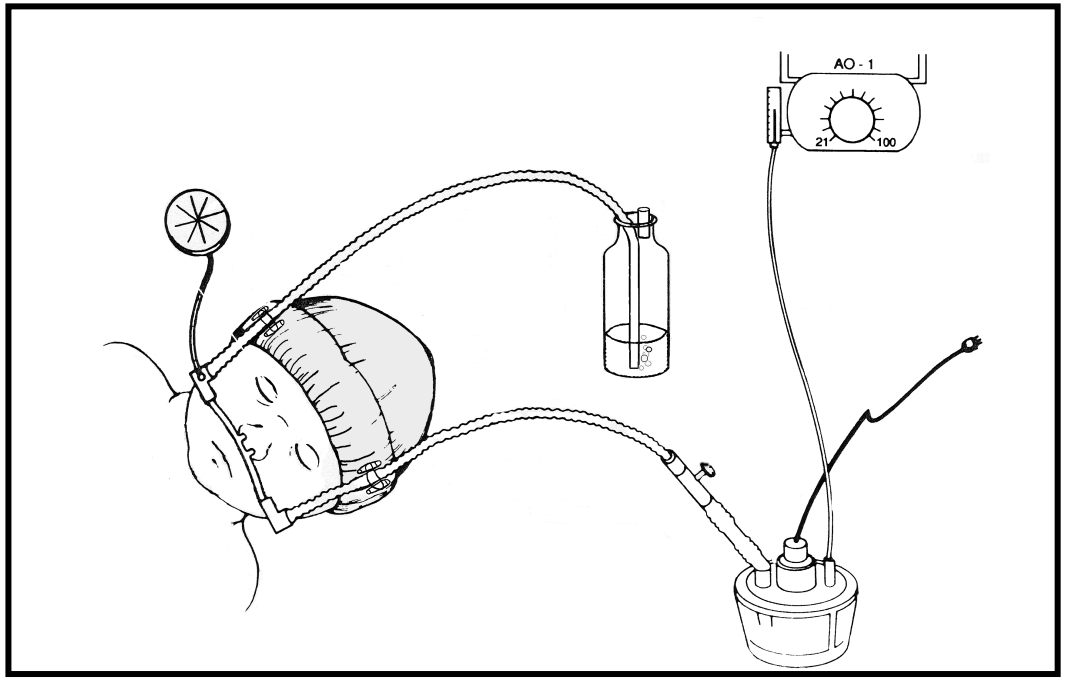
✓ Alimentação precoce

Leite da própria mãe

Colostroterapia

✓ CPAP

Pressão Positiva Contínua em Vias aéreas



Uso de CPAP: RR 0.53, 95% CI 0.34 to 0.83

Cochrane Database Syst Rev. 2020 Oct 15;10(10)

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