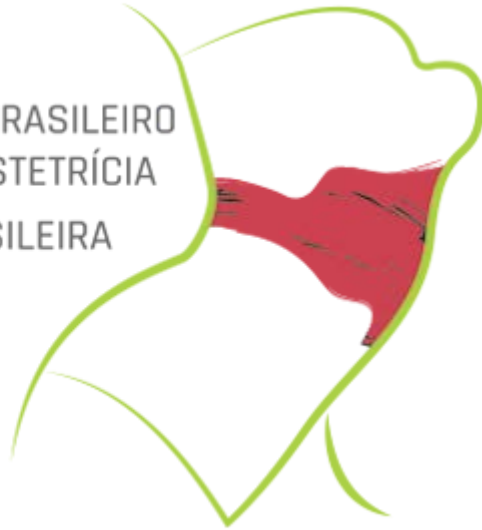


**31 MAIO
A 2 JUN
2018** | XIX CONGRESSO SUL-BRASILEIRO
DE GINECOLOGIA E OBSTETRÍCIA
IV JORNADA SUL-BRASILEIRA
DE MASTOLOGIA



Quinta-feira 31/05/2018

Tema: Atenção ao parto

Período expulsivo: duração normal e manejo (pushing)

Maria Lúcia da Rocha Oppermann

Professora Associada FAMED UFRGS
Doutora Epidemiologia UFRGS
Professora PPGGO UFRGS
Comissão Nacional TEGO FEBRASGO

Contemporary Patterns of Spontaneous Labor With Normal Neonatal Outcomes

Jun Zhang, PhD, MD, Helain J. Landy, MD, D. Ware Branch, MD, Ronald Burkman, MD, Shoshana Haberman, MD, PhD, Kimberly D. Gregory, MD, MPH, Christos G. Hatjis, MD, Mildred M. Ramirez, MD, Jennifer L. Bailit, MD, MPH, Victor H. Gonzalez-Quintero, MD, MPH, Judith U. Hibbard, MD, Matthew K. Hoffman, MD, MPH, Michelle Kominiarek, MD, Lee A. Learman, MD, PhD, Paul Van Veldhuisen, PhD, James Troendle, PhD, and Uma M. Reddy, MD, MPH, for the Consortium on Safe Labor

Consortium on Safe Labor – estudo retrospectivo de 19 hospitais e 62.415 parturientes feto único, sem malformação ou comorbidade, em vertex parto vaginal e desfecho perinatal normal

Table 2. Duration of Labor in Hours by Parity in Spontaneous Onset of Labor

Cervical Dilation (cm)	Parity 0 (n=25,624)	Parity 1 (n=16,755)	Parity 2+ (n=16,219)
3–4	1.8 (8.1)	—	—
4–5	1.3 (6.4)	1.4 (7.3)	1.4 (7.0)
5–6	0.8 (3.2)	0.8 (3.4)	0.8 (3.4)
6–7	0.6 (2.2)	0.5 (1.9)	0.5 (1.8)
7–8	0.5 (1.6)	0.4 (1.3)	0.4 (1.2)
8–9	0.5 (1.4)	0.3 (1.0)	0.3 (0.9)
9–10	0.5 (1.8)	0.3 (0.9)	0.3 (0.8)
Second stage with epidural analgesia	1.1 (3.6)	0.4 (2.0)	0.3 (1.6)
Second stage without epidural analgesia	0.6 (2.8)	0.2 (1.3)	0.1 (1.1)

Data are median (95th percentile).

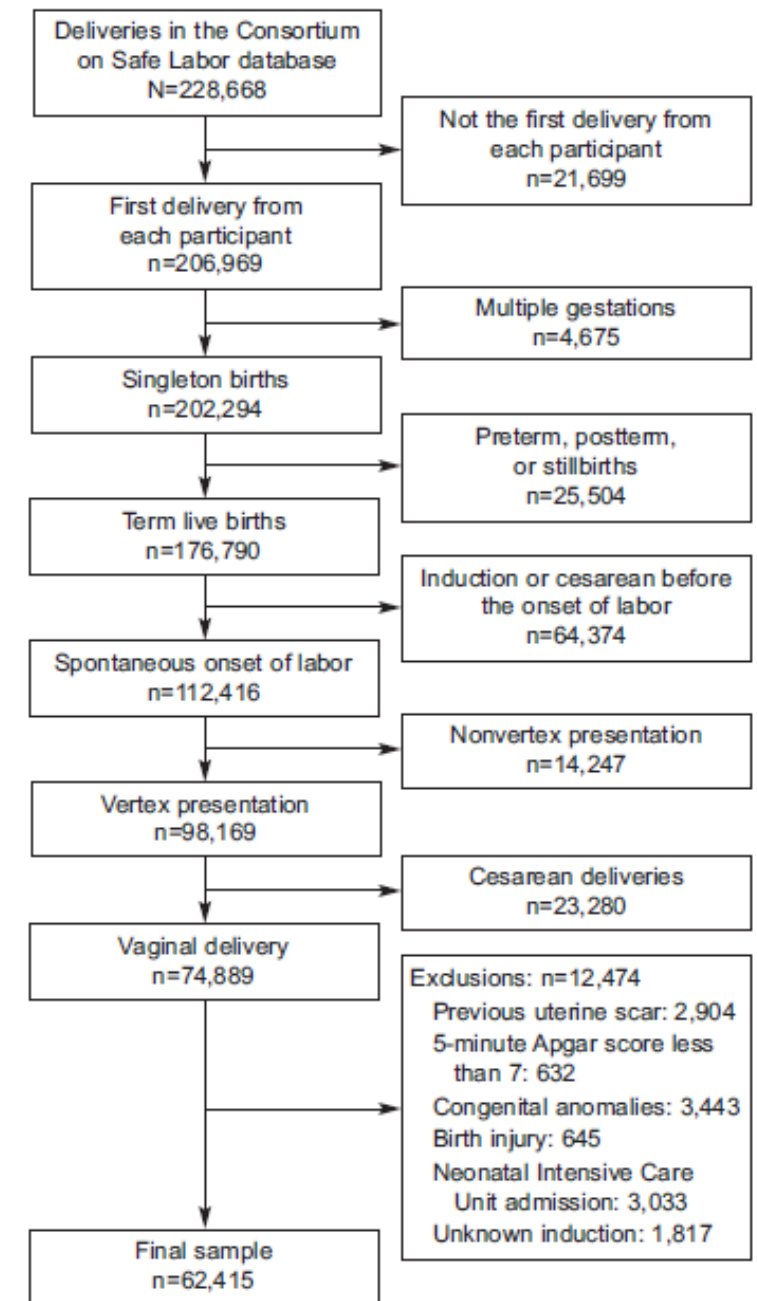


Fig. 1. Diagram of patient selection.

Zhang. Contemporary Labor Patterns. Obstet Gynecol 2010.

ACOG/SMFM OBSTETRIC CARE CONSENSUS

Safe prevention of the primary cesarean delivery



Society for
Maternal-Fetal
Medicine

This document was developed jointly by the American College of Obstetricians and Gynecologists (the College) and the Society for Maternal-Fetal Medicine with the assistance of Aaron B. Caughey, MD, PhD; Alison G. Cahill, MD, MSCI; Jeanne-Marie Guise, MD, MPH; and Dwight J. Rouse, MD, MSPH

The information reflects emerging clinical and scientific advances as of the date issued, is subject to change, and should not be construed as dictating an exclusive course of treatment or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.

Table 3. Recommendations for the Safe Prevention of the Primary Cesarean Delivery ⇐

Recommendations	Grade of Recommendations
<i>Second stage of labor</i>	
A specific absolute maximum length of time spent in the second stage of labor beyond which all women should undergo operative delivery has not been identified.	1C Strong recommendation, low quality evidence
Before diagnosing arrest of labor in the second stage, if the maternal and fetal conditions permit, allow for the following: <ul style="list-style-type: none"> • At least 2 hours of pushing in multiparous women (1B) • At least 3 hours of pushing in nulliparous women (1B) + 1 hora se epidural ? Longer durations may be appropriate on an individualized basis (eg, with the use of epidural analgesia or with fetal malposition) as long as progress is being documented. (1B)	1B Strong recommendation, moderate quality evidence
Operative vaginal delivery in the second stage of labor by experienced and well trained physicians should be considered a safe, acceptable alternative to cesarean delivery. Training in, and ongoing maintenance of, practical skills related to operative vaginal delivery should be encouraged.	1B Strong recommendation, moderate quality evidence
Manual rotation of the fetal occiput in the setting of fetal malposition in the second stage of labor is a reasonable intervention to consider before moving to operative vaginal delivery or cesarean delivery. In order to safely prevent cesarean deliveries in the setting of malposition, it is important to assess the fetal position in the second stage of labor, particularly in the setting of abnormal fetal descent.	1B Strong recommendation, moderate quality evidence
<i>Fetal heart rate monitoring</i>	
Amnioinfusion for repetitive variable fetal heart rate decelerations may safely reduce the rate of cesarean delivery.	1A Strong recommendation, high quality evidence
Scalp stimulation can be used as a means of assessing fetal acid–base status when abnormal or indeterminate (formerly, nonreassuring) fetal heart patterns (eg, minimal variability) are present and is a safe alternative to cesarean delivery in this setting.	1C Strong recommendation, low quality evidence

Randomized controlled trial of prolonged second stage: extending the time limit vs usual guidelines

Alexis C. Gimovsky, MD; Vincenzo Berghella, MD

Nulíparas ≥ 18 anos ≥ 36 sem, feto único, cefálico
CTG categoria I ou II

Mulheres sem esforço expulsivo espontâneo
com epidural e dilatação completa foram orientadas
a adiar os 'puxos' por 1 hora

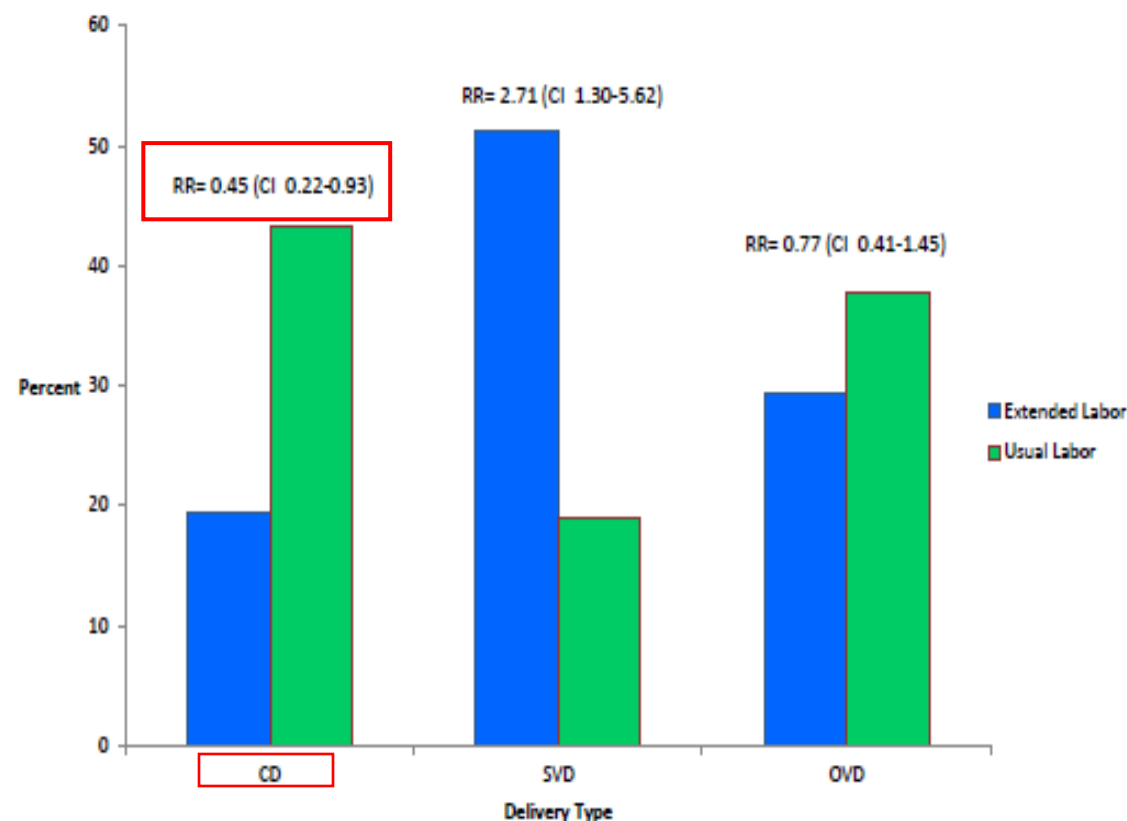
Todas as participantes receberam analgesia epidural.

As que alcançaram critério da ACOG de 2º período
prolongado (> 3 horas com epidural) foram randomizadas:

Grupo estendido (n=41) que aguardou mais 1 hora
antes da decisão por cesariana ou parto operatório

Grupo usual (n=37) que ao alcançarem o critério
de 2º período prolongado foram imediatamente manejadas

FIGURE 2
Delivery outcomes



Type of delivery by group.

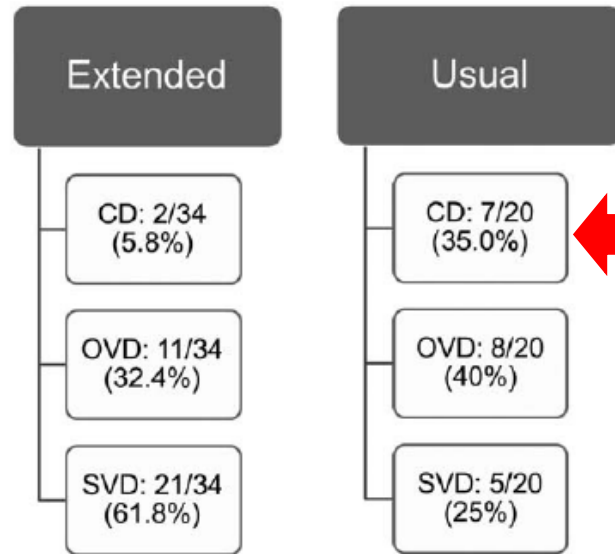
CD, cesarean delivery; CI, confidence interval; OVD, operative vaginal delivery; RR, relative risk; SVD, spontaneous vaginal delivery.

Gimovsky & Berghella. Randomized controlled trial of prolonged second stage. *Am J Obstet Gynecol* 2016.

Prolonged Second Stage: What Is the Optimal Length?

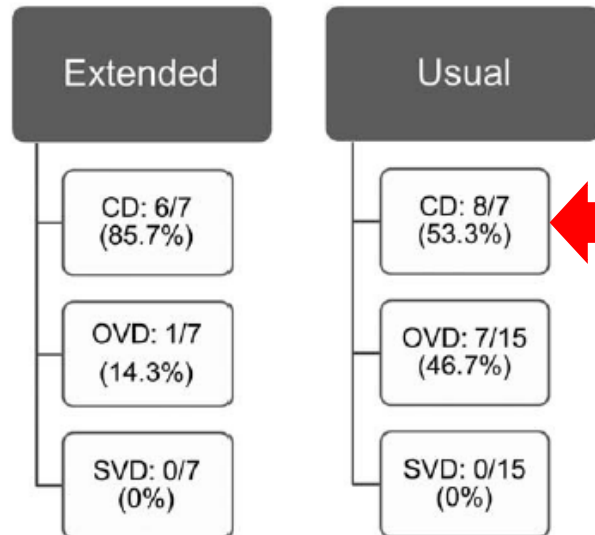
Alexis C. Gimovsky, MD* and Vincenzo Berghella, MD†

A Occiput Anterior Outcomes



Fetos em OA tiveram redução importante de cesariana no grupo estendido vs usual (RR 0.17; 95% CI 0.04–0.75)

B Occiput Posterior Outcomes

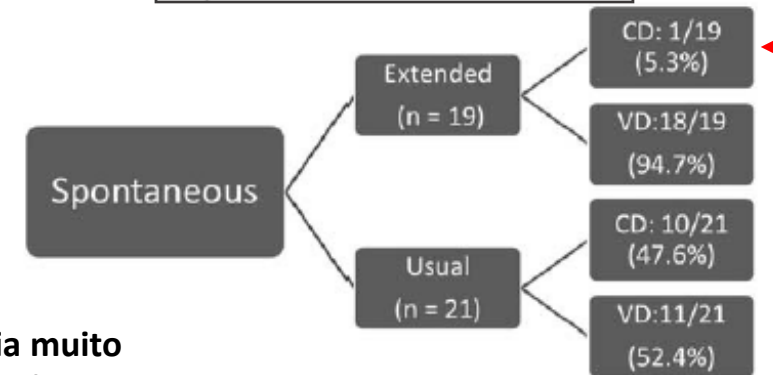


Fetos em OP tiveram o mesmo índice de cesariana nos 2 grupos (RR 1.60; 95% CI 0.92–2.81)

FIG. 5. A and B, Occiput anterior outcomes, OP outcomes. RCT data from Gimovsky and Berghella.²⁴

A

Spontaneous Labor Outcomes



TP espontâneo tem incidência muito menor de cesariana (5.3%) mesmo com 2º período prolongado

Induction of Labor Outcomes

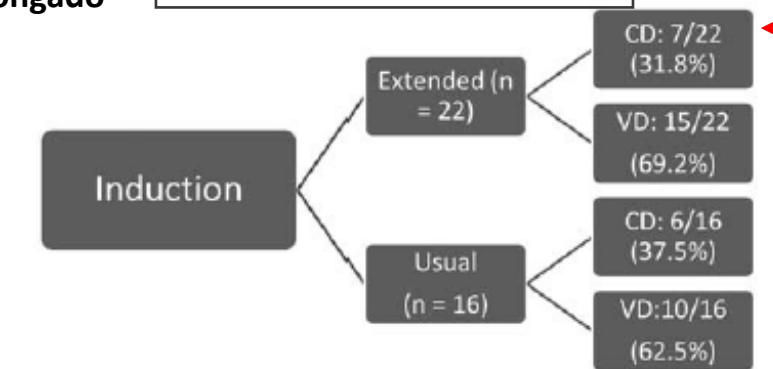


FIG. 6. A and B, Spontaneous labor outcomes, induction of labor outcomes. RCT data from Gimovsky and Berghella.²⁴

TABLE 3
Neonatal outcomes

Outcome	Extended labor (n = 41)	Usual labor (n = 37)	Relative risk	95% Confidence interval	P value
Shoulder dystocia, n (%)	1 (2.4)	0 (0)	Not estimable	Not estimable	—
Birthweight, g ^a	3437 ± 527	3506 ± 534	—	—	.6 ^b
Neonatal intensive care unit admission, n (%)	13 (31.7)	14 (37.8)	0.8	(0.46—1.54)	
Continuous positive airway pressure or greater, n (%)	1 (2.4)	3 (8.1)	0.3	(0.03—2.77)	
Sepsis, n (%)	0	0	—	—	—
Seizure, n (%)	0	0	—	—	—
Umbilical artery cord pH <7.10, n (%)	0	0	—	—	—
Perinatal death, n (%)	0	0	—	—	—
Neonatal intensive care unit length of stay, d ^a	2.66 ± 1.02	4.03 ± 5.67	—	—	.3 ^c

^a Data are given as mean ± standard deviation; ^b Two sample t-test; ^c Wilcoxon Rank-Sum test.

Gimovsky & Berghella. Randomized controlled trial of prolonged second stage. Am J Obstet Gynecol 2016.

TABLE 2
Maternal outcomes

Outcome	Extended labor (n = 41), n (%)	Usual labor (n = 37), n (%)	Relative risk	95% Confidence interval
Cesarean delivery	8 (19.5)	16 (43.2)	0.45	0.22—0.93 ^a
Vaginal delivery	33 (80.5)	21 (56.8)	1.42	1.03—1.95 ^a
Spontaneous vaginal delivery	21 (51.2)	7 (18.9)	2.71	1.30—5.62 ^a
Operative vaginal delivery	12 (29.3)	14 (37.8)	0.77	0.41—1.45 ^a
Chorioamnionitis	11 (26.8)	13 (35.1)	0.76	0.39—1.49 ^a
Endometritis	1 (2.4)	1 (2.7)	0.90	0.06—13.92 ^b
Postpartum hemorrhage	8 (19.5)	3 (8.1)	2.41	0.67—8.40 ^b
Transfusion	1 (2.4)	0	Not estimable	Not estimable
Third-/fourth-degree perineal laceration	6 (14.6)	1 (2.7)	5.41	0.68—42.90 ^b
Cervical laceration	0	0	—	—

^a Chi-square test; ^b Fisher's exact test.

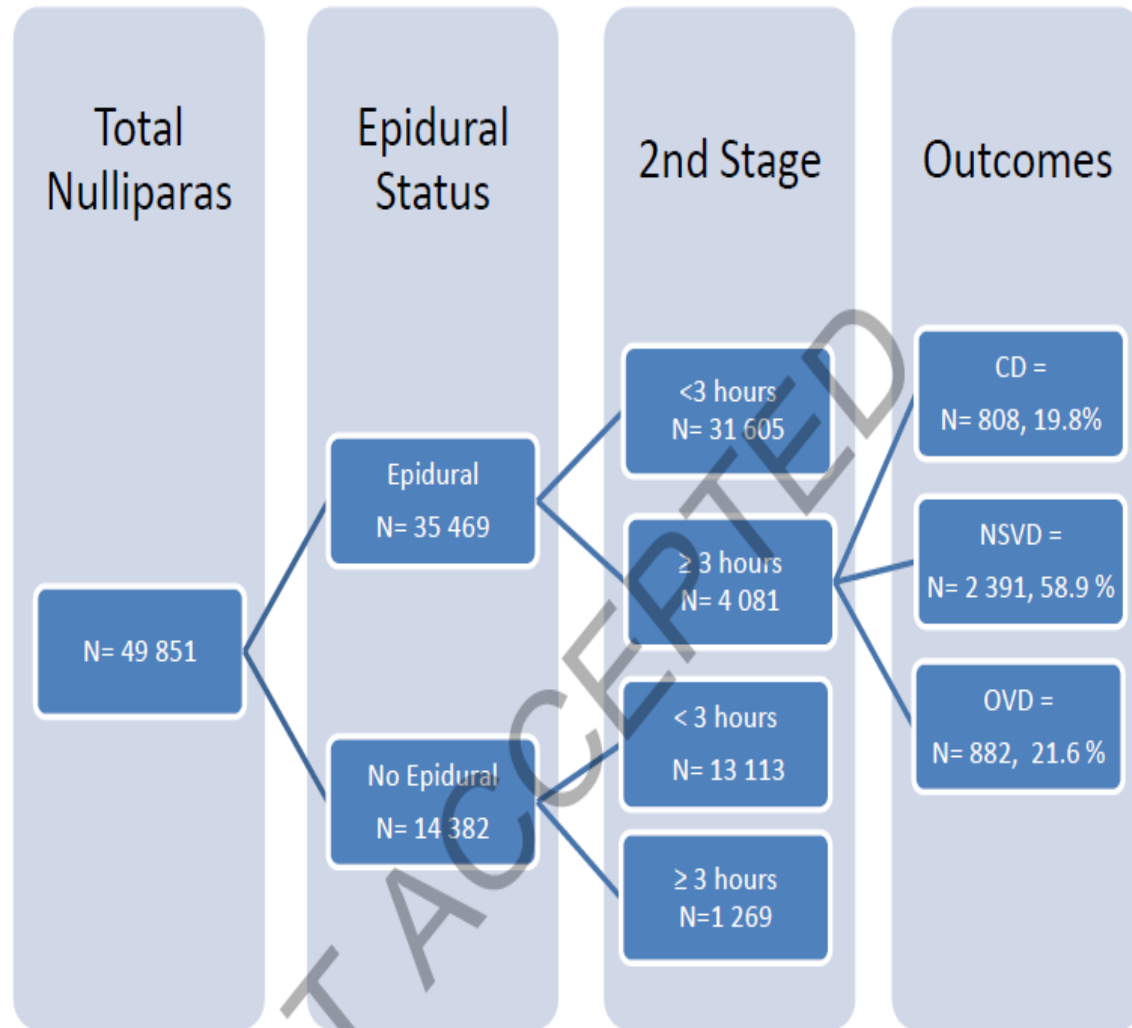
Gimovsky & Berghella. Randomized controlled trial of prolonged second stage. Am J Obstet Gynecol 2016.

- ✓ Tempo adicional no 2º período prolongado em nulíparas com epidural (≥ 3 h) reduziu cesariana em **55% 43.2% com manejo usual vs 19.5% com manejo estendido**
NNT 4.2

- ✓ sem aumento aparente na morbidade neonatal ou materna (mas sem poder para esses desfechos)

4 de 107 mulheres (3.7%) sem epidural tiveram 2º período prolongado (>2 h)
mas nenhuma aceitou participar do estudo

Figure II: Flow diagram of Maternal Outcomes



Abbreviations: CD- Cesarean delivery, NSVD- Normal spontaneous vaginal delivery, OVD- operative vaginal delivery

► nulíparas com epidural

RS : 11,5% com 2º período prolongado
ECR : 21,7%

aumento da obesidade ? IMC médio ~ 31kg/m2

Table II: Maternal Outcomes of nulliparas with prolonged second stage with epidural

Author	N(Total)	CD (N, %)	SVD (N, %)	OVD (N, %)	3 rd /4 th (N, %)	PPH (N, %)	Endometritis (N, %)	Chorio (I (N, %)
Menticoglou[13]	548	98 (17.9)	217 (40.0)	233 (42.5)	N/A	N/A	N/A	N/A
Laughon[2]	3,533	710 (20.0)	2174 (61.5)	649 (18.4)	358 (8.8)	297 (7.3)	42 (1.2)	392 (11.1)
TOTAL	4,081	808 (19.8)	2391 (58.9)	882 (21.6)	358 (8.8)	297 (7.3)	42 (1.0)	392 (11.1)

Percentages are in relation to all nulliparas with epidurals

Abbreviations: CD- cesarean delivery, SVD- spontaneous vaginal delivery, OVD- operative vaginal delivery, 3rd/4th- 3rd or 4th degree laceration, PPH- post partum hemorrhage, Chorio-chorioamnionitis

Table III: Perinatal Outcomes: Nulliparas with prolonged second stage with epidurals

Author	N with prolonged 2nd stage with epidural (Total)	5 minute Apgar < 7 (N, %)	Umbilical Artery pH < 7.20 (N, %)	NICU admission (N, %)	Neonatal Death (N, %)	Perinatal Death (N, %)
Menticoglou[13]	548	N/A	N/A	N/A	0 (0)	N/A
Laughon[2]	3,533	18 (0.05)	N/A	288 (7.1)	N/A	0 (0)
Total	4,081	18 (0.05)	N/A	288 (7.1)	N/A	0 (0)

Percentages are in relation to all nulliparas with epidurals

Abbreviations: NICU- Neonatal intensive care unit

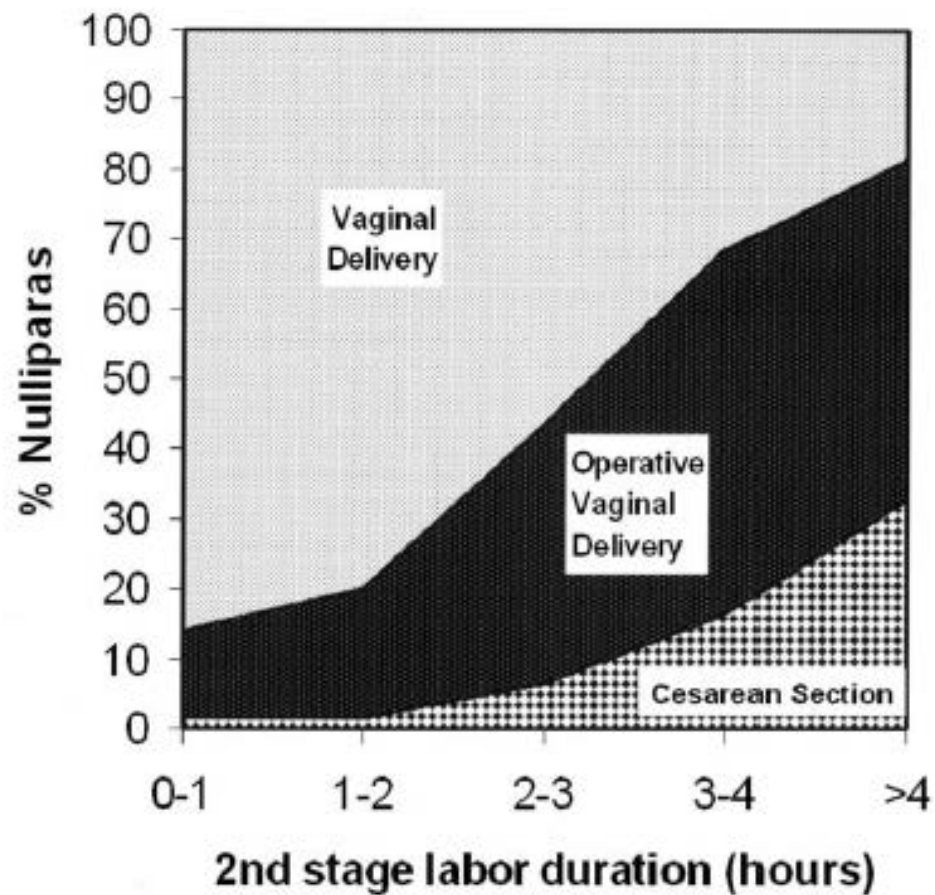
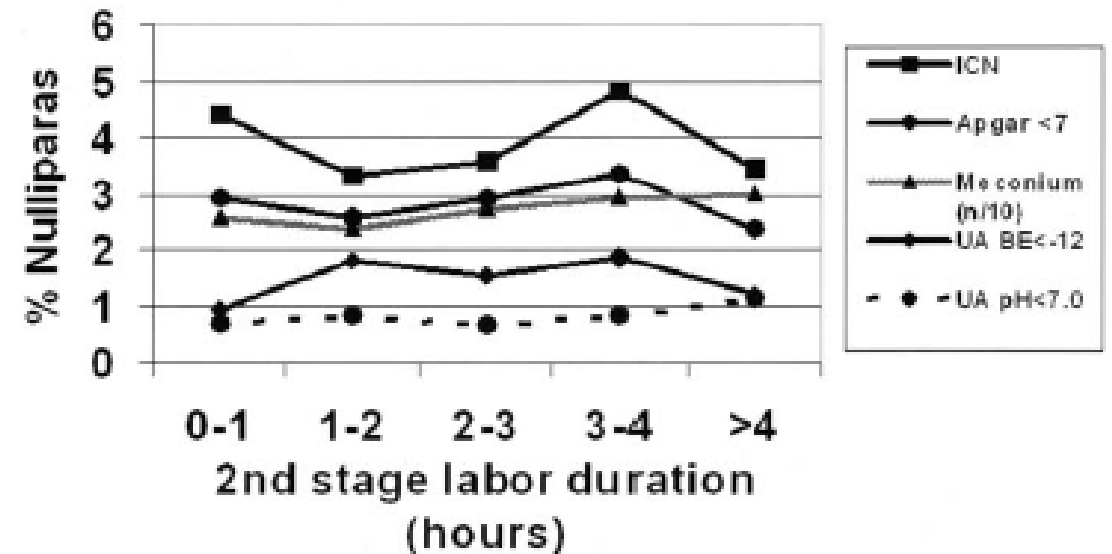


Figure 1 The mode of delivery (n = 15,759) was reported by the duration of the second stage of labor.

How long is too long: Does a prolonged second stage of labor in nulliparous women affect maternal and neonatal outcomes?

Yvonne W. Cheng, MD,* Linda M. Hopkins, MD, Aaron B. Caughey, MD, MPP, MPH

Neonatal outcomes



How long is too long: Does a prolonged second stage of labor in nulliparous women affect maternal and neonatal outcomes?

Yvonne W. Cheng, MD,* Linda M. Hopkins, MD, Aaron B. Caughey, MD, MPP,

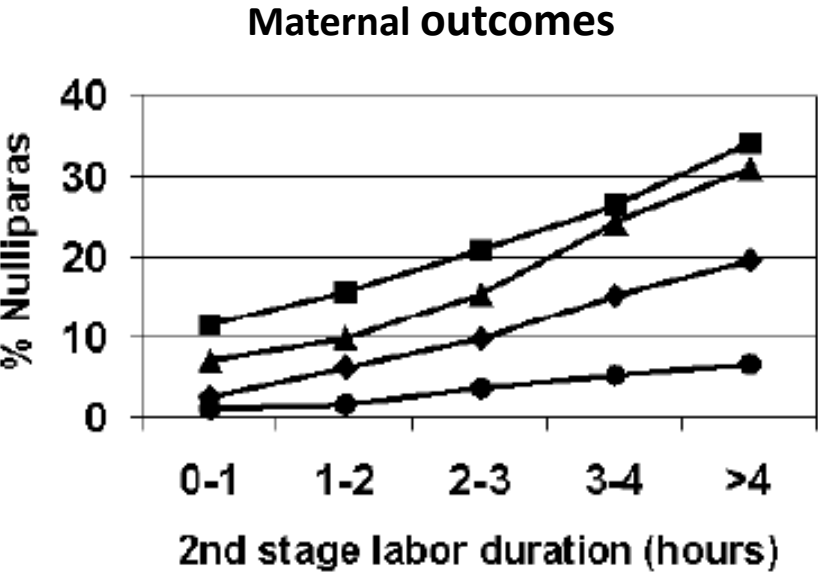


Figure 2 Maternal outcomes reported by duration of the second stage of labor. The *closed squares* represent third- or fourth-degree lacerations; the *closed pyramids* represent postpartum hemorrhage; the *closed diamonds* represent chorioamnionitis; the *closed circles* represent endomyometritis.

Table II Length of second stage labor as a predictor of maternal and neonatal outcomes						
Outcome	Completed hours of second-stage labor*		> 3 Hours of second-stage labor†		> 4 Hours of second-stage labor‡	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
Endomyometritis§	1.06	0.91-1.24	1.03	0.67-1.61	0.79	0.49-1.26
Chorioamnionitis§	1.38¶	1.29-1.47¶	2.14¶	1.80-2.57¶	1.79¶	1.44-2.22¶
3/4-Degree lacerations§¶	1.11¶	1.04-1.19¶	1.16	0.97-1.39	1.33¶	1.07-1.67¶
Postpartum hemorrhage§¶	1.16¶	1.09-1.24¶	1.48¶	1.24-1.78¶	1.05¶	0.84-1.31¶
Cesarean delivery	2.01¶	1.83-2.20¶	5.84¶	4.63-7.37¶	5.65¶	4.46-7.16¶
Operative vaginal delivery	1.74¶	1.65-1.83¶	4.38¶	3.82-5.03¶	2.83¶	2.38-3.36¶
Meconium	1.07¶	1.02-1.12¶	1.15	0.98-1.31	1.11	0.93-1.33
5-min Apgar <7§	0.94	0.82-1.08	0.73	0.48-1.11	0.45¶	0.25-0.84¶
Umbilical artery pH <7§	1.04	0.74-1.46	1.21	0.45-3.29	1.52	0.53-4.43
Base excess <-12§	0.96	0.79-1.18	0.61	0.32-1.16	0.52	0.21-1.27
Neonatal intensive care unit admittance§	1.02	0.90-1.17	1.07	0.72-1.58	0.59	0.35-1.03

* The odds ratio indicates the difference in the rate of the outcome by increasing 1 hour in the second stage of labor, controlling for confounders: maternal age, weight, ethnicity, education, year of delivery, length of first stage of labor, epidural anesthesia, birth weight, and fetal position at delivery.

† Compared with patients who were delivered at <3 hours of second-stage labor.

‡ Compared with patients who were delivered at <4 hours of second-stage labor.

§ Also controlled for mode of delivery.

¶ Statistically significant with *P* < .05.

¶ Also controlled for use of episiotomy and operative vaginal delivery.

Neonatal and Maternal Outcomes With Prolonged Second Stage of Labor

S. Katherine Laughon, MD, MS, Vincenzo Berghella, MD, Uma M. Reddy, MD, MPH, Rajeshwari Sundaram, PhD, Zhaohui Lu, MS, and Matthew K. Hoffman, MD, MPH

American College of Obstetricians and Gynecologists



VOL. 124, NO. 1, JULY 2014

Morbidade materna: hemorragia pós-parto; transfusão sangue; histerectomia; endometrite ou admissão em UTI

Análise de registros eletrônicos de 19 hospitais americanos (2002–2008)
43.810 nulíparas e 59.605 multiparas feto único > 36 sem
vertex com 10cm dilatação

2º período prolongado: **nulíparas com epidural > 3 h ou > 2h sem epidural**
multiparas com epidural > 2h ou > 1h sem epidural

Morbidade Neonatal: distócia ombro; Apgar5ºmin < 4; CPAP ou mais; admissão UTI Neo; sepse; pneumonia; encefalopatia hipóxico-isquêmica ou leucomalácia periventricular, convulsão; hemorragia intracraniana ou periventricular; asfixia ou morte perinatal

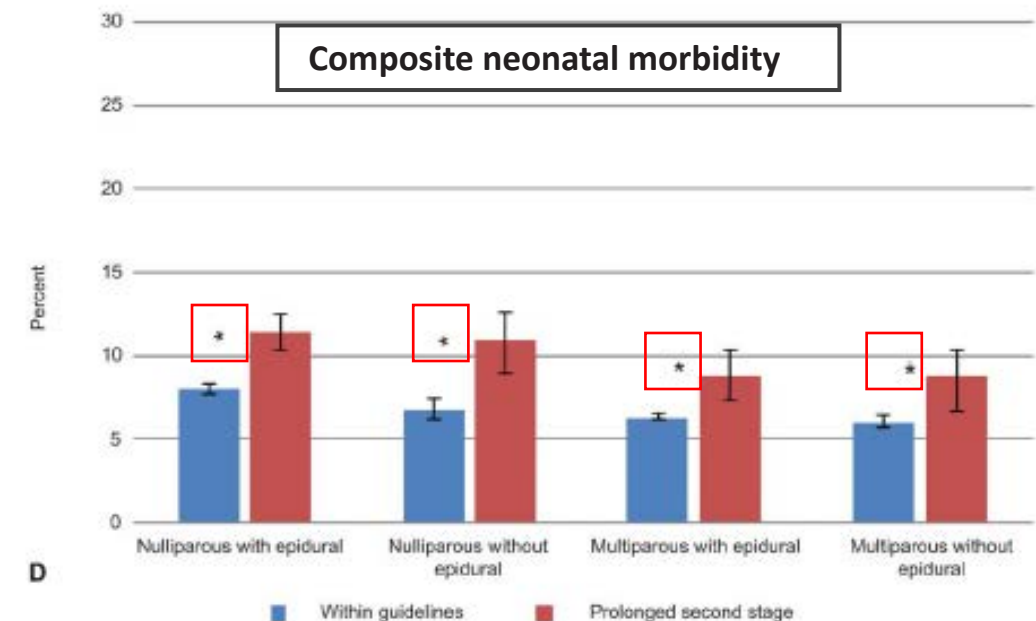
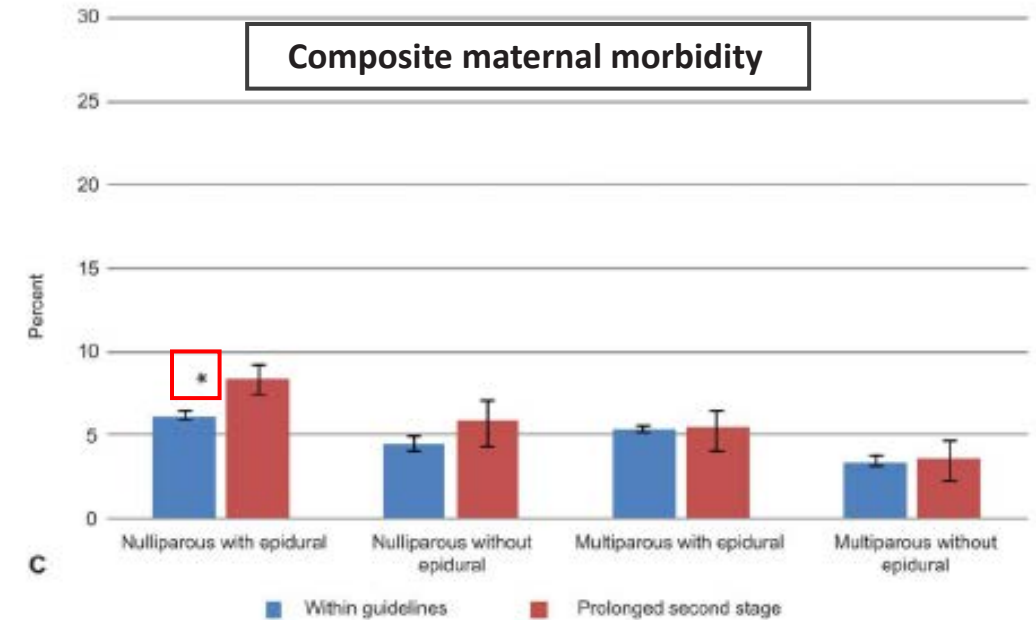


Table 3. Maternal and Neonatal Outcomes According to Duration of Second Stage in Nulliparous Women by Epidural Status

Outcome	Nulliparous With Epidural		P
	Within Guidelines 0 to 3 h or Less	Prolonged Second Stage Greater Than 3 h	
n	32,124 (90.1)	3,533 (9.9)	
Maternal outcomes			
↑ Endometritis	120 (0.4)	42 (1.2)	<.001
↑ Postpartum hemorrhage	1,203 (3.7)	207 (5.9)	<.001
Cesarean hysterectomy	7 (0.02)	1 (0.03)	.807
ICU admission	114 (0.5)	5 (0.2)	.048
Transfusion	1,003 (4.7)	99 (4.4)	.508
Chorioamnionitis	1,285 (4.0)	392 (11.1)	<.001
Wound infection	48 (0.2)	5 (0.2)	.859
Wound separation	5 (0.02)	5 (0.2)	<.001
↑ Episiotomy (%)	12,313 (38.3)	1,193 (33.8)	<.001
3rd- or 4th-degree perineal laceration	1,863 (5.8)	358 (10.1)	<.001
Cervical laceration	265 (0.8)	20 (0.6)	.103
Hospital length of stay (d)	2 (2, 3)	3 (2, 4)	<.001
Neonatal outcomes			
Shoulder dystocia	449 (1.5)	63 (1.9)	.056
↑ 5-min Apgar score less than 4	66 (0.2)	18 (0.5)	<.001
Need for CPAP or greater	322 (1.0)	44 (1.2)	.175
↑ NICU admission	1,892 (5.9)	288 (8.2)	<.001
Sepsis	395 (1.2)	92 (2.6)	<.001
Pneumonia	231 (0.7)	24 (0.7)	.790
Hypoxic-ischemic encephalopathy or periventricular leukomalacia	5 (0.02)	0 (0)	
Seizure	35 (0.1)	4 (0.1)	.942
Intracranial hemorrhage or periventricular hemorrhage	50 (0.2)	6 (0.2)	.840
↑ Asphyxia	47 (0.1)	11 (0.3)	.024
Perinatal mortality	10 (0.03)	0 (0)	
NICU length of stay (d)	3.3 (1, 9)	3.0 (1, 9)	.679
Cesarean delivery indication			
↓ Dystocia or cephalopelvic disproportion	406 (60.5)	616 (86.9)	<.001
↓ Nonreassuring fetal heart rate tracing	237 (35.3)	51 (7.2)	<.001

OR, odds ratio; CI, confidence interval; ICU, intensive care unit; CPAP, continuous positive airway pressure; NICU, neonatal intensive care unit.

Data are n (%) or median (10th, 90th percentiles) unless otherwise specified.

Maternal and neonatal composite outcomes include variables listed subsequently. Postpartum hemorrhage defined as estimated blood loss greater than 500 mL for vaginal delivery and greater than 1,000 mL for cesarean delivery. Analyses adjusted for maternal race or ethnicity, body mass index, insurance, and region. Some analyses had too few numbers to calculate adjusted odds ratios.

2º período prolongado = duração > recomendado ACOG/SMFM
 nulíparas > 3h com epidural ou > 2h sem epidural
 múltípara > 2h com epidural ou > 1h sem epidural

Neonatal and Maternal Outcomes With Prolonged Second Stage of Labor

S. Katherine Laughon, MD, MS, Vincenzo Berghella, MD, Uma M. Reddy, MD, MPH, Rajeshwari Sundaram, PhD, Zhaohui Lu, MS, and Matthew K. Hoffman, MD, MPH

Duração prolongada do 2º período está associada à alta taxa de parto vaginal mas pode ser fator de risco independente para morbidade neonatal séria

- ▶ Não há informação sobre esforço expulsivo ser ativo ou adiado
- ▶ Não há informação sobre os desfechos longo prazo como incontinência urinária e retardo de desenvolvimento neurológico infantil
- ▶ Benefícios do parto vaginal devem ser pesados contra aumento no risco materno e neonatal quando a duração do 2º período excede o recomendado pela ACOG/SMFM

nulíparas > 3h com epidural e até 3h sem epidural
multíparas > 2h com epidural e até 2h sem epidural

Immediate Compared With Delayed Pushing in the Second Stage of Labor

A Systematic Review and Meta-Analysis

Methodius G. Tuuli, MD, MPH, Heather A. Frey, MD, Anthony O. Odibo, MD, MSCE,
George A. Macones, MD, MSCE, and Alison G. Cahill, MD, MSCI

Outcome	No. of Studies	Study Group		Measure of Effect	Effect Size (95% CI)	Heterogeneity	
		Delayed Pushing	Immediate Pushing			I ²	P
Spontaneous vaginal delivery							
All studies	12	968/1,573 (61.5)	868/1,526 (56.9)	Pooled RR (random)	1.09 (1.03–1.15)	0	.45
High quality	9	823/1,394 (59.0)	733/1,336 (54.9)	Pooled RR (random)	1.07 (0.98–1.16)	13.6	.32
Low quality	3	145/179 (81.0)	135/190 (71.0)	Pooled RR (random)	1.13 (1.02–1.24)	0	.52
Cesarean delivery	10	77/1,573 (4.9)	89/1,526 (5.8)	Pooled RR (random)	0.85 (0.63–1.14)	0	.65
Instrumental delivery	12	530/1,573 (33.7)	571/1,526 (37.4)	Pooled RR (random)	0.89 (0.76–1.06)	36.5	.10
Duration of second stage	12	1,559	1,509	Weighted mean difference (min) (random)	56.92 (42.19–71.64)	90.6	<.001
Duration of pushing	12	1,559	1,510	Weighted mean difference (min) (random)	–21.98 (–31.29 to –12.68)	87.5	<.001

CI, confidence interval; RR, relative risk.
Data are n/N (%) unless otherwise specified.

Immediate Compared With Delayed Pushing in the Second Stage of Labor

A Systematic Review and Meta-Analysis

*Methodius G. Tuuli, MD, MPH, Heather A. Frey, MD, Anthony O. Odibo, MD, MSCE,
George A. Macones, MD, MSCE, and Alison G. Cahill, MD, MSCI*

Revisão sistemática: esforço expulsivo adiado
vs
esforço imediato no 2º período

índices similares de parto vaginal espontâneo (estudos de alta qualidade)

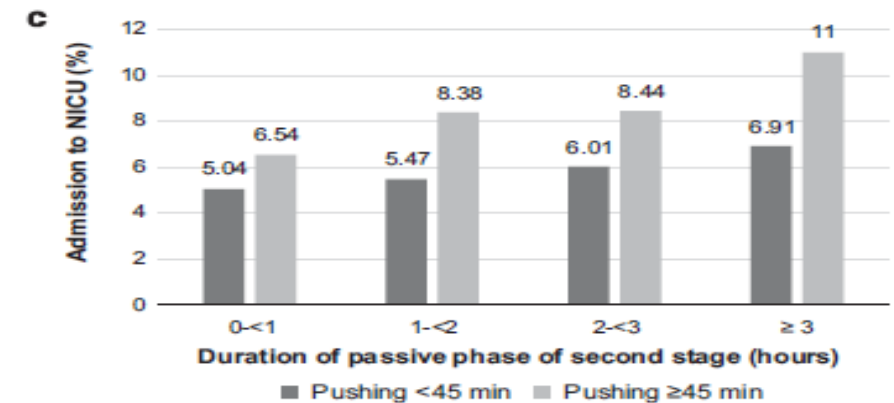
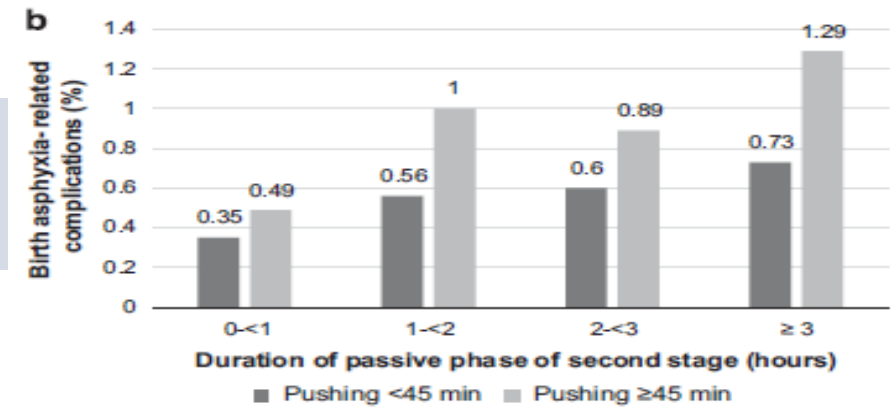
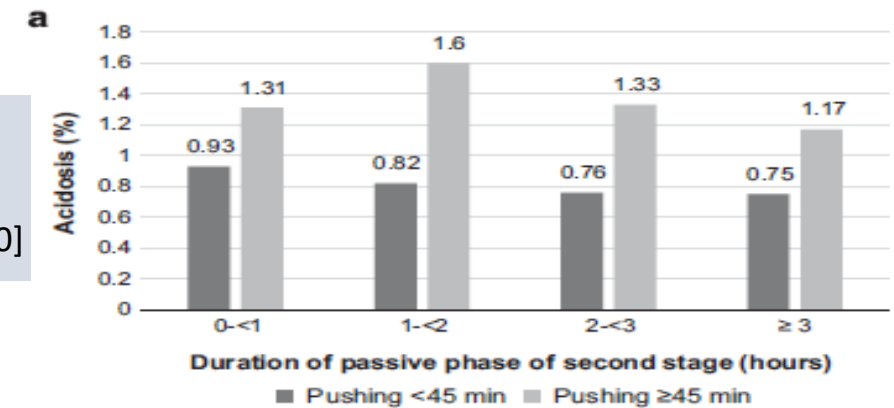
O maior estudo mostrou aumento na taxa de pH de cordão anormal
no grupo de esforço adiado vs esforço imediato

4,5% vs 1,8% **RR 2,45 [1,35– 4,43]**

pH arterial < 7,10 ou pH venoso < 7,15

OPEN

Acidose neonatal aumenta com o tempo de esforço expulsivo
15 min – 0,57%
≥ 60 min – 1,69% **RRa 2,55** [1,51 – 4,30]



Complicações de **asfixia no parto** aumentam gradualmente com duração 2º período
0,42% – 1h
1,29% ≥ 4h **RRa 2,46** [1,66 – 3,66]

Admissão UTI neo 4,97% – 1h
9,45% ≥ 4h **RRa 1,80** [1,58 – 2,04]

Duração do 2º período e do esforço expulsivo (pushing) associam-se a aumento de desfechos adversos neonatais

avaliação BEF é essencial quando aumenta duração do 2º período e esforço expulsivo

ORIGINAL ARTICLE

Durations of second stage of labor and pushing, and adverse neonatal outcomes: a population-based cohort study

A Sandström^{1,2}, M Altman^{1,3}, S Cnattingius¹, S Johansson^{1,4}, M Ahlberg^{1,5} and O Stephansson^{1,2}

OBSTETRICS

When to stop pushing: effects of duration of second-stage expulsion efforts on maternal and neonatal outcomes in nulliparous women with epidural analgesia

Camille Le Ray, MD, MSc; François Audibert, MD, MSc; François Goffinet, MD, PhD; William Fraser, MD, MSc

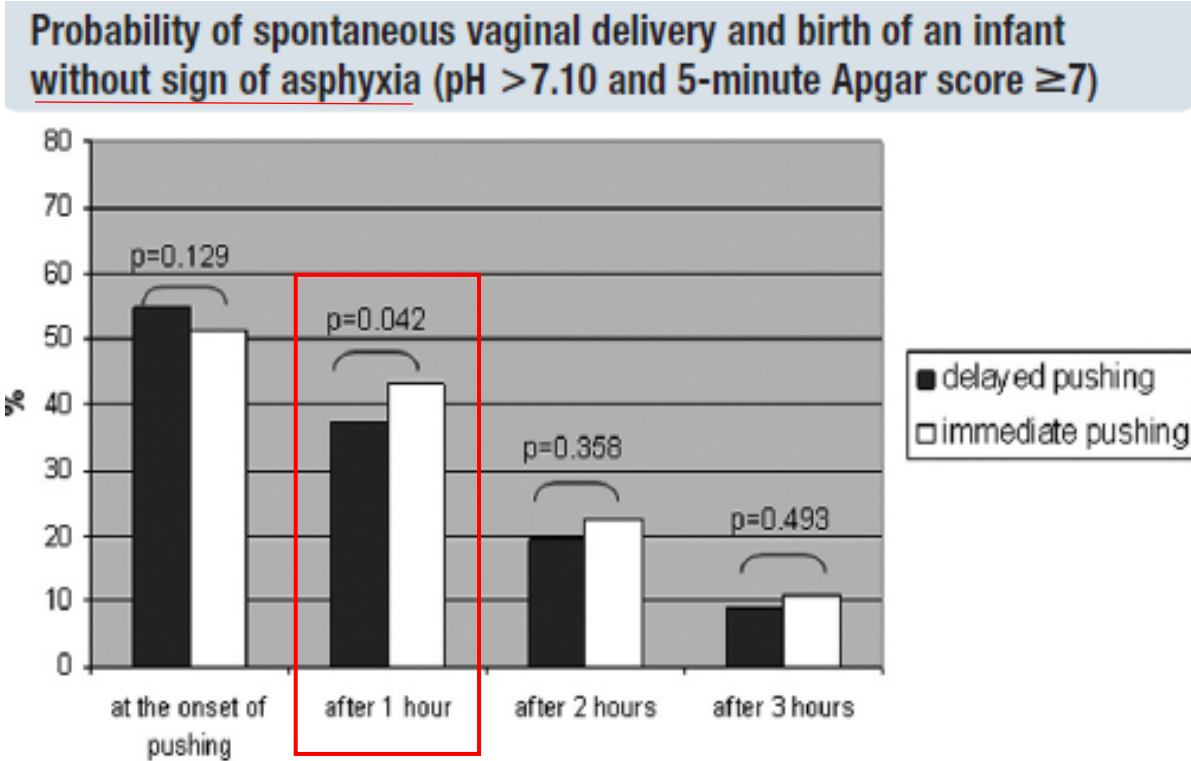
Maternal and neonatal outcomes according to pushing duration: univariable and multivariable analysis, with the use of logistic regression models

Outcome	1–2 h		2–3 h		>3 h	
	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI) ^a	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI) ^a	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI) ^a
Primary outcome: spontaneous vaginal delivery of an infant without a sign of asphyxia	0.4 (0.3–0.6)	0.4 (0.3–0.6)	0.1 (0.09–0.2)	0.1 (0.09–0.2)	0.03 (0.02–0.05)	0.03 (0.02–0.05)
Operative delivery	2.3 (1.8–3.0)	2.3 (1.7–3.0)	9.3 (6.9–12.5)	9.0 (6.5–12.3)	32.9 (21.0–51.6)	31.0 (19.3–50.0)
Postpartum hemorrhage	1.6 (1.1–2.3)	1.2 (0.8–1.8)	2.6 (1.8–3.9)	1.6 (1.0–2.5)	4.9 (3.3–7.4)	2.5 (1.5–4.1)
Third- and 4th-degree perineal tear ^b	1.3 (0.8–2.1)	1.0 (0.6–1.6)	2.5 (1.6–3.9)	1.2 (0.7–2.0)	2.9 (1.8–4.7)	1.7 (0.9–3.0)
Intrapartum fever	2.0 (1.1–3.4)	1.8 (1.0–3.2)	2.8 (1.6–5.0)	2.1 (1.1–4.0)	4.1 (2.3–7.3)	2.7 (1.3–5.5)
5-minute Apgar score <7	1.7 (0.5–5.2)	1.1 (0.3–3.6)	1.0 (0.2–4.3)	0.4 (0.1–2.1)	2.1 (0.6–7.9)	0.7 (0.1–3.5)
Arterial pH ≤7.10	1.5 (0.8–2.7)	1.6 (0.8–3.0)	0.5 (0.2–1.2)	0.4 (0.1–1.3)	0.4 (0.1–1.3)	0.2 (0.1–1.1)
Neonatal trauma	1.3 (0.8–2.1)	1.2 (0.7–2.0)	2.2 (1.4–3.6)	1.5 (0.8–2.6)	2.5 (1.5–4.1)	1.7 (0.9–3.3)
Admission in neonatal intensive care unit	1.2 (0.7–2.2)	1.1 (0.6–2.0)	2.1 (1.2–3.7)	1.5 (0.8–3.0)	2.6 (1.5–4.9)	1.5 (0.7–3.3)

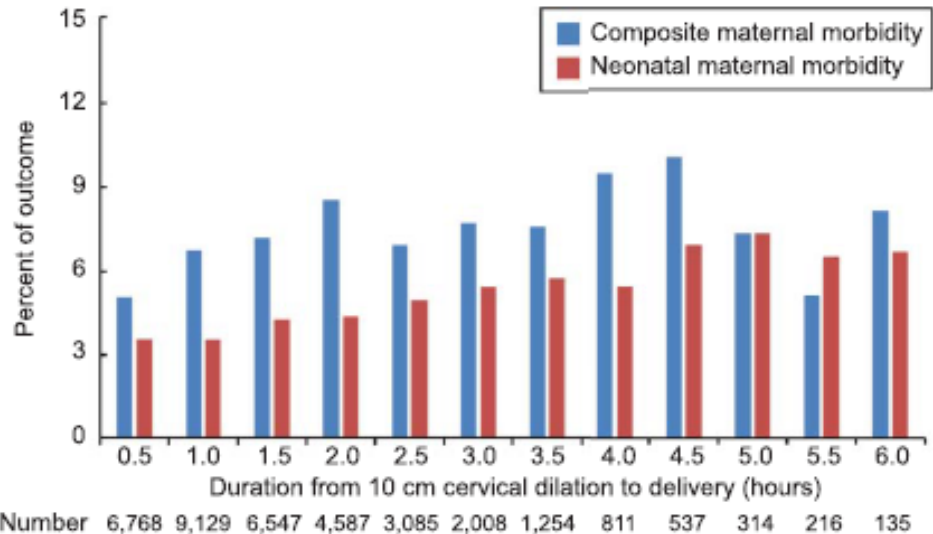
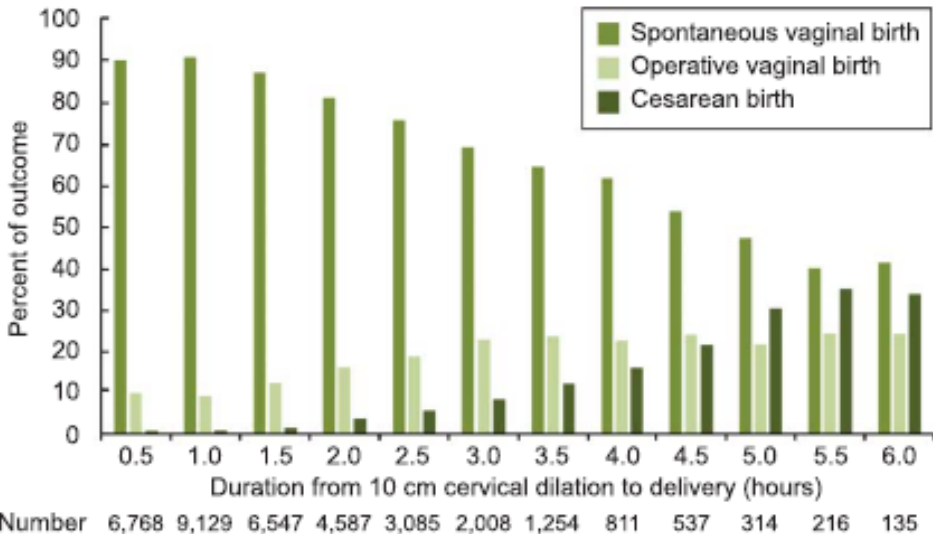
Reference: pushing duration <1 hour.
CI, confidence interval.
^a Adjustment: maternal age, gestational age, ethnic origin, body mass index at the admission, birthweight, position of the fetal head at full dilation, group of randomization (early or late pushing), mode of delivery (except for the primary outcome and operative delivery); ^b adjustment also on episiotomy and its technique (median or mediolateral).
Le Ray. Expulsion efforts in nulliparous women with epidural analgesia. Am J Obstet Gynecol 2009.

Análise secundária das participantes do PEOPLE trial
(Pushing Early Or Pushing Late with Epidural)

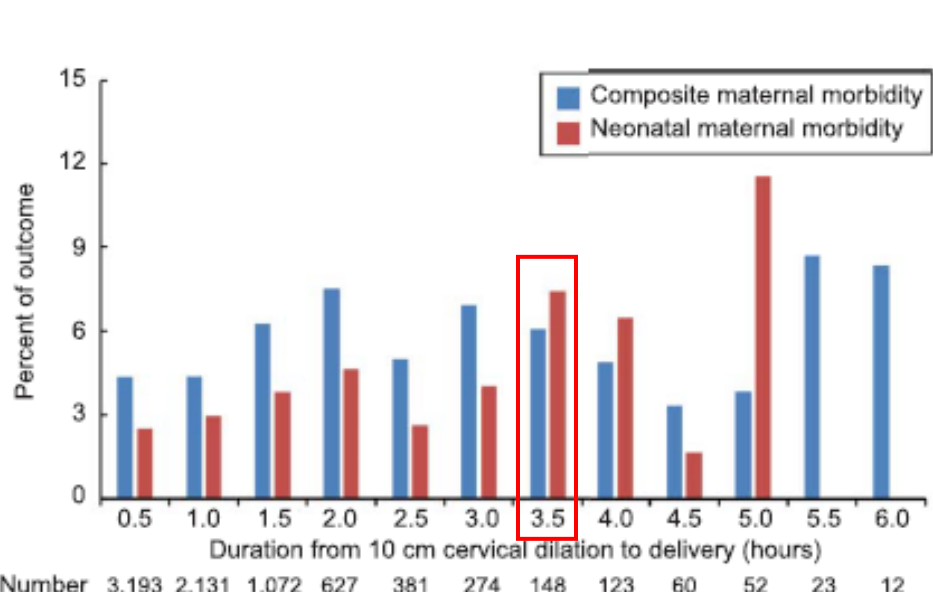
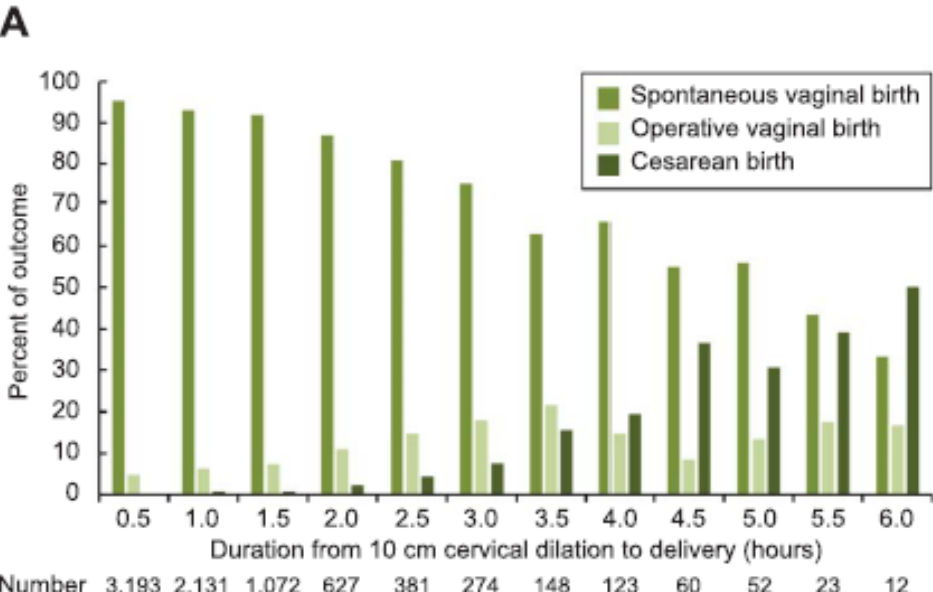
1.862 nulíparas a termo no 2º período; feto único, cefálico



Reassessing the Duration of the Second Stage of Labor in Relation to Maternal and Neonatal Morbidity



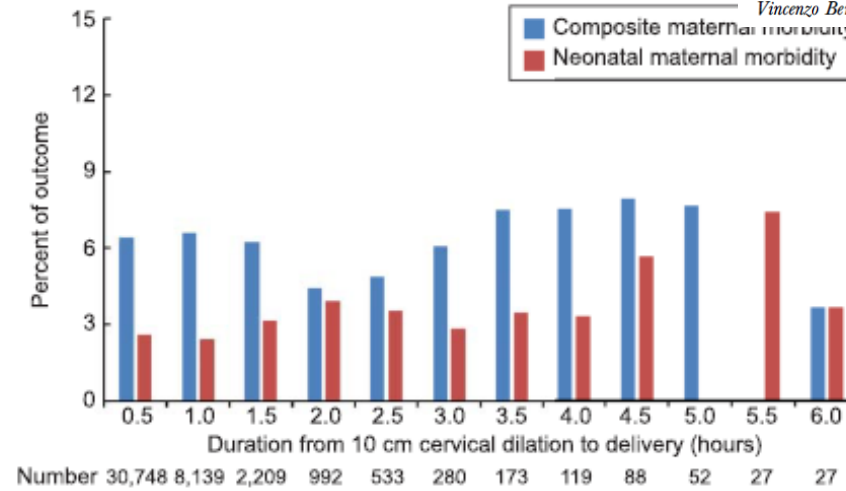
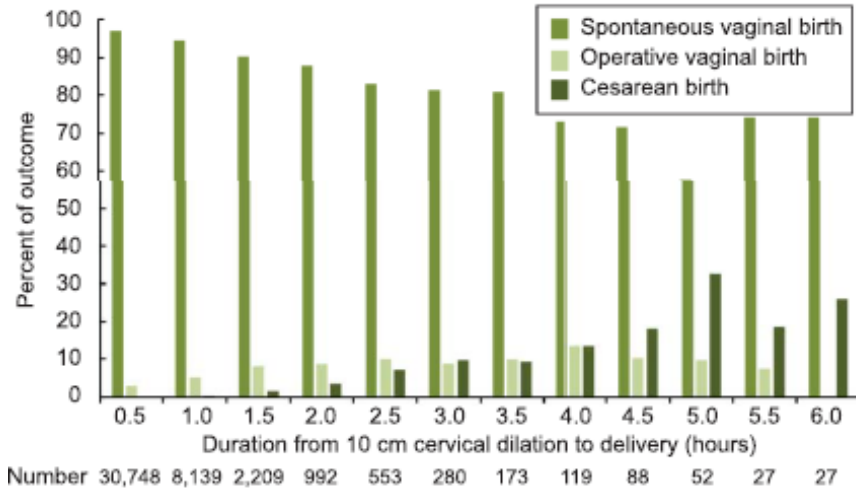
nulíparas epidural
n= 35.657



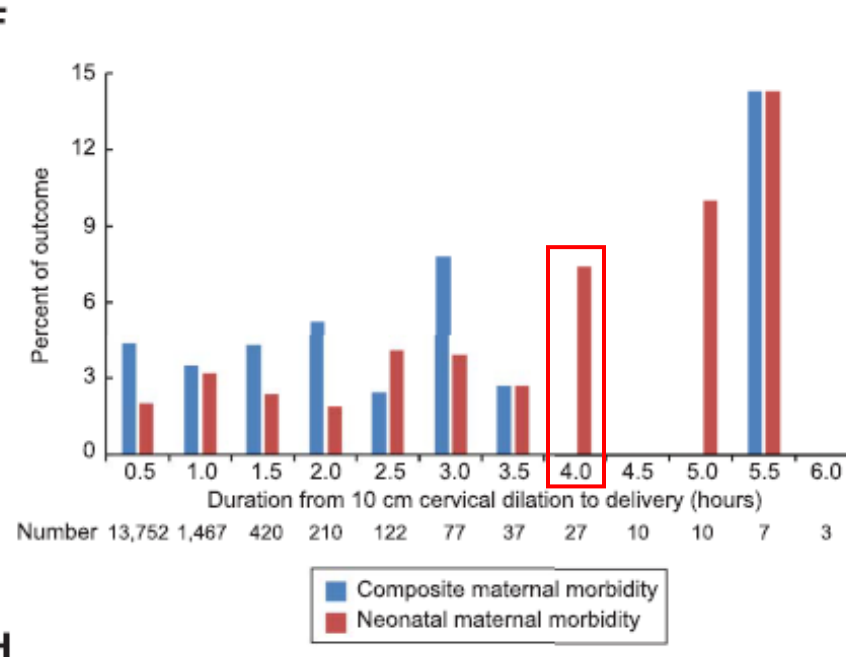
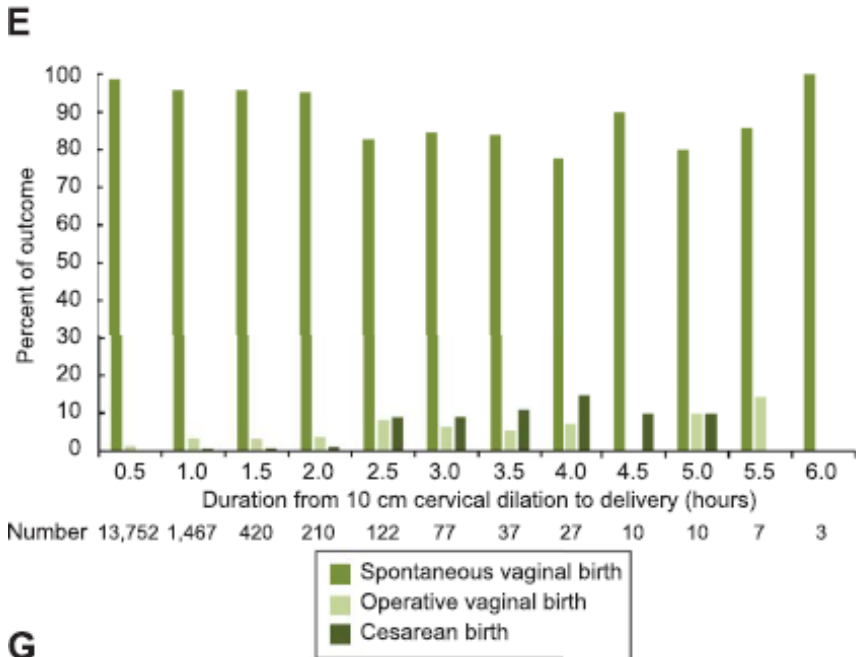
sem epidural
n= 8.153

Reassessing the Duration of the Second Stage of Labor in Relation to Maternal and Neonatal Morbidity

Katherine L. Grantz, MD, MS, Rajeshwari Sundaram, PhD, Ling Ma, PhD, Stefanie Hinkle, PhD, Vincenzo Berghella, MD, Matthew K. Hoffman, MD, MPH, and Uma M. Reddy, MD, MPH



multíparas com epidural
n= 43.436



sem epidural
n= 16.169

Reassessing the Duration of the Second Stage of Labor in Relation to Maternal and Neonatal Morbidity

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Dados são limitados (apesar do n) para auxiliar na decisão em alongar o 2º período além do recomendado pela ACOG/SMFM

Fatores adicionais	progresso na descida e altura da apresentação variedade de posição peso fetal estimado fadiga materna presença de corioamnionite ou mecônio cardiotocografia	devem ser considerados individualmente
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Não é possível recomendar uma duração segura do 2º período



A multicentre, randomised controlled trial of position during the late stages of labour in nulliparous women with an epidural: clinical effectiveness and an economic evaluation (BUMPES)

The BUMPES study

TABLE 5 Primary outcome: SVB

Outcome	Trial arm		Adjusted* RR (95% CI)
	Upright (N= 1556), n (%)	Lying down (N= 1537), n (%)	
SVB	548 (35.2)	632 (41.1)	0.86 (0.78 to 0.94)
Missing	1	0	–

TABLE 6 Adjusted analysis for the primary outcome

Primary outcome	Adjusted RR (95% CI)
Full model: ^a adjusting for maternal age, ethnicity, diagnosis of delay and onset of labour	0.86 (0.79 to 0.94)
^a Model adjusts for centre as a random effect.	

ECR 3.236 mulheres (41 centros) ≥ 16 anos; ≥37 sem; feto único cefálico; 2º período com epidural

Intervenção: **decúbito lateral vs posição verticalizada no 2º período parto**

Resultados: **✓ parto vaginal espontâneo decúbito lateral 41,1% vs 35,2% verticalizado**
RRa 0,86 [0,78-0,94]

✓ sem diferença nos desfechos neonatais e maternos secundários
nem nos desfechos de 12 meses (α=0,01)

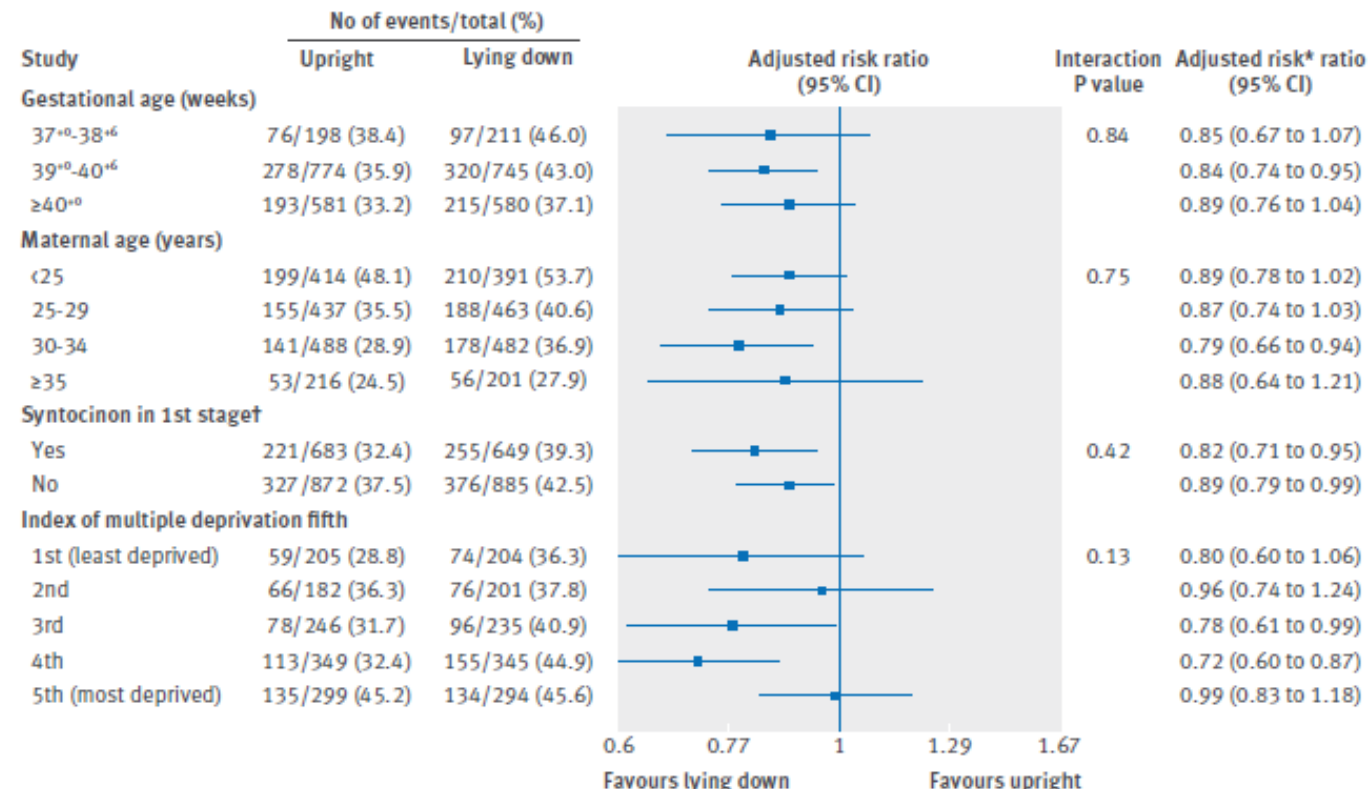


Fig 3 | Forest plot showing results of subgroup analyses for spontaneous vaginal birth. All models adjust for centre as a random effect. †Diagnosis of delay before study entry requiring syntocinon



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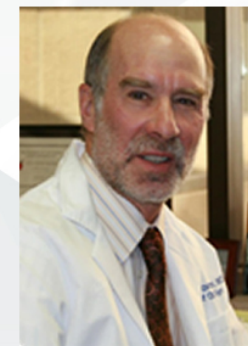
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