VAGINAL BIRTH AFTER PREVIOUS LOW-SEGMENT CAESAREAN SECTION GRADE TABLES

GRADE TABLE 1: PLANNED VBAC COMPARED TO ERCS AFTER ONE PREVIOUS CS (RCT DATA)

Bibliography: Dodd JM, Crowther CA, Huertas E, Guise J-M, Horey D. Planned elective repeat caesarean section versus planned vaginal birth for women with a previous caesarean birth. Cochrane database Syst Rev. 2013 Dec 10;(12):CD004224.

Certainty assessment							Summary of findings				
							Study event rates (%)			Anticipated absolute effects	
Participants (studies) Follow up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	With ERCS	With Planned VBAC	Relative effect (95% CI)	Risk with ERCS	Risk difference with Planned VBAC
Mortality or serious maternal morbidity											
22 (1 RCT)	not serious	not serious	not serious	serious [a]	none	⊕⊕⊕◯ MODERATE	0/10 (0.0%)	0/12 (0.0%)	not estimable	0 per 1,000	
Mortality or serious infant morbidity											
22 (1 RCT)	not serious	not serious	not serious	serious [a]	none	⊕⊕⊕◯ MODERATE	0/10 (0.0%)	0/12 (0.0%)	not estimable	0 per 1,000	
Uterine rupture											
22 (1 RCT)	not serious	not serious	not serious	serious [a]	none	⊕⊕⊕◯ MODERATE	0/10 (0.0%)	0/12 (0.0%)	not estimable	0 per 1,000	
Haemorrhage or need for blood transfusion											
22 (1 RCT)	not serious	not serious	not serious	very serious [b]	none	⊕⊕◯◯ LOW	2/10 (20.0%)	2/12 (16.7%)	**RR 1.20** (0.20 to 7.05)	200 per 1,000	**40 more per 1,000** (from 160 fewer to 1,000 more)
Hysterectomy											
22 (1 RCT)	not serious	not serious	not serious	serious [a]	none	⊕⊕⊕◯ MODERATE	0/10 (0.0%)	0/12 (0.0%)	not estimable	0 per 1,000	
Apgar score < 7 at 5 minutes											
22 (1 RCT)	not serious	not serious	not serious	serious [a]	none	⊕⊕⊕◯ MODERATE	0/10 (0.0%)	0/12 (0.0%)	not estimable	0 per 1,000	

Explanations

a. Imprecision was rated as serious due to small sample sizes.

b. Imprecision was rated very serious due to small sample sizes and a large confidence interval that crosses the null.

GRADE TABLE 2: PLANNED VBAC COMPARED TO ERCS AFTER ONE PREVIOUS CS (OBSERVATIONAL DATA)

Bibliography: Crowther CA, Dodd JM, Hiller JE, Haslam RR, Robinson JS. Planned Vaginal Birth or Elective Repeat Caesarean: Patient Preference Restricted Cohort with Nested Randomised Trial. Smith GC, editor. PLoS Med.2012 Mar 13;9(3):e1001192; **Gilbert SA**, Grobman WA, Landon MB, Spong CY, Rouse DJ, Leveno KJ, et al. Elective repeat cesarean delivery compared with spontaneous trial of labor after a prior cesarean delivery: a propensity score analysis. Am J Obstet Gynecol. 2012 Apr; 206(4):311.e1-311.e9; **Kok N**, Ruiter L, Lindeboom R, de Groot C, Pajkrt E, Mol BW, et al. Elective repeat cesarean delivery compared with trial of labor after a prior cesarean delivery: a propensity score analysis. Eur J Obstet Gynecol Reprod Biol. 2015 Dec;195:214–8; **Studsgaard A**, Skorstengaard M, Glavind J, Hvidman L, Uldbjerg N. Trial of labor compared to repeat cesarean section in women with no other risk factors than a prior cesarean delivery. Acta Obstet Gynecol Scand. 2013 Nov; 92(11):1256–63; **Loebel G**, Zelop CM, Egan JFX, Wax J. Maternal and neonatal morbidity after elective repeat Cesarean delivery versus a trial of labor after previous Cesarean delivery in a community teaching hospital. J Matern Fetal Neonatal Med. 2004 Apr;15(4):243–6; **Gregory KD**, Korst LM, Fridman M, Shihady I, Broussard P, Fink A, et al. Vaginal birth after cesarean: clinical risk factors associated with adverse outcome. Am J Obstet Gynecol. 2008;198(4):410–52; **Obara H**, Minakami H, Koike T, Takamizawa S, Matsubara S, Sato I. Vaginal birth after cesarean delivery: results in 310 pregnancies. J Obstet Gynaecol Res. 1998 Apr;24(2):129–34; **Tan PC**, Subramaniam RN, Omar SZ. Labour and perinatal outcome in women at term with one previous lower-segment Caesarean: a review of 1000 consecutive cases. Aust N Z J Obstet Gynaecol. 2007 Feb;47(1):31–6; **Litwin CE**, Czuzoj-Shulman N, Zakhari A, Abenhaim HA. Neonatal outcomes following a trial of labor after Caesarean delivery: a population-based study. J Matern Neonatal Med. 2018 Aug 18;31(16):2148–54. **O'Neill SM**, Agerbo E, Khashan AS, Kearney PM, Henriksen TB, Greene RA, et al. Trial of labour after caesarean section and the risk of neonatal and infant death: a nationwide cohort study. BMC Pregnancy Childbirth. 2017 Dec 27;17(1):74.

Certainty assessment							Summary of findings				
Participants (studies) Follow up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	Study event rates (%)		Relative effect (95% CI)	Anticipated absolute effects	
							With ERCS	With Planned VBAC		Risk with ERCS	Risk difference with Planned VBAC
Birthing parent mortality											
41129 (5 observational studies)	serious [a]	not serious	not serious	serious [b]	none	⊕◯◯◯ VERY LOW	2/26490 (0.0%)	0/14639 (0.0%)	**RR 0.53** (0.05 to 5.08)	0 per 1,000	**0 fewer per 1,000** (from 0 fewer to 0 fewer)
Neonatal mortality											
52130 (8 observational studies)	serious [a]	not serious	not serious	not serious	none	⊕◯◯◯ VERY LOW	13/31453 (0.0%)	26/20677 (0.1%)	**RR 2.61** (1.33 to 5.11)	0 per 1,000	**1 more per 1,000** (from 0 fewer to 2 more)
Uterine rupture											
44168 (7 observational studies)	serious [c]	not serious	not serious	not serious	none	⊕◯◯◯ VERY LOW	32/27472 (0.1%)	101/16696 (0.6%)	**RR 4.30** (2.87 to 6.44)	1 per 1,000	**4 more per 1,000** (from 2 more to 6 more)
Hysterectomy											
40721 (5 observational studies)	serious [c]	serious [d]	not serious	serious [b]	none	⊕◯◯◯ VERY LOW	35/26241 (0.1%)	28/14480 (0.2%)	**RR 1.29** (0.81 to 2.03)	1 per 1,000	**0 fewer per 1,000** (from 0 fewer to 1 more)

Neonatal infection

46714 (4 observational studies)	serious [a]	not serious	not serious	not serious	none	⊕◯◯◯ VERY LOW	333/29405 (1.1%)	351/17309 (2.0%)	**RR 1.40** (1.07 to 1.83)	11 per 1,000	**5 more per 1,000** (from 1 more to 9 more)

Transfusion

39752 (4 observational studies)	serious [c]	not serious	not serious	serious [b]	none	⊕◯◯◯ VERY LOW	104/25656 (0.4%)	102/14096 (0.7%)	**RR 1.21** (1.05 to 1.40)	4 per 1,000	**1 more per 1,000** (from 0 fewer to 2 more)

Apgar score < 7 at 5 minutes

11990 (4 observational studies)	serious [a,e]	not serious	not serious [f]	not serious	none	⊕◯◯◯ VERY LOW	37/5575 (0.7%)	118/6415 (1.8%)	**RR 2.93** (2.03 to 4.24)	7 per 1,000	**13 more per 1,000** (from 7 more to 22 more)

Birthing parent infection - Intrapartum

29126 (1 observational study)	serious [g]	not serious	serious [h]	not serious	none	⊕◯◯◯ VERY LOW	762/20834 (3.7%)	482/8292 (5.8%)	**RR 1.59** (1.42 to 1.78)	37 per 1,000	**22 more per 1,000** (from 15 more to 29 more)

Birthing parent infection - Postpartum

11693 (3 observational studies)	serious [i]	not serious	not serious	not serious	none	⊕◯◯◯ VERY LOW	100/5560 (1.8%)	170/6133 (2.8%)	**RR 1.44** (0.98 to 2.12)	18 per 1,000	**8 more per 1,000** (from 0 fewer to 20 more)

Transient tachypnea of the newborn

8411 (1 observational study)	not serious	not serious	not serious	serious [b]	none	⊕◯◯◯ VERY LOW	130/4117 (3.2%)	121/4294 (2.8%)	**RR 0.90** (0.70 to 1.16)	32 per 1,000	**3 fewer per 1,000** (from 9 fewer to 5 more)

Respiratory distress syndrome

1083268 (5 observational studies)	serious [j]	serious [k]	not serious	serious [b]	none	⊕◯◯◯ VERY LOW	4761/884393 (0.5%)	542/198875 (0.3%)	**RR 0.59** (0.26 to 1.36)	5 per 1,000	**2 fewer per 1,000** (from 4 fewer to 2 more)

Explanations

a. Risk of bias was rated serious due to concerns regarding a lack of adjustment for potential confounders in included studies, the selection of participants in study groups, and the classification of study participants.

b. Imprecision was rated serious due to the wide confidence intervals which crosses the null.

c. Risk of bias was rated serious due to concerns regarding lack of adjustment for potential confounders in included studies and the selection of participants in study groups (e.g., the planned VBAC group had a higher proportion of people who had previously delivered vaginally, which has the potential to increase one's likelihood of having a successful VBAC).
d. Inconsistency was rated serious as visual investigation of the forest plot suggests heterogeneity; roughly half of the studies preferred the control and other half preferred the experimental group; I^2 result was 70%.
e. Risk of bias was rated serious due to missing outcome data in one included study.
f. Indirectness was rated serious as the scar status was unknown/unclear for some included participants.
g. Risk of bias was rated serious due to concerns regarding adjustment for confounders, missing demographic information, and potential misclassification of study participants.
h. Indirectness was rated serious as the scar status of all included participants was unknown or unstated.
i. Risk of bias was rated serious due to unclear adjustment for confounders and differences between study groups.
j. Risk of bias was rated serious due to clear demographic differences between intervention groups; it is unclear if/which confounders were adjusted for in two of the included studies.
k. Inconsistency was rated serious as visual investigation of the forest plot suggests heterogeneity as confidence intervals overlap infrequently (I^2 = 98%).

GRADE TABLE 3: PLANNED VBAC COMPARED TO ERCS AFTER TWO OR MORE PREVIOUS CS

Bibliography: Phelan JP, Ahn MO, Diaz F, Brar HS, Rodriguez MH. Twice a cesarean, always a cesarean? Obstet Gynecol. 1989 Feb;73(2):161–5; **Spaans WA**, van V der, Roell-Schorer EA, Bleker OP, van RJ. Trial of labour after two or three previous caesarean sections. Vol. 110, European Journal of Obstetrics, Gynecology, & Reproductive Biology. 2003. p. 16–9; **Hansell RS**, McMurray KB, Huey GR. Vaginal birth after two or more cesarean sections: a five-year experience. Birth. 1990 Sep;17(3):146-50-1; **Macones G,** Cahill A, Pare E, Stamilio DM, Ratcliffe S, Stevens E, et al. Obstetric outcomes in women with two prior cesarean deliveries: is vaginal birth after cesarean delivery a viable option? Am J Obstet Gynecol. 2005 Apr;192(4):1223-8-9; **Granovsky-Grisaru S**, Shaya M, Diamant YZ. The management of labor in women with more than one uterine scar: is a repeat cesarean section really the only "safe" option? J Perinat Med. 1994;22(1):13–7; **Asakura H**, Myers SA. More than one previous cesarean delivery: a 5-year experience with 435 patients. Obstet Gynecol. 1995 Jun;85(6):924–9. Landon MB, Spong CY, Thom E, Hauth JC, Bloom SL, Varner MW, et al. Risk of uterine rupture with a trial of labor in women with multiple and single prior cesarean delivery. Obstet Gynecol. 2006 Jul;108(1):12–20.

Certainty assessment							Summary of findings				
Participants (studies) Follow up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	Study event rates (%)		Relative effect (95% CI)	Anticipated absolute effects	
							With ERCS	With Planned VBAC		Risk with ERCS	Risk difference with Planned VBAC
Uterine rupture											
12290 (5 observational studies)	serious [a]	serious [b]	not serious	serious [c]	none	⊕◯◯◯ VERY LOW	3/9671 (0.0%)	28/2619 (1.1%)	**RR 8.67** (0.63 to 119.21)	0 per 1,000	**2 more per 1,000** (from 0 fewer to 37 more)
Hysterectomy											
8533 (3 observational studies)	serious [a]	serious [d]	not serious	serious [e]	none	⊕◯◯◯ VERY LOW	37/6755 (0.5%)	9/1778 (0.5%)	**RR 0.52** (0.13 to 2.10)	5 per 1,000	**3 fewer per 1,000** (from 5 fewer to 6 more)
Blood transfusion											
11396 (4 observational studies)	serious [a]	serious [f]	not serious	serious [g]	none	⊕◯◯◯ VERY LOW	175/9245 (1.9%)	46/2151 (2.1%)	**RR 0.82** (0.31 to 2.13)	19 per 1,000	**3 fewer per 1,000** (from 13 fewer to 21 more)
Endometritris											
7256 (2 observational studies)	not serious	not serious	not serious	serious [g]	none	⊕◯◯◯ VERY LOW	132/6222 (2.1%)	31/1034 (3.0%)	**RR 1.43** (0.97 to 2.10)	21 per 1,000	**9 more per 1,000** (from 1 fewer to 23 more)
Perinatal mortality											
7445 (2 observational studies)	serious [a]	serious [h]	not serious	serious [i]	none	⊕◯◯◯ VERY LOW	3/6168 (0.0%)	3/1277 (0.2%)	**RR 1.37** (0.10 to 17.84)	0 per 1,000	**0 fewer per 1,000** (from 0 fewer to 8 more)

Birthing parent mortality

7256 (2 observational studies)	not serious	not serious	not serious	serious [g]	none	⊕◯◯◯ VERY LOW	1/6222 (0.0%)	0/1034 (0.0%)	**RR 2.06** (0.08 to 50.57)	0 per 1,000	**0 fewer per 1,000** (from 0 fewer to 8 more)

Explanations

a. Risk of bias was rated serious due to concerns about a lack of controlling for confounding variables.
b. Inconsistency was rated serious as heterogeneity in the meta-analysis was statistically significant (I^2 = 72%).
c. Given that uterine rupture is a rare outcome; large sample sizes with many event rates are required to be certain of the risk; because this study had few events, our confidence in this estimate is limited warranting a rating of serious imprecision.
d. Inconsistency was rated serious as heterogeneity in the meta-analysis was statistically significant studies (I^2 = 60).
e. Given that hysterectomy is a rare outcome, large sample sizes with many event rates are required in order to have precise results. Because this study had few events and the estimate of effect has a wide confidence interval that cross the null, our confidence in the estimate is limited warranting a rating of serious imprecision.
f. Inconsistency was rated serious as heterogeneity in the meta-analysis was statistically significant (I^2 = 82%).
g. Imprecision was rated serious as there are few events and a confidence interval that crosses the null.
h. Inconsistency was rated serious as heterogeneity in the meta-analysis was statistically significant (I^2 = 57%).
i. Perinatal mortality is a very rare outcome, many events are required to gather an understanding of the certainty of the risk of perinatal mortality when planning a VBAC after multiple CS. Because this study had few event rates, our confidence in this estimate is limited warranting a rating of serious imprecision.

GRADE TABLE 4: INDUCTION OF LABOUR COMPARED TO EXPECTANT MANAGEMENT DURING PLANNED VBAC

Bibliography: Lappen JR, Hackney DN, Bailit JL. Outcomes of term induction in trial of labor after cesarean delivery. In: Obstetrics and Gynecology. Lippincott Williams and Wilkins; 2015. p. 115–23.

Certainty assessment							Summary of findings				
							Study event rates (%)			Anticipated absolute effects	
Participants (studies) Follow up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	With Expectant Management	With Induction	Relative effect (95% CI)	Risk with Expectant Management	Risk difference with Induction
Caesarean section											
16000 (1 observational study)	not serious	not serious	not serious	not serious	none	⨁⨁◯◯ LOW	4794/14993 (32.0%)	462/1007 (45.9%)	**RR 1.43** (1.34 to 1.54)	320 per 1,000	**137 more per 1,000** (from 109 more to 173 more)
Birthing parent morbidity/mortality											
16000 (1 observational study)	not serious	not serious	not serious	not serious	none	⨁⨁◯◯ LOW	390/14993 (2.6%)	39/1007 (3.9%)	**RR 1.49** (1.08 to 2.06)	26 per 1,000	**13 more per 1,000** (from 2 more to 28 more)
Neonatal morbidity/mortality											
16000 (1 observational study)	not serious	not serious	not serious	serious [a]	none	⨁◯◯◯ VERY LOW	79/14993 (0.5%)	3/1007 (0.3%)	**RR 0.57** (0.18 to 1.79)	5 per 1,000	**2 fewer per 1,000** (from 4 fewer to 4 more)

Explanations

a. Imprecision was rated serious as there were less than 300 events in each group and the 95% CI of the risk ratio crossed the null and were not narrow indicating imprecise results.

GRADE TABLE 5: INDUCTION OF LABOUR COMPARED TO SPONTANEOUS LABOUR DURING PLANNED VBAC

Bibliography: Abreu-Silva J, Castro J, Maia C, Pinho M, Carvalho C. Trial of labour after caesarean section: Two-year analysis at a Portuguese centre. J Obstet Gynaecol (Lahore). 2017 Aug 18;37(6):704–8; **Ashwal E**, Hiersch L, Melamed N, Ben-Zion M, Brezovsky A, Wiznitzer A, et al. Pregnancy outcome after induction of labor in women with previous cesarean section. J Matern Fetal Neonatal Med. 2015 Mar 22;28(4):386–91; **Delaney T**, Young DC. Spontaneous versus induced labor after a previous cesarean delivery. Obstet Gynecol. 2003 Jul;102(1):39–44; **Kruit H**, Wilkman H, Tekay A, Rahkonen L. Induction of labor by Foley catheter compared with spontaneous onset of labor after previous cesarean section: a cohort study. J Perinatol. 2017; 37:787–92; **Shatz L**, Erez O, Novack L, Mazor M, Beer-Weisel R, Dukler D, et al. 310: Induction of labor after a prior cesarean delivery lessons from a population based study. Am J Obstet Gynecol. 2012 Jan;206(1):S148; **Schmitz T**, Pourcelot AG, Moutafoff C, Biran V, Sibony O, Oury JF. Cervical ripening with low-dose prostaglandins in planned vaginal birth after cesarean. PLoS One. 2013 Nov 19;8(11); **Thisted DLA**, Mortensen LH, Hvidman L, Krebs L. Operative technique at caesarean delivery and risk of complete uterine rupture in a subsequent trial of labour at term. A registry case-control study. PLoS One. 2017 Nov 1; 12(11); **Grobman WA**, Gilbert S, Landon MB, Spong CY, Leveno KJ, Rouse DJ, et al. Outcomes of induction of labor after one prior cesarean. Obstet Gynecol. 2007;109(2):t-9; **Zelop CM**, Shipp TD, Repke JT, Cohen A, Caughey AB, Lieberman E. Uterine rupture during induced or augmented labor in gravid women with one prior cesarean delivery. Am J Obstet Gynecol. 1999 Oct;181(4):882–6.

Certainty assessment							Summary of findings				
							Study event rates (%)			Anticipated absolute effects	
Participants (studies) Follow up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	With Spontaneous Labour	With Induction	Relative effect (95% CI)	Risk with Spontaneous Labour	Risk difference with Induction
Vaginal delivery											
25646 (6 observational studies)	serious [a]	not serious	not serious	not serious	none	⊕◯◯◯ VERY LOW	13869/18378 (75.5%)	4920/7268 (67.7%)	**RR 0.89** (0.85 to 0.93)	755 per 1,000	**83 fewer per 1,000** (from 113 fewer to 53 fewer)
Caesarean section											
6333 (3 observational studies)	not serious	not serious	not serious	not serious	none	⊕⊕◯◯ LOW	1302/5072 (25.7%)	473/1261 (37.5%)	**RR 1.45** (1.09 to 1.92)	257 per 1,000	**116 more per 1,000** (from 23 more to 236 more)
Instrumental/operative vaginal delivery											
4485 (3 observational studies)	serious [a]	not serious	not serious	serious [b]	none	⊕◯◯◯ VERY LOW	412/3768 (10.9%)	89/717 (12.4%)	**RR 1.05** (0.81 to 1.38)	109 per 1,000	**5 more per 1,000** (from 21 fewer to 42 more)
Uterine rupture											
31032 (9 observational studies)	serious [a]	not serious	not serious	not serious	none	⊕◯◯◯ VERY LOW	243/22740 (1.1%)	144/8292 (1.7%)	**RR 1.66** (1.39 to 1.98)	11 per 1,000	**7 more per 1,000** (from 4 more to 10 more)

Birthing parent mortality

1559 (1 observational study)	not serious	not serious	not serious	not serious	none	⊕⊕◯◯ LOW	0/1198 (0.0%)	0/361 (0.0%)	not estimable	0 per 1,000	

Perinatal mortality

5644 (2 observational studies)	serious [c]	not serious	not serious	serious [d]	none	⊕◯◯◯ VERY LOW	6/4582 (0.1%)	2/1062 (0.2%)	**RR 1.22** (0.25 to 6.04)	1 per 1,000	**0 fewer per 1,000** (from 1 fewer to 7 more)

Blood transfusion (birthing parent)

21363 (3 observational studies)	serious [e]	not serious	not serious	not serious	none	⊕◯◯◯ VERY LOW	181/15725 (1.2%)	94/5638 (1.7%)	**RR 1.36** (0.83 to 2.24)	12 per 1,000	**4 more per 1,000** (from 2 fewer to 14 more)

Intrapartum and postpartum infection

22922 (4 observational studies)	serious [f]	serious [g]	not serious	serious [b]	none	⊕◯◯◯ VERY LOW	438/16923 (2.6%)	218/5999 (3.6%)	**RR 1.71** (0.94 to 3.12)	26 per 1,000	**18 more per 1,000** (from 2 fewer to 55 more)

Apgar score < 7 at 5 minutes

10616 (5 observational studies)	serious [e]	not serious	not serious	serious [h]	none	⊕◯◯◯ VERY LOW	162/8184 (2.0%)	52/2432 (2.1%)	**RR 1.12** (0.81 to 1.54)	20 per 1,000	**2 more per 1,000** (from 4 fewer to 11 more)

Explanations

a. Risk of bias was rated serious due to concerns regarding a lack of adjustment for confounding factors for this outcome and significant differences between induction and spontaneous labour groups.
b. Imprecision was rated serious as the 95% confidence interval crossed the null.
c. Risk of bias was rated serious due to concerns regarding adjustment for confounding factors and significant differences between induction and spontaneous labour groups.
d. Given that perinatal mortality is a very rare outcome, large sample sizes with many event rates are required to be certain of the risk; because there were few events, our confidence in this estimate is limited warranting a rating of serious imprecision.
e. Risk of bias was rated serious due to significant differences between the induction and spontaneous labour groups.
f. Risk of bias was rated serious due to concerns regarding significant differences observed between groups and missing data.
g. Inconsistency was rated serious as visual investigation of the forest plot suggest heterogeneity (I^2 = 92%).
h. Imprecision was rated serious as there were few events and the 95% confidence interval crossed the null.

GRADE TABLE 6: AUGMENTATION OF LABOUR COMPARED TO SPONTANEOUS LABOUR DURING PLANNED VBAC

Bibliography: Macones GA, Peipert J, Nelson DB, Odibo A, Stevens EJ, Stamilio DM, et al. Maternal complications with vaginal birth after cesarean delivery: A multicenter study. Am J Obstet Gynecol. 2005 Nov; 193(5):1656–62; **Thisted DLA**, Mortensen LH, Hvidman L, Krebs L. Operative technique at caesarean delivery and risk of complete uterine rupture in a subsequent trial of labour at term. A registry case-control study. PLoS One. 2017 Nov 1;12(11); **Grylka-Baeschlin S**, Clarke M, Begley C, Daly D, Patricia H, Jane N, et al. Labour characteristics of women achieving successful vaginal birth after caesarean section in three European countries. Midwifery. 2019;74:36–43.

Certainty assessment							Summary of findings				
							Study event rates (%)			Anticipated absolute effects	
Participants (studies) Follow up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	With Spontaneous labour	With Augmentation	Relative effect (95% CI)	Risk with Spontaneous labour	Risk difference with Augmentation
Vaginal birth											
790 (1 observational study)	serious [a]	not serious	not serious	not serious	none	⊕◯◯◯ VERY LOW	405/541 (74.9%)	185/249 (74.3%)	**RR 0.99** (0.91 to 1.08)	749 per 1,000	**7 fewer per 1,000** (from 67 fewer to 60 more)
Uterine rupture											
943 (2 observational studies)	serious [b]	not serious	not serious	not serious	none	⊕◯◯◯ VERY LOW	103/560 (18.4%)	134/383 (35.0%)	**RR 2.08** (1.24 to 3.47)	184 per 1,000	**199 more per 1,000** (from 44 more to 454 more)

Explanations

a. Risk of bias was rated serious due to lack of clarity re: selection of participants in the augmentation and spontaneous labour groups.

b. Risk of bias was rated serious due to lack of adjustments for confounders and lack of clarity re: selection of participants in the augmentation and spontaneous labour groups.

GRADE TABLE 7: ELECTRONIC FETAL MONITORING COMPARED TO INTERMITTENT AUSCULTATION DURING PLANNED VBAC

Bibliography: Madaan M, Trivedi SS. Intrapartum electronic fetal monitoring vs. intermittent auscultation in postcesarean pregnancies. Int J Gynaecol Obstet. 2006 Aug;94(2):123–5.

Certainty assessment							Summary of findings				
Participants (studies) Follow up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	Study event rates (%)		Relative effect (95% CI)	Anticipated absolute effects	
							With IA	With EFM		Risk with IA	Risk difference with EFM
Vaginal birth											
100 (1 RCT)	serious [a]	not serious	serious [b]	serious [c]	none	⊕◯◯◯ VERY LOW	36/50 (72.0%)	32/50 (64.0%)	**RR 0.89** (0.68 to 1.16)	720 per 1,000	**79 fewer per 1,000** (from 230 fewer to 115 more)
Instrumental/operative vaginal delivery											
100 (1 RCT)	serious [a]	not serious	serious [b]	serious [c]	none	⊕◯◯◯ VERY LOW	3/50 (6.0%)	1/50 (2.0%)	**RR 0.33** (0.04 to 3.10)	60 per 1,000	**40 fewer per 1,000** (from 58 fewer to 126 more)
Caesarean section											
100 (1 RCT)	serious [a]	not serious	serious [b]	serious [c]	none	⊕◯◯◯ VERY LOW	11/50 (22.0%)	17/50 (34.0%)	**RR 1.55** (0.81 to 2.96)	220 per 1,000	**121 more per 1,000** (from 42 fewer to 431 more)
Postpartum hemorrhage											
100 (1 RCT)	serious [a]	not serious	serious [b]	serious [c]	none	⊕◯◯◯ VERY LOW	2/50 (4.0%)	0/50 (0.0%)	**RR 0.20** (0.01 to 4.06)	40 per 1,000	**32 fewer per 1,000** (from 40 fewer to 122 more)
Infection - fever (birthing parent)											
100 (1 RCT)	serious [a]	not serious	serious [b]	serious [c]	none	⊕◯◯◯ VERY LOW	2/50 (4.0%)	3/50 (6.0%)	**RR 1.50** (0.26 to 8.60)	40 per 1,000	**20 more per 1,000** (from 30 fewer to 304 more)

Apgar score less than 7 at 5 minutes

100 (1 RCT)	serious [a]	not serious	serious [b]	serious [c]	none	⊕◯◯◯ VERY LOW	3/50 (6.0%)	1/50 (2.0%)	**RR 0.33** (0.04 to 3.10)	60 per 1,000	**40 fewer per 1,000** (from 58 fewer to 126 more)

Neonatal sepsis

100 (1 RCT)	serious [a]	not serious	serious [b]	serious [c]	none	⊕◯◯◯ VERY LOW	1/50 (2.0%)	1/50 (2.0%)	**RR 1.00** (0.06 to 15.55)	20 per 1,000	**0 fewer per 1,000** (from 19 fewer to 291 more)

Explanations

a. Risk of bias was rated serious due to missing information concerning the randomization process and allocation concealment.
b. Indirectness was rated serious due to concerns about the study setting.
c. Imprecision was rated serious due to few events and a 95% confidence interval that crosses the null.

GRADE TABLE 8: EPIDURAL USE COMPARED TO NO EPIDURAL USE DURING PLANNED VBAC

Bibliography: Gonen R, Tamir A, Degani S, Ohel G. Variables associated with successful vaginal birth after one cesarean section: a proposed vaginal birth after cesarean section score. Am J Perinatol. 2004;21(8):447–53; **McNally OM**, Turner MJ. Induction of Labour After 1 Previous Caesarean Section. Aust New Zeal J Obstet Gynaecol 1999 Nov 1;39(4):425–9; **Grisaru-Granovsky S**, Bas-Lando M, Drukker L, Haouzi F, Farkash R, Samueloff A, et al. Epidural analgesia at trial of labor after cesarean (TOLAC): A significant adjunct to successful vaginal birth after cesarean (VBAC). J Perinat Med. 2018 Apr 25;46(3):261–9.

Certainty assessment							Summary of findings				
Participants (studies) Follow up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	Study event rates (%)		Relative effect (95% CI)	Anticipated absolute effects	
							With no epidurals	With Epidurals		Risk with no epidurals	Risk difference with Epidurals
Vaginal birth											
7587 (3 observational studies)	serious [a]	serious [b]	serious [c]	not serious	none	⊕◯◯◯ VERY LOW	3388/4295 (78.9%)	2824/3292 (85.8%)	**RR 0.79** (0.65 to 0.97)	789 per 1,000	**166 fewer per 1,000** (from 276 fewer to 24 fewer)
Instrumental / operative vaginal birth											
7248 (2 observational studies)	serious [a]	not serious	serious [d]	not serious	none	⊕◯◯◯ VERY LOW	490/4126 (11.9%)	91/3122 (2.9%)	**RR 3.56** (2.02 to 6.29)	119 per 1,000	**304 more per 1,000** (from 121 more to 628 more)
Caesarean section											
7587 (3 observational studies)	serious [a]	serious [e]	serious [c]	serious [f]	none	⊕◯◯◯ VERY LOW	421/4295 (9.8%)	377/3292 (11.5%)	**RR 2.25** (0.55 to 9.24)	98 per 1,000	**123 more per 1,000** (from 44 fewer to 808 more)
Uterine rupture											
7149 (1 observational study)	serious [g]	not serious	serious [h]	serious [f]	none	⊕◯◯◯ VERY LOW	18/4081 (0.4%)	9/3068 (0.3%)	**RR 1.50** (0.68 to 3.34)	4 per 1,000	**2 more per 1,000** (from 1 fewer to 10 more)
PPH											
7149 (1 observational study)	serious [i]	not serious	serious [h]	not serious	none	⊕◯◯◯ VERY LOW	98/4081 (2.4%)	77/3068 (2.5%)	**RR 0.96** (0.71 to 1.28)	24 per 1,000	**1 fewer per 1,000** (from 7 fewer to 7 more)

Oxytocin use during labour

7149 (1 observational study)	serious [j]	not serious	serious [h]	not serious	none	⊕◯◯◯ VERY LOW	268/3068 (8.7%)	1018/4081 (24.9%)	**RR 3.47** (3.01 to 4.01)	87 per 1,000	**216 more per 1,000** (from 176 more to 263 more)

Explanations

a. Risk of bias was rated as serious because of concerns with a lack of/unclear controlling for confounders in two of the three included studies. There were also serious concerns with selection bias, as demographic information was either unavailable or observed differences between groups have the potential to bias findings.

b. Inconsistency was rated serious as heterogeneity in the meta-analysis was statistically significant (I^2 = 90%).

c. Indirectness was rated serious as the population in two of the studies included preterm, term, and postdates individuals, whereas the gestational age of study participants in one study was unknown.

d. Indirectness was rated serious as the population included in one study included preterm, term, and postdates individual and in the other study the gestational age for the study participants was unknown. Furthermore, all participants in this study were induced at the time of intervention.

e. Inconsistency was rated serious as heterogeneity in the meta-analysis was statistically significant (I^2 = 95%).

f. Given that uterine rupture is a rare outcome; large sample sizes with many event rates are required to be certain of the risk; because this study had few events, our confidence in this estimate is limited warranting a rating of serious imprecision.

g. Risk of bias was rated serious because of a higher proportion of participants in the "no epidural" group having previously had a vaginal birth; a previous vaginal birth is associated with a lower risk of uterine rupture in subsequent planned VBACs.

h. Indirectness was rated serious as the study population included preterm, term, and postdates individuals.

i. Risk of bias was rated serious because of a higher proportion of participants in the "no epidural" group having previously had a vaginal birth, which may have impact on PPH risk in subsequent planned VBACs.

j. Risk of bias was rated serious because of a higher proportion of participants in the "no epidural" group having previously had a vaginal birth, which may have an impact on augmentation rates in subsequent planned VBACs.

GRADE TABLE 9: OUT-OF-HOSPITAL SETTINGS COMPARED TO HOSPITAL SETTINGS FOR PLANNED VBAC

Bibliography: Rowe R, Li Y, Knight M, Brocklehurst P, Hollowell J. Maternal and perinatal outcomes in women planning vaginal birth after caesarean (VBAC) at home in England: secondary analysis of the Birthplace national prospective cohort study. BJOG. 2016 Jun 23;123(7):1123–32.

Certainty assessment							Summary of findings				
							Study event rates (%)			Anticipated absolute effects	
Participants (studies) Follow up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence	With hospital birth	With an out-of-hospital birth	Relative effect (95% CI)	Risk with hospital birth	Risk difference with an out-of-hospital birth
Vaginal birth											
1104 (1 observational study)	not serious	not serious	not serious	not serious	none	⊕⊕◯◯ LOW	661/934 (70.8%)	149/170 (87.6%)	**RR 1.24** (1.15 to 1.33)	708 per 1,000	**170 more per 1,000** (from 106 more to 234 more)
Blood transfusion or admission for higher level care											
1097 (1 observational study)	not serious	not serious	not serious	serious [a]	none	⊕◯◯◯ VERY LOW	28/927 (3.0%)	5/170 (2.9%)	**RR 0.97** (0.38 to 2.49)	30 per 1,000	**1 fewer per 1,000** (from 19 fewer to 45 more)
Apgar less than seven at five minutes or stillbirth											
1100 (1 observational study)	not serious	not serious	not serious	serious [a]	none	⊕◯◯◯ VERY LOW	15/933 (1.6%)	3/167 (1.8%)	**RR 1.12** (0.33 to 3.82)	16 per 1,000	**2 more per 1,000** (from 11 fewer to 45 more)

Explanations

a. Imprecision was rated serious as there were less than 300 events in both groups leading to a 95% confidence interval that was not narrow and which crossed the null indicating imprecision results.