Intrapartum care for women with breech presenting in labour – mode of birth

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation Alshaheen, H., Abd Al-Karim, A., Perinatal outcomes of singleton term breech deliveries in Basra, Eastern Mediterranean Health Journal, 16, 34-9, 2010 **Ref Id** 649759 **Country/ies where the study was carried out** Iraq **Study type** Prospective cohort **Aim of the study** To assess perinatal morbidity and mortality in breech births	**Sample size** N=113 women had a caesarean section in labour N=97 had a vaginal birth **Characteristics** Criteria for selection for a trial of labour with breech presentation were: a clinically adequate pelvis, a frank or complete breech with estimated fetal weight <4 kg with a flexed head and informed consent of the mother.	**Interventions** Intervention: emergency caesarean section (CS) in labour Comparison: vaginal birth (assisted or spontaneous)	**Details** In this 12-month prospective study all women were informed about the study before they gave consent to participate. All women who were eligible for the study consented to participation. All women were examined by the same obstetrician. Abdominal examination was performed for fetal presentation, engagement and fetal size. Pelvic examination was performed to assess cervical dilatation, type of breech and state of amniotic membranes, also to exclude cord prolapse or presentation and to assess the pelvis. Ultrasound was performed to confirm gestational age, to estimate fetal weight, to exclude congenital malformations, to exclude	**Results** **Neonatal** <u>Stillbirth:</u> caesarean section (n=113): 0 vaginal birth (n=97): 0 Nullipara: caesarean section (n=83): 0 vaginal birth (n=21): 0 Multipara: caesarean section (n=30): 0 vaginal birth (n=76): 0 <u>Neonatal death in the first week:</u> caesarean section (n=113): 1 vaginal birth (n=97): 8 The cause of neonatal death was	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the exposure was ascertained because only births occurring during the researchers' visits were included in the study; the outcomes of interest was not present at the start of the

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and to assess the correlation of parity and birthweight with perinatal mortality by mode of birth **Study dates** From 1 September 2005 to 31 August 2006 **Source of funding** Not reported	Indications for caesarean section included: lack of progress of labour, fetal distress, previous difficult vaginal birth, macrosomia, cephalopelvic disproportion, breech with footling presentation. Age (% in the 31-45 years group): caesarean section: 34.5% versus vaginal birth: 48.5% Age (% in the 17-30 years group): caesarean section: 65.5 % versus vaginal birth: 51.5 % Nulliparous: caesarean section: 73.5 % versus vaginal birth: 21.6 % Multiparous: caesarean section: 26.5 %		multiple pregnancy and to locate the placenta. Abdominal X-ray was performed only for women in the early stages of labour (n=156) to diagnose extended head	birth asphyxia in both vaginal births and caesarean sections Nullipara: caesarean section (n=83): 1 vaginal birth (n=21): 5 Multipara: caesarean section (n=30): 0 vaginal birth (n=76): 3 <u>Birth asphyxia:</u> caesarean section (n=113): 0 vaginal birth (n=97): 2 <u>Brachial plexus lesion:</u> caesarean section (n=113): 0 vaginal birth (n=97): 3 <u>Fractured clavicle:</u> caesarean section (n=113): 0 vaginal birth (n=97): 1 <u>NICU admission:</u> caesarean section (n=113): 2	study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (assessment of outcome was adequate as only births occurring during the researchers' visits were included in the study and all neonates were examined by the paediatric resident following birth; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** None

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	versus vaginal birth: 78.4 % Baby's birthweight (% in the 2500-3500 g group): caesarean section: 72.6 % versus vaginal birth: 83.5 % Baby's birthweight (% in the >3500-4000 g group): caesarean section: 27.4 % versus vaginal birth: 16.5 % **Inclusion criteria** Criteria for inclusion in the study: women in labour who attended the birth room in Basra maternity and child hospital with a live singleton term breech presentation and who gave birth during the			vaginal birth (n=97): 8	

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	researchers' visits (3-4 times per week) **Exclusion criteria** Women with obstetric problems and medical illnesses				
Full citation Barlov, K., Larsson, G., Results of a five-year prospective study using a feto-pelvic scoring system for term singleton breech delivery after uncomplicated pregnancy, Acta Obstetricia et Gynecologica Scandinavica, 65, 315-319, 1986 **Ref Id** 649781 **Country/ies where the study was carried out** Sweden	**Sample size** N=226 **Characteristics** Mean age: vaginal birth 27.2 years (range 17-39 years), emergency caesarean section (CS) 25.7 years (range 19-38 years) Nullipara: vaginal birth 41/102, emergency CS 16/23 Previous gynaecological	**Interventions** Intervention. Emergency CS in labour Comparator. Vaginal birth	**Details** Continuous electronic fetal monitoring was used routinely during vaginal birth. Vaginal birth proceeded spontaneously to just past the umbilicus and in the absence of nuchal arms was assisted with an assistant simultaneously performing Kristeller's manoeuvre. Forceps were not used unless difficulties were encountered in delivering the aftercoming head. The perineum was always incised	**Results** **Maternal** Mean blood loss at birth (range): Vaginal birth: 255.2 ml (50-775 ml) (n=102) Emergency CS: 522.7 ml (100-1200 ml) (n=23) **Neonatal** Neonatal mortality: Vaginal birth 0/102 Emergency CS 0/23 Brachial palsy: Vaginal birth: 1/102 Emergency CS: 0/23 Fractured humerus: Vaginal birth: 1/102 Emergency CS: 0/23	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the exposure was ascertained through medical records;

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Study type Prospective cohort **Aim of the study** To examine whether a feto-pelvic scoring system could be used to identify women with breech presentation who could give birth vaginally **Study dates** 1978-1982 **Source of funding** None reported	disease or operation: vaginal birth 17.6%, emergency CS 8.7% Mean birthweight: vaginal birth 3266g (range 1850-4550g), emergency CS 3300g (range 2120-4420g) Mean gestational age at birth in weeks: vaginal birth 40 (range 37-44), emergency CS: 40 (range 37-44) Apgar <7 at 1 minute: vaginal birth 30/102, emergency CS 4/23 Apgar <7 at 5 minute: vaginal birth 1/102, emergency CS 0/23 **Inclusion criteria**			<u>Fractured clavicle:</u> Vaginal birth: 4/102 Emergency CS: 0/23 <u>Neonatal pulmonary insufficiency necessitating continuous positive airway pressure (C-PAP):</u> Vaginal birth: 0/102 Emergency CS: 1/23	outcomes of interest were not present at the start of the study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (assessment of outcomes was through medical records; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** None

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	Singleton breech presentation with uncomplicated pregnancy **Exclusion criteria** None reported				
Full citation Bird,C.C., McElin,T.W., A six-year prospective study of term breech deliveries utilizing the Zatuchni-Andros Prognostic Scoring Index, American Journal of Obstetrics and Gynecology, 121, 551-558, 1975 **Ref Id** 169093 **Country/ies where the study was carried out** USA **Study type** Prospective cohort	**Sample size** N=290 **Characteristics** Age range 17 to 44 years, mean age 26 years Gravidity range 1 to 7, 172/290 (59.4%) primigravidas Birthweight: 2500-2999g: vaginal birth 103/234, caesarean section (CS) 5/56 3000-3499g: vaginal birth 74/234, CS 25/56	**Interventions** Intervention: CS after labour had already started (n=56). Comparator: vaginal birth (n=234)	**Details** This study included consecutive breech births. On admission to the labour unit the women were evaluated by an attending physician and/or resident and a breech score was assigned. The management of the labour and birth then proceeded according to the desires and discretion of the primary physician bearing in mind the breech score assigned upon admission	**Results** **Neonatal** Stillbirth: Vaginal birth 0/234 Emergency CS: 0/56 Neonatal death: Vaginal birth 2/234 Emergency CS: 0/56 Requiring resuscitation: Vaginal birth 31/234 Emergency CS 1/56 Cardiorespiratory depression: Vaginal birth 14% (33/234*) Emergency CS 4% (2/56*) *Calculated by the NGA technical team Birth injury (depressed skull fractures):	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS, although it is unclear to what extent the indications were related to the breech score or to other factors. The indications could, in turn, be associated with adverse outcomes; however, exposed and non exposed groups were both representative of the population of interest; the exposure was ascertained

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Aim of the study To report term breech births occurring between 1 January 1968 and 1 January 1974 in the study authors' institution based on the Zatuchni-Andros Breech Scoring Index **Study dates** 1968-1974 **Source of funding** None reported	3500-3999g: vaginal birth 47/234, CS 14/56 4000-4499g: vaginal birth 8/234, CS 8/56 4500+g: vaginal birth 2/23, CS 4/56 Apgar score <=3 at 1 min: vaginal birth 46/234, CS 2/56 Apgar score >=4 at 1 min: vaginal birth 188/234, CS 54/56 Oxytocin given to stimulate labour: 45/172 primigravidas (26.2%), 50/118 multigravidas (42.4%), overall 95/290 (32.7%) of whom 7 went on to have a CS Zatuchni and Andros breech score <=3: vaginal birth 35/234, CS 43/56 Zatuchni and Andros breech score >=4: vaginal			Vaginal birth 2/234 Emergency CS 0/56 <u>Birth injury (unilateral clavicular fractures):</u> Vaginal birth 4/234 Emergency CS 0/56	through medical records; outcomes of interest were not present at the start of the study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (assessment of outcomes was through medical records; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** None

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	birth 212/234, CS 13/56 **Inclusion criteria** Consecutive term (fetal weight >2500g) breech births **Exclusion criteria** Elective induction; twin pregnancies; women in whom vaginal bleeding, significant gross heart rate abnormalities, monitored late deceleration patterns or cord prolapse occurred				
Full citation Capeless,E.L., Mann,L.I., A vaginal delivery protocol for the term breech infant utilizing ball pelvimetry, Journal of Reproductive Medicine, 30, 545-548, 1985	**Sample size** N=35 women undergoing an emergency caesarean section (CS) in labour	**Interventions** Intervention. Emergency caesarean section in labour Comparator. Vaginal birth (assisted or	**Details** Radiological evaluation of the maternal pelvis was obtained with the Ball pelvimetry technique. Infant follow-up was limited to the initial hospitalisation. The use of	**Results** **Neonatal** Facial palsy Emergency caesarean section in labour (n=35): 1	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non- exposed group was drawn from a

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Ref Id 193288 **Country/ies where the study was carried out** USA **Study type** Prospective cohort (assumed to be prospective although this is not clearly reported in the article) **Aim of the study** To report on the study author's hospital's experience with Ball pelvimetry for evaluation of fetopelvic volume relationships **Study dates** Women with breech presentations between January 1979 and December 1981 **Source of funding** Not reported	N=51 women undergoing a vaginal birth (assisted: n=31; forceps to aftercoming head: n=20) **Characteristics** All pregnancies were at term. Reasons for CS after being allowed an 'adequate' trial of labour: arrest of active phase: n=27, arrest of descent: n=7, prolapsed cord: n=1. The study authors reported that no caesarean sections were performed for fetal distress) The following characteristics were reported for the overall group of 107 women	forceps to aftercoming head). There were no total breech extractions	analgesia during labour was minimal, with narcotic analgesia given when necessary. Only local anaesthesia was used	Vaginal birth (n=51): 1 <u>Admission to the neonatal intensive care unit (NICU)</u> Emergency caesarean section in labour (n=35): 4 (reasons: meconium aspiration (n=1), transient respiratory distress (n=1), pyloric stenosis (n=1), not reported (n=1)) Vaginal birth (n=51): 4 (reasons: triple nuchal cord - acidosis (n=1), transient respiratory distress (n=1), transient respiratory distress - smallness for gestational age (n=1), premature - smallness for gestational age (n=1))	different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the exposure was ascertained through medical records; outcomes of interest were not present at the start of the study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (outcomes were assessed through medical records; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** None

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	(separate characteristics for the 86 women allowed an 'adequate' trial of labour and included in the analysis were not reported): mean age: 25.6 years (range 17-37); gravidity: 1.9 (range 1-13); nullipara: 53%; multipara: 47%; frank breech: n=103; complete breech: n=4 mean gestational age (weeks): 39.8 (range 34-43); mean infant weight: 3,315 g (range 1,960-4,394); characteristics not stratified by intervention or comparator group **Inclusion criteria**				

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	Women with breech presentations at the Medical Center Hospital of Vermont, USA who presented in labour were included in the study. However, only women who were allowed an 'adequate' trial of labour were included in the main analyses **Exclusion criteria** N=21 women were included in the study but excluded from the main analyses because they were not allowed an adequate trial of labour due to the following indications: evidence of				

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	disproportion or deficit on pelvimetry (n=15), fetuses with a hyperextended head (n=2), abnormal pelvic architecture (n=4)				
Full citation Collea, J. V., Chein, C., Quilligan, E. J., The randomized management of term frank breech presentation: A study of 208 cases, American Journal of Obstetrics and Gynecology, 137, 235-244, 1980 **Ref Id** 649870 **Country/ies where the study was carried out** USA **Study type** Prospective cohort (a secondary analysis was reported in the article using	**Sample size** N=66 **Characteristics** Women with singleton term frank breech presentation. No baseline characteristics were reported with stratification by relevant subgroups. Women with emergency caesarean section (CS) in labour due to difficulty in labour or fetal distress had been allowed to have	**Interventions** Interventiion. Emergency CS in labour (n=11) Comparison. Vaginal birth (n=55). Partial breech extraction was used for most vaginal births. In some cases Piper forceps were applied for the aftercoming head	**Details** Women were randomised to elective CS or a trial of labour (TOL) group. However, some women in the TOL group were scheduled for CS due to inadequate X-ray pelvimetry measurements. For the analysis in this article, data were extracted for only 55 women who gave birth vaginally, and 11 women who required CS for difficulties during labour. Pudendal block anesthesia was used for most vaginal breech births. A combination of pudendal block anaesthesia for delivery of the fetal body and a general anaesthetic technique for delivery of the aftercoming head was used in some births	**Results** **Neonatal** Perinatal death: Emergency CS in labour (n=11): 0 Vaginal birth (n=55): 0 Spontaneous bilateral pneumothorax: Emergency CS in labour (n=11): 0 Vaginal birth (n=55): 1 Brachial plexus injury: Emergency CS in labour (n=11): 0 Vaginal birth (n=55): 2 (1 was mild) Congenital anomalies were excluded from the results	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population as compared to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the study authors did not report how exposure was ascertained but given the study setting it is assumed that medical records were

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data from a randomised controlled trial (RCT)) **Aim of the study** To determine the effect of mode of birth on maternal and infant outcomes **Study dates** July 1975 to May 1979 **Source of funding** Not reported	labour in light of adequate X-ray pelvimetry; 49/55 women in the vaginal birth group also had had adequate X-ray pelvimetry results; 3/55 had a vaginal birth before X-ray pelvimetry could be performed; 3/55 were scheduled for CS due to inadequate pelvimetry but had a vaginal birth before CS could be performed **Inclusion criteria** Women with singleton term frank breech presentation **Exclusion criteria** Not reported				used; outcomes of interest were not present at the start of the study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (the study authors did not report how outcomes were assessed but given the study setting it is assumed this was done with medical records; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** None

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation De Leeuw, J. P., De Haan, J., Derom, R., Thiery, M., Martens, G., Van Maele, G., Mortality and early neonatal morbidity in vaginal and abdominal deliveries in breech presentation, Journal of Obstetrics and Gynaecology, 22, 127-139, 2002 **Ref Id** 649896 **Country/ies where the study was carried out** Belgium and the Netherlands **Study type** Prospective cohort **Aim of the study** To investigate the management of breech presentation in two university hospitals **Study dates**	**Sample size** N=38 emergency caesarean sections in labour N=132 vaginal births **Characteristics** Only data on births with infant weight of at least 2500 g were extracted for the guideline review. Indications for emergency caesarean section (CS) were: fetal (n=12), dystocia (n=37), placental (n=1), maternal (n=7) Selection criteria for trial of labour (TOL) were: no placenta praevia, no overt contracted pelvis, no hyperextension of the fetal head,	**Interventions** Emergency caesarean sections in labour (n=38) Vaginal births (n=132) (unassisted breech (Brach manoeuvre): n=77, assisted breech: n=52, breech extraction: n=3)	**Details** No formal prognostic breech scoring indices were used. Women had assessment of the maternal pelvis by vaginal examination. No routine X-ray pelvimetry was performed before labour. An experienced obstetrician and a neonatologist were always present at the birth in both hospitals	**Results** **Neonatal** <u>Intrapartum fetal death</u> Emergency caesarean sections in labour (n=38): 0 Vaginal births (n=132): 1 (Death was "... caused by puncturing a prolapsed umbilical cord by a fetal scalp electrode. This fetal error occurred during the unjustified replacement of an electrode, which became detached just before the diagnosis of cord prolapse was made; an exotic trauma, which with competent management should have been avoided".) <u>Early neonatal mortality</u> Emergency caesarean sections in labour (n=38): 0	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the exposure was ascertained through medical records; outcomes of interest were not present at the start of the study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (outcomes were assessed through medical records; follow-up was long enough

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Women with singleton breech presentations from January 1984 to June 1986 **Source of funding** Not reported	no specific cases of uterine scar Indications for CS not reported separately for emergency CS subgroup **Inclusion criteria** Women with singleton breech presentations in two university hospitals: the Department of Obstetrics and Gynaecology at the University of Ghent (Belgium) and the Department of Obstetrics and Gynaecology at the University of Limburg, Maastricht (the Netherlands) from January 1984 to June 1986			Vaginal births (n=132): 0 <u>Late neonatal mortality</u> Emergency caesarean sections in labour (n=38): 0 Vaginal births (n=132): 0 Post-neonatal mortality data were reported provided in the article but not extracted for the guideline review	for the outcomes to occur; complete follow-up) **Other information** None

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	Exclusion criteria Antenatal fetal deaths and lethal malformations				
Full citation Gimovsky, M. L., Wallace, R. L., Schifrin, B. S., Paul, R. H., Randomized management of the nonfrank breech presentation at term: a preliminary report, American Journal of Obstetrics & Gynecology, 146, 34-40, 1983 **Ref Id** 387182 **Country/ies where the study was carried out** USA **Study type** Prospective cohort (secondary analysis of randomised controlled trial (RCT) data was performed for the guideline review)	**Sample size** N=46 **Characteristics** Baseline characteristics were not stratified by the two relevant subgroups. Breech included complete breech, double footling, single footling, and incomplete. Indications for caesarean section (CS) included latent phase arrest with oxytocin (n=2), active phase arrest with oxytocin (n=2), active phase arrest without oxytocin (n=1), arrest of	**Interventions** Intervention. Emergency CS in labour (n=11) Comparison. Vaginal birth (n=35)	**Details** Women were randomised to elective caesarean section or to trial of labour, but not all women randomised to trial of labour actually had a trial of labour. For the guideline review, data were extracted only for women who had CS for an indication clearly related to labour. Vaginal births were assisted birth with elective application of Piper forceps. A generous midline episiotomy or episioproctotomy was performed. Intravenous analgesia was permitted in labour as per normal routine. Local and pudendal nerve blocks were the main anaesthetic techniques used, with general anaesthesia being on standby in case needed	**Results** **Neonatal** Neonatal deaths Emergency CS in labour (n=11): 0 Vaginal birth (n=35): 1. The baby was apparently healthy but died after vaginal birth These results exclude babies with major congenital anomalies Peripheral nerve injury Emergency CS in labour (n=11): 0 Vaginal birth (n=35): 0	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the study authors did not report how exposure was ascertained but given the study setting it is assumed that medical records were used; outcomes of interest were not present at the start of the study as they occurred during or after birth)

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Aim of the study To compare elective CS to a selective management protocol for the nonfrank breech presentation **Study dates** Recruitment occurred between April 1981 and May 1982 **Source of funding** Not reported	descent (n=1), prolapse of umbilical cord in the first stage of labour (n=3), body prolapse in the first stage of labour (n=2); 31/35 in the vaginal birth group had been randomised to trial of labour, and 4/35 had been randomised to elective CS **Inclusion criteria** Women with singleton nonfrank breech presentation with gestational age between 36 and 42 weeks, an estimated fetal weight between 2 and 4 kg, cervix less than 7 cm dilated, a non-extended normal-appearing fetal				Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (the study authors did not report how outcomes were assessed but given the study setting it is assumed this was done with medical records; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** None

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	skull on roentgenogram, and no contraindication to labour **Exclusion criteria** Women were excluded from a trial of labour (TOL) after randomisation if if they had inadequate pelvic dimensions on X-ray pelvimetry				
Full citation Jaffa,A.J., Peyser,M.R., Ballas,S., Toaff,R., Management of term breech presentation in primigravidae, British Journal of Obstetrics and Gynaecology, 88, 721-724, 1981 **Ref Id** 193318	**Sample size** N=170 **Characteristics** Baseline characteristics were not reported for the relevant subgroups **Inclusion criteria**	**Interventions** Intervention. Emergency caesarean sections in labour (n=17) Comparator. Vaginal births (n=260) (the Maurceau-Smellie-Veit technique was used routinely)	**Details** Radiological pelvimetry and radiological assessment of fetal attitude was performed before selection for vaginal birth. Two obstetricians were involved in the selection for vaginal birth. A single intravenous injection of 75 mg pethidine and 25 mg promethazine was used for analgesia. A paracervical block was often established at a cervical dilatation of 5-6 cm	**Results** **Neonatal** <u>Perinatal mortality</u> Emergency caesarean sections (n=17): 0 Vaginal births (n=260): 0 The study authors reported that no significant perinatal morbidity occurred, however they did not provide a definition of	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; however, the

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Country/ies where the study was carried out Israel **Study type** Prospective cohort **Aim of the study** To demonstrate that carefully selected attempts at vaginal breech birth could result in a relatively low emergency caesarean section (CS) rate with no perinatal mortality and minimal neonatal morbidity **Study dates** Women with breech presentations from 1972 to 1979 **Source of funding** Not reported	Nulliparous women with term breech presentations who gave birth during the study period, irrespective of medical complications such as hypertensive disorders or mild class diabetes **Exclusion criteria** Women whose babies weighed less than 2500 g or had congenital malformations. Exclusion criteria for a trial of labour (TOL) were: nulliparous over 35 years old, pelvic deformities, inadequate radiological pelvimetry results		and pudendal block at full dilatation. General anaesthesia was given for two women when cord prolapse occurred at full dilatation and birth was achieved through breech extraction	significant perinatal morbidity, therefore this outcome was not included in the guideline review. The study authors reported that one baby had Erb's palsy and recovered within 1 month, but they did not report the mode of birth for this baby	exposed and non-exposed groups were both representative of the population of interest; the study authors did not specify how exposure was assessed, but given the study setting it is assumed this was through medical records; outcomes of interest were not present at the start of the study as outcomes occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (the study authors did not report how outcomes were assessed, but given the study setting it is assumed this was through medical records; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** None

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Full citation Maier,B., Georgoulopoulos,A., Zajc,M., Jaeger,T., Zuchna,C., Hasenoehrl,G., Fetal outcome for infants in breech by method of delivery: Experiences with a stand-by service system of senior obstetricians and women's choices of mode of delivery, Journal of Perinatal Medicine, 39, 385-390, 2011 **Ref Id** 171638 **Country/ies where the study was carried out** Austria **Study type** Prospective cohort **Aim of the study** Included investigating whether emergency caesarean section during labour of intended vaginal breech births would result in any maternal or fetal adverse outcomes	**Sample size** N=39 emergency caesarean sections N=49 vaginal births **Characteristics** Inclusion criteria for intended vaginal birth were: adequate abdominal and pelvic dimensions; estimated fetal weight between 2500 and 3500 g; no deflexion of the head; no suspected fetal anomalies; location of the placenta - no placenta praevia; no funic presentation; normal flow in the umbilical artery. Indications for	**Interventions** Intervention. Emergency caesarean section (n=39) (The study authors reported that these women intended to have a vaginal birth but had a secondary CS. For the guideline review this has been interpreted as emergency caesarean section in labour) Comparator. Vaginal births (n=46) (Spontaneous: n=16; Bracht: n=16; Arthur-Mueller/Veit-Smellie: n=28; Loevset (nuchal arms) manoeuvres: n=1)	**Details** An obstetrician experienced in breech presentation and a neonatologist were both present at birth	**Results** **Neonatal** <u>Genital haematoma</u> Emergency caesarean sections (n=39): 2 Vaginal births (n=46): 3 <u>Cephalic heamatoma</u> Emergency caesarean sections (n=39): 0 Vaginal births (n=46): 1 <u>Transfer to the neonatal intensive care unit (NICU)</u> Emergency caesarean sections (n=39): 5 (Reasons (including multiple reasons): adaptation problems: n=5; amnion infection syndrome (AIS): n=1; aspiration of meconium: n=1. Mean duration of NICU care was 4.2 days). Vaginal births (n=46): 2 (Reasons	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS (indications were not reported but it is assumed that they were clinical). The indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the exposure was ascertained through medical records; outcomes of interest were not present at the start of the study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (outcomes were assessed

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study dates Women with breech presentations between 1 January 2002 and 30 April 2005 **Source of funding** Not reported	emergency CS were not reported. Maternal age (median (range), years): Emergency CS: 29 (20-37) versus vaginal birth: 30 (18-38) Gestational age (median (range), weeks): Emergency CS: 39 (34.86-41.71) versus vaginal birth: 39.36 (35.57-43.29) Birthweight (median (range), g): Emergency CS: 3220 (2200-4500) versus vaginal birth: 3105 (2120-4030) Nulliparous: Emergency CS: 69.2% vs vaginal birth: 63.1% **Inclusion criteria**			(including multiple reasons): adaptation problems: n=2; AIS: n=1. Mean duration of NICU care was 4.5 days). All babies in both groups left NICU in good health, without any neurological or mechanical trauma	through medical records; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** The study authors acknowledged that the sample was too small to show a significant difference with regard to rare fetal outcomes

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	Women with singleton complete or frank breech presentation >=35 weeks of gestation from 1 January 2002 to 30 April 2005 **Exclusion criteria** Pre-eclampsia; small for gestational age, < 10th percentile; cephalo-thoracic asymmetry; large baby (>3500 g); maternal morbidity leading to caesarean section for any other reasons				
Full citation Molkenboer, J. F., Debie, S., Roumen, F. J., Smits, L. J., Nijhuis, J. G., Maternal health outcomes two years after term breech delivery, Journal of	**Sample size** N=49 emergency caesarean sections N=91 vaginal births	**Interventions** Intervention. Emergency caesarean section in labour (n=49) Comparator. Vaginal birth (n=91) (spontaneous birth:	**Details** The study authors' department participated in the Term Breech Trial with 35 randomised women. During the trial period non-randomised term breech presentations were also	**Results** Maternal <u>Did breastfeed (for any duration)</u> Emergency caesarean section in labour (n=49): 32	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Maternal-Fetal & Neonatal Medicine, 20, 319-24, 2007 **Ref Id** 395980 **Country/ies where the study was carried out** The Netherlands **Study type** Prospective cohort **Aim of the study** To evaluate maternal health outcomes 2years after term breech birth **Study dates** Women with a breech presentation from 20 July 1998 to 21 April 2000 **Source of funding** Not reported	**Characteristics** No data on % of nulliparous women in the relevant groups **Inclusion criteria** Women with a term breech presentation from 20 July 1998 to 21 April 2000 **Exclusion criteria** Women who participated in the Term Breech Trial were excluded from the study reported in this article; 2 births were excluded due to lethal congenital anomalies	n=42; assisted birth: n=47; forceps for aftercoming head: n=2)	carefully documented. Planned vaginal births in these women were managed according to usual departmental procedures, which followed the guidelines of the Term Breech Trial protocol. These women were sent the same questionnaire as the randomised women in the Term Breech Trial 2 years after birth. In these questionnaires the women were asked to evaluate their health and related topics from the previous 3-6 months. Most outcomes reported in the article were not extracted for the guideline review because they were considered to be too indirectly related to birth based on the time that had elapsed since birth. However, the outcome "did breastfeed" was extracted	Vaginal birth (n=91): 44	group because at least some women in the exposed group were likely to have had clinical indications for an emergency caesarean section (CS), although the indications were not reported. These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the exposure was ascertained through medical records; outcomes of interest were not present at the start of the study as outcomes occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (outcomes were assessed through self report; self-report on whether a woman has breastfed or not is assumed to be reliable; follow-up was long enough for the outcomes to occur; women lost to follow-

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
					up were unlikely to introduce a bias due to the small number lost (18/203: 8.9%)) **Other information** None
Full citation Sarno, A. P., Jr., Phelan, J. P., Ahn, M. O., Strong, T. H., Jr., Vaginal birth after cesarean delivery. Trial of labor in women with breech presentation, Journal of Reproductive Medicine, 34, 831-3, 1989 **Ref Id** 650323 **Country/ies where the study was carried out** USA **Study type** Prospective cohort (assumed to be prospective although this is not clearly reported in the article)	**Sample size** N=14 emergency CS in labour N=13 vaginal births **Characteristics** Both frank and nonfrank breech were considered for a trial of labour (TOL). A standardised protocol was used for TOL selection. Indications for repeat CS in the TOL group were: arrest of dilation (n=10), fetal distress (n=2), other (n=2); 7/14	**Interventions** Intervention. Emergency CS in labour (n=14) Comparator. Vaginal birth (n=13)	**Details** No further details reported	**Results** **Neonatal** Neonatal death Emergency CS in labour (n=14): 0 Vaginal birth (n=13): 0 Birth trauma (Erb's palsy) Emergency CS in labour (n=14): 0 Vaginal birth (n=13): 1 Birth trauma (trapped head) Emergency CS in labour (n=14): 0 Vaginal birth (n=13): 1	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the exposure was ascertained through medical records; outcomes of interest were not present at the start of the study as outcomes occurred during or after birth)

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Aim of the study To provide detailed information on women who presented with a breech presentation and requested a trial of labour after an previous caesarean birth **Study dates** Women with a previous caesarean section (CS) and breech presentation from 1 July 1982 to 30 June 1984 **Source of funding** Not reported	women who had an emergency caesarean section had had either oxytocin augmentation or induction. The group that achieved vaginal birth did not require oxytocin. Baseline characteristics were not reported **Inclusion criteria** Women with a previous CS and breech presentation who presented at the Los Angeles County / University of Southern California Medical Center during the study period **Exclusion criteria**				Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (outcomes were assessed through medical records; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** None

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	Women selected for TOL excluded those with a classic uterine incision				
Full citation Singh,A., Mishra,N., Dewangan,R., Delivery in breech presentation: The decision making, Journal of Obstetrics and Gynecology of India, 62, 401-405, 2012 **Ref Id** 291618 **Country/ies where the study was carried out** India **Study type** Prospective cohort study (assumed to be prospective although this was not reported clearly in the article) **Aim of the study**	**Sample size** N=94 emergency caesarean sections N=60 vaginal births **Characteristics** Indications for emergency caesarean section: fetal distress (n=18), failure to progress (n=11), cord prolapse (n=4), footling presentation (n=25), placenta praevia (n=10), previous caesarean scar (n=30)	**Interventions** Intervention. Emergency caesarean section in labour (n=94) Comparator. Vaginal birth (n=60). Assisted breech birth was the method of choice, following a principle of non-intervention until delivery of the scapula. The delivery of the extended arms was achieved using Lovset's method, whereas the delivery of the aftercoming head was achieved using the Burns Marshall Method or Mauriceau Smellie Veit manoeuvre. After birth, the baby was attended by the paediatrician	**Details** On admission, details on demographic profile, menstrual and obstetric history were noted. A general, systemic and obstetric examination was carried out. All women were subjected to obstetric ultrasonography and afterwards they were assigned to either planned caesarean section or to trial of vaginal birth	**Results** **Neonatal** Perinatal mortality (excluding mortality due to intrauterine fetal death) Emergency caesarean section in labour (n=94): 7 (causes of death: birth asphyxia: n=4; septicaemia: n=1; intraventricular haemorrhage: n=0; cord prolapse: n=2) Vaginal birth (n=60): 5 (causes of death: birth asphyxia: n=2; septicaemia: n=1; intraventricular haemorrhage: n=1; cord prolapse: n=1) Fractured clavicle Emergency caesarean section in labour (n=94): 0	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency caesarean section (CS). These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the exposure was ascertained through medical records; outcomes of interest were not present at the start of the study as outcomes occurred during or after birth)

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
To optimise fetal and maternal outcomes in breech presentation using different modes of birth **Study dates** Women with breech presentations from January 2007 to September 2009 **Source of funding** Not reported	**Inclusion criteria** Women with singleton breech presentations during the study period. Only data on women with term presentations were extracted for the guideline review. A trial of labour (TOL) was given to women who consented to it **Exclusion criteria** The following were indications for planned caesarean section: fetopelvic disproportion, hyperextension of the head, footling presentation, and other medical and obstetric complications that were standard indications for			Vaginal birth (n=60): 0 <u>Fractured humerus</u> Emergency caesarean section in labour (n=94): 0 Vaginal birth (n=60): 0 <u>Dislocation of hip</u> Emergency caesarean section in labour (n=94): 0 Vaginal birth (n=60): 0 <u>Erb's palsy</u> Emergency caesarean section in labour (n=94): 0 Vaginal birth (n=60): 0 <u>Damage to soft tissue and laceration</u> Emergency caesarean section in labour (n=94): 0 Vaginal birth (n=60): 1	Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (the study authors did not report how outcomes were assessed but given the medical setting it is assumed that outcomes were assessed through medical records; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** The majority of women were admitted in labour because the study was carried out in the largest teaching hospital in the state, meaning that there was a high number of referrals to the hospital

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	planned caesarean section				
Full citation Su, M., Hannah, W. J., Willan, A., Ross, S., Hannah, M. E., Planned caesarean section decreases the risk of adverse perinatal outcome due to both labour and delivery complications in the Term Breech Trial, BJOG: An International Journal of Obstetrics and Gynaecology, 111, 1065-1074, 2004 **Ref Id** 650363 **Country/ies where the study was carried out** Canada/multiple countries (the trial was carried out in 26 countries) **Study type** Secondary analysis of randomised controlled trial (RCT) data (Term Breech Trial)	**Sample size** n=2088 originally randomised n=2083 with entry and outcome data n=1540 with outcome data excluding prelabour CS **Characteristics** See Su 2003 (also included in the guideline review) **Inclusion criteria** Singleton fetus in a frank or complete breech presentation at term (>=37 weeks) and who were without contraindication to labour or vaginal birth	**Interventions** The RCT originally randomised women to have a planned CS or planned vaginal birth. Interventions relevant to this review: CS during early labour, CS during active labour, vaginal birth	**Details** Women entering the trial were randomly allocated to planned CS or planned vaginal birth. If randomised to the planned CS group, the CS was scheduled for >=38 weeks of gestation. If the woman was in labour at the time of randomisation, the CS was undertaken as soon as possible. If the woman was randomised to the planned vaginal birth group, management was expectant until spontaneous labour began, unless there was an indication to induce labour or perform a CS. Babies in breech presentation who were born vaginally were attended by a clinician experienced in vaginal breech birth. A companion article (Hannah 2002) reported labour complications that led to CS in the group randomised to planned vaginal birth, such as failure to progress in labour	**Results** **Neonatal** Stillbirth: Vaginal birth: 6/689* CS during early labour: 0/249** CS during active labour: 0/596*** Neonatal death: Vaginal birth: 5/689* CS during early labour: 0/249** CS during active labour: 1/596*** Ventilation required: Vaginal birth: 9/689* CS during early labour: 0/249** CS during active labour: 3/596*** Birth injury (basal skull fracture, brachial plexus injury, spinal cord injury or significant genital injury): Vaginal birth: 7/689* CS during early labour: 0/249**	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (some of the participants in the non-exposed group were drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; the exposure was ascertained by a secure record; outcomes of interest were not present at the start of the study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (assessment of outcome was through medical records; follow-up was long enough for the outcomes to occur; women lost to follow-up unlikely to introduce bias

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Aim of the study To determine whether a decreased risk of adverse perinatal outcome with a policy of planned caesarean section (CS), compared with a policy of planned vaginal birth, reported in the Term Breech Trial was due to a decrease in risk of adverse outcomes during labour or during birth **Study dates** Not reported **Source of funding** The Canadian Institutes of Health Research (CIHR), Centre for Research in Women's Health, Sunnybrook and Women's College Health Sciences Centre, and the Department of Obstetrics and Gynecology at the University of Toronto	**Exclusion criteria** For the analysis for the guideline review, prelabour CS was excluded		Early labour defined as contractions less frequent than every 5 min or if more frequent than every 5 min, cervix dilated <3 cm and effaced <80%; active labour defined as contractions more frequent than every 5 min and cervic dilated >=3 cm or effaced >=80%.	CS during active labour: 4/596*** NICU admission: Vaginal birth: 13/689* CS during early labour: 2/249** CS during active labour: 6/596*** *2 cases of adverse perinatal outcome in the vaginal birth group (2 stillbirths probably before enrolment) not included and also subtracted from the denominator because the cause was judged to be unrelated to labour or birth ** 1 case of adverse perinatal outcome in the CS during early labour group (1 anomaly, ventricular septal defect and patent ductus arteriosus) not included and also subtracted from the denominator	(very small number of women without relevant data)) **Other information** In some cases, randomisation to "planned CS" happened when labour had already started. Therefore, CS during early labour or CS during active labour might still have been considered "planned CS" in the trial

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
				because the cause was judged to be unrelated to labour or birth ***3 cases of adverse perinatal outcome in the CS during active labour group (3 anomalies: 1 intestinal obstruction, 1 Down's syndrome, and 1 ruptured myelomeningocele) not included and also subtracted from the denominator because the cause was judged to be unrelated to labour or birth	
Full citation Su, M., McLeod, L., Ross, S., Willan, A., Hannah, W. J., Hutton, E., Hewson, S., Hannah, M. E., Term Breech Trial Collaborative, Group, Factors associated with adverse perinatal outcome in the Term Breech Trial, American Journal of Obstetrics	**Sample size** n=2088 originally randomised n=1887 with data on adverse perinatal outcome n=1384 with data on adverse perinatal outcome excluding prelabour	**Interventions** The RCT originally randomised women to have a planned caesarean section or planned vaginal birth. Interventions relevant to the guideline review: caesarean section during early labour, caesarean	**Details** Women entering the trial were randomly allocated to planned CS or planned vaginal birth. If randomised to the planned CS group, the CS was scheduled for >=38 weeks of gestation. If the woman was in labour at the time of randomisation, the CS was performed as soon as	**Results** **Neonatal** <u>Adverse perinatal outcome:</u> Vaginal birth: 38/630 (6.0%), adjusted odds ratio (aOR)*: reference CS during early labour: 3/226 (1.3%),	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: low risk of bias (the exposed group is representative of the population of interest; the non-exposed group was drawn from the same population as the exposed

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
& Gynecology, 189, 740-5, 2003 **Ref Id** 650364 **Country/ies where the study was carried out** Canada/multiple countries (the trial was carried out in 26 countries) **Study type** Secondary analysis of randomised controlled trial (RCT) data (Term Breech Trial) **Aim of the study** To identify factors associated with adverse perinatal outcomes **Study dates** Not reported **Source of funding**	caesarean sections **Characteristics** Maternal age >=30 years: 595/1887 Maternal age <30 years: 1292/1887 Parity >4: 109/1887 Parity 1-4: 771/1887 Parity 0: 1007/1887 Gestational age >=41 weeks: 123/1887 Maternal diabetes: 30/1887 Uterine anomaly: 15/1887 Hypertension: 96/1887 Previous caesarean section: 51/1887 Epidural analgesia: 522/1887 Frank breech: 1240/1887	section during active labour, vaginal birth	possible. If the woman was randomised to the planned vaginal birth group, management was expectant until spontaneous labour began, unless there was an indication to induce labour or perform a CS. Babies in breech presentation who were born vaginally were attended by a clinician experienced in vaginal breech birth. A companion article (Hannah 2002) reports some labour complications that led to CS in the group randomised to planned vaginal birth, such as failure to progress in labour Early labour defined as contractions less frequent than every 5 min or if more frequent than every 5 min, cervix dilated <3 cm and effaced <80%; active labour defined as contractions more frequent than every 5 min and cervic dilated >=3 cm or effaced >=80%. "Adverse perinatal outcome" defined as one or more of the following: perinatal or neonatal	aOR*: 0.21 95% CI 0.06 to 0.69, p=0.01 CS during active labour: 18/528 (3.4%), aOR*: 0.57 95% CI 0.32 to 1.02, p=0.06 *Not clearly reported in the article but assumed that the final analysis adjusted for birthweight	group; the exposure was ascertained by a secure record; outcomes of interest were not present at the start of the study as they occurred after birth) Comparability: low risk of bias (the study calculated adjusted odds ratios by building a multiple regression model, adding or removing variables using a step-wise approach) Outcome: low risk of bias (assessment of outcome was through medical records; follow-up was long enough for the outcomes to occur; women lost to follow-up were unlikely to introduce bias (very small number of women did not have data on outcomes (5 out of 2088) and around 10% (around 200 out of remaining 2083) of the women were excluded from outcome analysis because of non-breech presentation) **Other information**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
The Canadian Institutes of Health Research (CIHR), Centre for Research in Women's Health, Sunnybrook and Women's College Health Sciences Centre, and the Department of Obstetrics and Gynecology at the University of Toronto	Complete breech: 647/1887 Birthweight >3500g: 460/1887 Birthweight 2800-3500g: 1060/1887 Birthweight <2800g: 367/1887 **Inclusion criteria** Singleton fetus in a frank or complete breech presentation at term (>=37 weeks of gestation) and who were without contraindication to labour or vaginal birth **Exclusion criteria** Lethal congenital anomalies, perinatal deaths that occurred before randomisation, babies with missing labour and		mortality at less than 28 days of age (excluding lethal congenital anomalies); birth trauma including subdural haematoma, spinal cord injury, basal skull fracture, peripheral nerve injury present at discharge from hospital, or clinically significant genital injury; seizures occurring at less than 24 hours of age or requiring 2 or more drugs to control them; Apgar score of less than 4 at 5 minutes; cord blood base deficit of at least 15; hypotonia for at least 2 hours; stupor, decreased response to pain or coma; intubation and ventilation for at least 24 hours; tube feeding for 4 days or more; or admission to the neonatal intensive care unit for longer than 4 days. Multiple logistic regression analysis was done to determine the adjusted odds ratio of adverse perinatal outcome between modes of birth. A step-wise approach was used to build to multiple regression model, level to		In some cases, randomisation to "planned CS" happened when labour had already started. Therefore, CS during early labour or CS during active labour might still have been considered "planned CS" in the trial

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	birth data because they were born in a non-participating hospital. For the analysis for the guideline review, prelabour caesarean section (CS) was excluded		enter the model was set a p<0.05 and the level to remove from the model was set at p>0.2. The variables included maternal age, parity, gestational age, maternal diabetes, uterine abnormality, hypertension, previous Caesarean section, national perinatal mortality rate of the country, mode of delivery, epidural analgesia, type of breech at delivery, birth weight.		
Full citation Su, M., McLeod, L., Ross, S., Willan, A., Hannah, W. J., Hutton, E. K., Hewson, S. A., McKay, D., Hannah, M. E., Factors Associated with Maternal Morbidity in the Term Breech Trial, Journal of Obstetrics and Gynaecology Canada, 29, 324-330, 2007 **Ref Id** 650365 **Country/ies where the study was carried out**	**Sample size** n=2088 originally randomised n=2078 with data on maternal morbidity n=1536 with data on maternal morbidity excluding prelabour caesarean sections **Characteristics**	**Interventions** The RCT originally randomised women to have a planned caesarean section or planned vaginal birth. Interventions relevant to the guideline review: caesarean section during early labour, caesarean section during active labour, vaginal birth	**Details** Women entering the trial were randomly allocated to planned CS or planned vaginal birth. If randomised to the planned CS group, the CS was scheduled for >=38 weeks of gestation. If the woman was in labour at the time of randomisation, the CS was performed as soon as possible. If the woman was randomised to the planned vaginal birth group, management was expectant until spontaneous labour began, unless there was an indication to induce labour or	**Results** **Maternal** Postpartum haemorrhage >1500 ml: Vaginal birth: 1/689 (0.1%) CS during early labour: 1/248 (0.4%) CS during active labour: 3/599 (0.5%) Maternal systemic infection Postpartum fever >=38.5C: Vaginal birth: 1/689 (0.1%)	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (some of the women in the non-exposed group were drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; the exposure was ascertained by a secure record; outcomes of interest were not present at the start

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Canada/multiple countries (the trial was carried out in 26 countries) **Study type** Secondary analysis of randomised controlled trail (RCT) data (Term Breech Trial) **Aim of the study** To identify factors associated with maternal morbidity among 2078 women **Study dates** Not reported **Source of funding** The Canadian Institutes of Health Research (CIHR), Centre for Research in Women's Health, Sunnybrook and Women's College Health Sciences Centre, and the Department of Obstetrics and Gynecology at the University of Toronto	See Su 2003 (also included in the guideline review) **Inclusion criteria** Singleton fetus in a frank or complete breech presentation at term (>=37 weeks of gestation) and who were without contraindication to labour or vaginal birth **Exclusion criteria** Women with missing data related to duration of labour. For the analysis for the guideline review, prelabour caesarean section (CS) was excluded		perform a CS. Babies in breech presentation who were born vaginally were attended by a clinician experienced in vaginal breech birth. A companion article (Hannah 2002) reported some labour complications that led to CS in the group randomised to planned vaginal birth, such as failure to progress in labour Active labour was defined as the presence of contractions <= 5 minutes apart with the cervix dilated to 3 cm or more or 80% effaced. Early labour was defined as any labour that did not meet the definition of active labour Maternal morbidity during the first 6 weeks postpartum was defined as at least 1 of the following: death; postpartum haemorrhage of more than 1500 ml or a need for blood transfusion; dilatation and curettage for bleeding or retained placental tissue; hysterectomy; cervical laceration involving the lower uterine segment (in the case of vaginal birth); vertical uterine incision or serious	CS during early labour: 2/248 (0.8%) CS during active labour: 16/599 (2.7%) <u>Maternal morbidity:</u> Vaginal birth: 13/689 (1.9%), adjusted odds ratio (aOR)*: Reference CS during early labour: 11/248 (4.4%), aOR* 2.41 95% CI 1.07 to 5.46, p=0.03 CS during active labour: 36/599 (6.0%), aOR* 3.33 95% CI 1.75 to 6.33, p<0.001 *Not clear from the article which variables were included in the final analysis <u>Early postpartum depression:</u> Vaginal birth: 0/689 (0%) CS during early labour: 1/248 (0.4%) CS during active labour: 1/599 (0.2%)	of the study as they occurred during or after birth) Comparability: high/low risk of bias (the study did not adjust for any factor for certain outcomes and therefore there is a high risk of bias whereas for other outcomes the study calculated adjusted odds ratios by building a multiple regression model , adding or removing variables using a step-wise approach, thus reducing the risk of bias) Outcome: low risk of bias (assessment of outcome was through medical records; follow-up was long enough for the outcomes to occur; women lost to follow-up were unlikely to introduce bias (a very small number of women did not have relevant data (10 out of 2088) **Other information** In some cases, randomisation to "planned CS" happened when labour had already started.

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
			extension to a transverse uterine incision (in the case of CS); vulvar or perineal haematoma requiring evacuation; deep vein thrombophlebitis or pulmonary embolism requiring anticoagulant therapy; pneumonia; adult respiratory distress syndrome; wound infection requiring prolonged hospital care as an inpatient or outpatient or readmission to hospital; wound dehiscence or breakdown; maternal fever of at least 38.5C on 2 occasionas at least 24 hours apart not including the first 24 hours; bladder, ureteric, or bowel injury requiring repair; genital tract fistula; bowel obstruction; or other serious maternal morbidity as judged by members of the steering committee (masked to allocation group and if possible to mode of birth) Multiple logistic regression analysis was done to determine the adjusted odds ratio of maternal morbidity between modes of birth. A		Therefore, CS during early labour or CS during active labour might still have been considered "planned CS" in the trial

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
			step-wise approach was used to build to multiple regression model, level to enter the model was set a p<0.05 and the level to remove from the model was set at p>0.2. The variables included maternal age, parity, gestational age at randomisation, maternal diabetes, uterine anomaly, hypertension, previous CS, maternal infection, national perinatal mortality rate of country, duration of membrane rupture, continuous electronic fetal heart rate monitoring, labour induction with oxytocin and/or prostaglandins, labour augmentation with oxytocin and/or prostaglandins, general anaesthesia, epidural analgesia, duration of first stage of labour (defines as the time between onset of active labour and full cervical dilatation), duration of passive phase of second stage of labour (defined as the time between full cervical dilatation and beginning to push), duration of active phase of second stage of labour (defined as time between		

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
			beginning to push and birth), birth weight, fetal presentation at birth, episiotomy, perineal laceration, administration of antibiotics before or during birth, abruptio placenta, cord prolapse, clinical chorioamnionitis, uterine rupture, and experience of the clinician at birth		
Full citation van Loon, A. J., Mantingh, A., Serlier, E. K., Kroon, G., Mooyaart, E. L., Huisjes, H. J., Randomised controlled trial of magnetic-resonance pelvimetry in breech presentation at term, Lancet, 350, 1799-804, 1997 **Ref Id** 396746 **Country/ies where the study was carried out** The Netherlands **Study type** Prospective cohort (secondary analysis from a randomised controlled trial (RCT))	**Sample size** N=189 **Characteristics** Women had a trial of labour based either on pelvimetry results (study group in the RCT) or based on the obstetrician's judgement; manual pelvimetry was permitted (control group in the RCT). Emergency caesarean section after a trial of labour was performed	**Interventions** Emergency CS after a trial of labour (n=63*) Vaginal birth (n=126*) (spontaneous: n=80*; assisted: n=46*) * Numbers calculated by the NGA technical team by adding numbers in the study and control groups of the RCT	**Details** Women were recruited from 7 antenatal centres in the 3 northern provinces of the Netherlands. Progress in labour was assessed with a partograph. Criteria for fetal distress were the occurrence of late fetal-heart-rate decelerations with a diminised baseline variability, persistent fetal bradycardia, and poor blood-gas analysis from a buttock sample. Maternal complications were diagnosed by the referring obstetricians	**Results** **Maternal** <u>Third-degree perineal laceration:</u> Emergency CS (n=63*): 0* Vaginal birth (n=126): 1* <u>Blood loss > 500 ml:</u> Emergency CS (n=63*): 4* Vaginal birth (n=126): 14* <u>Blood loss > 1000 ml:</u> Emergency CS (n=63*): 1* Vaginal birth (n=126): 7* **Neonatal**	**Limitations** Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: high risk of bias (the non-exposed group was drawn from a different population to the exposed group because the exposed group had clinical indications for an emergency CS. These indications could, in turn, be associated with adverse outcomes; however, the exposed and non-exposed groups were both representative of the population of interest; the exposure was ascertained through medical records; outcomes of interest were not present at the start of the

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Aim of the study To evaluate pelvimetry in an RCT **Study dates** Women with breech presentations were recruited between January 1993 and April 1996 **Source of funding** The study was supported by a grant from the Ziekenfondsraad (OG92/006)	because of poor progress in the first or second stage (n=41 and 22 respectively*). In 5 cases of emergency CS due to prolonged first stage, fetal distress was an additional reason. Spontaneous onset of labour: emergency CS (n=63*): 44* versus vaginal birth (n=126*): 83* Augmented onset of labour: emergency CS (n=63*): 11* versus vaginal birth (n=126*): 23* Induced onset of labour: emergency CS (n=63*): 8* versus vaginal birth (n=126): 20* Opioids in labour: emergency CS (n=63*): 12*(opioids in the first stage of			<u>Temporary traumatic lesion of the brachial plexus:</u> Emergency CS (n=63*): 0* Vaginal birth (n=126): 1* * Numbers calculated by the NGA technical team by adding numbers in the study and control groups of the RCT	study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor in relation to the comparison of interest) Outcome: low risk of bias (outcomes were assessed by the referring obstetricians, not blinded to interventions; follow-up was long enough for the outcomes to occur; complete follow-up) **Other information** None

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	labour) versus vaginal birth (n=126): 19* Regional analgesia (spinal/epidural): emergency CS (n=63*): 33* versus vaginal birth (n=126): 1* General analgesia: emergency CS (n=63*): 30* versus vaginal birth (n=126): 0* * Calculated by the NGA technical team by adding numbers in the study and in the control group of the RCT **Inclusion criteria** Women with singleton breech presentations ≥37 weeks of gestation **Exclusion criteria**				

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	Exclusion criteria were an estimated fetal weight greater than 4000g, hyperextension of the fetal head, a known fetal structural defect, a known pelvic or uterine abnormality, previous fetopelvic disproportion, and planned elective CS for reasons other than suspected pelvic contraction. Multiparity was an exclusion criterion unless the referring obstetrician had doubts about a vaginal birth because of previous pregnancy ending in CS, a low-birthweight infant, or a difficult labour				
Full citation	**Sample size**	**Interventions**	**Details**	**Results**	**Limitations**

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Zatuchni, G. I., Andros, G. J., Prognostic index for vaginal delivery in breech presentation at term. Prospective study, American Journal of Obstetrics & Gynecology, 98, 854-7, 1967 **Ref Id** 650450 **Country/ies where the study was carried out** USA **Study type** Prospective cohort **Aim of the study** To evaluate a breech index to select women whose labour should be terminated by caesarean section **Study dates** Women with breech presentations from 1 September 1963 to 30 April 1966	N= 24 caesarean sections N=115 vaginal births **Characteristics** The study authors did not report that women were in labour. However, it is assumed that women were in labour because the study authors report in the abstract of the article that they focus on the usefulness of the index in selecting those women whose labour should be terminated by caesarean section. Moreover, the only options provided by the index in terms of dilatation are either 2 cm, 3	Intervention. Caesarean sections (the article does not report that these were in labour but it is assumed so based on the index and its stated purpose): n=24 Comparator. Vaginal breech birth: n=115 (spontaneous: n=7; partial extraction: n=76; complete extraction: n=32)	No direct attempt was made to influence management for any woman. Factors involved in the scoring system were indicated on work sheets provided to staff upon admission of the woman to the labour suite. Criteria for scoring corresponded to the following schema. Parity: primigravida (score 0) versus multipara (score 1). Gestational age: 39 weeks or more (score 0) versus 38 weeks: (score 1) versus 37 weeks or less (score 2). Estimated fetal weight: over 3,630 g (score 0) versus 3,629-3,176 g (score 1) versus <3,175 g (score 2). Previous breech: none (score 0) versus 1 (score 1) versus 2 or more (score 2). Dilatation: 2 cm (score 0) versus 3 cm (score 1) versus 4 cm or more (score 2). Station: -3 or higher (score 0) versus -2 (score 1) versus -1 or lower (score 2). The study authors suggested that all women with a total score of 3 or lower should have a caesarean section. With a score of 4, careful re-	**Neonatal** Fetal death: Caesarean sections (n=24): 0 Vaginal births (n=115): 1 (this baby had anoxia, convulsions and intracerebral haemorrhage) Brachial palsy: Caesarean sections (n=24): 0 Vaginal births (n=115): 1 Severe neonatal morbidity (anoxia, pneumonia, pneumothorax): Caesarean sections (n=24): 0 Vaginal births (n=115): 2 Severe neonatal morbidity (VII nerve palsy, apneic episodes, convulsions): Caesarean sections (n=24): 0 Vaginal births (n=115): 2	Limitations assessed with the Newcastle-Ottawa Quality Assessment Scale: Selection: low risk of bias (the non-exposed group was drawn from the same population as the exposed group because a low or high score was not necessarily associated with adverse outcomes; the study authors did not report how they assessed exposure but given the study setting it is assumed that this was ascertained through medical records; outcomes of interest were not present at the start of the study as they occurred during or after birth) Comparability: high risk of bias (the study did not adjust for any factor) Outcome: low risk of bias (the study authors did not mention how they assessed outcomes but given the study setting it is assumed this was through medical records; follow-up was long enough for the outcomes to occur; complete follow-up)

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Source of funding Not reported	cm or at least 4 cm. Baseline characteristics were as follows. Nulliparous: 51 (37%). The study authors reported that women in the study were admitted to the labour suite. Maternal age range: 14 to 43 years. Women over 35 years: n=16. No baseline characteristics stratified by intervention subgroup **Inclusion criteria** Women with breech presentations at term attending the Temple University Health Sciences		evaluation of the woman was recommended and the size of the fetus should be ascertained. If the evaluation was unchanged after this, vaginal birth should be safe. If the score were 5 or higher, there should be no difficulty with vaginal birth	Neonatal mortality and morbidity occurred only in babies with a low score who were born vaginally	**Other information** 4 women in the low-score group received oxytocin and had a vaginal birth. In all cases there was severe morbidity. 13 women in the low-score group received oxytocin and had a caesarean section. There was no fetal morbidity. 11 women in the high-score group received oxytocin for abnormal labour. All had a vaginal birth with no morbidity

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	Center during the study period **Exclusion criteria** Preterm births, cases of severe congenital anomalies, prolapsed cord cases and bleeding placental problems. Also, the scoring system could not be applied to women scheduled for elective induction				