National Institute for Health and Care Excellence

FINAL

Antenatal care

[M] Management of breech presentation

NICE guideline NG201

Evidence reviews underpinning recommendation 1.2.38

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Final

These evidence reviews were developed by the National Guideline Alliance, which is a part of the Royal College of Obstetricians and Gynaecologists

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Management of breech presentation

Review question

What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

Introduction

Breech presentation of the fetus in late pregnancy may result in prolonged or obstructed labour with resulting risks to both woman and fetus. Interventions to correct breech presentation (to cephalic) before labour and birth are important for the woman's and the baby's health. The aim of this review is to determine the most effective way of managing a breech presentation in late pregnancy.

Summary of the protocol

Please see Table 1 for a summary of the Population, Intervention, Comparison and Outcome (PICO) characteristics of this review.

Table 1: Summary of the protocol (PICO table)

Population	All pregnant women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36^{+0} weeks

Intervention	Cephalic version by the following listed interventions will be considered:
	• Complementary therapy
	  ○ Acupressure
	  ○ Acupuncture
	  ○ Moxibustion
	  ○ Reflexology
	Note: complementary therapy interventions will be analysed separately.
	• External cephalic version (ECV)
	  ○ ECV only
	  ○ ECV + additional component (for example, fetal acoustic stimulation, pharmacological [for example, beta-2 agonist, Ca^{2+} channel blocker, NSAID, oxytocin receptor anatagonist])
	• Postural management (for example, knee-chest, supine)
	Any combination of these interventions

Comparison	**For all between-intervention comparisons:** 1. Any listed intervention vs any other listed intervention 2. Any listed intervention vs control (including no treatment, placebo or sham treatment) 3. Any combination of listed interventions vs one of the interventions **For postural management:** 4. Specific form of postural management vs another form of postural management 5. Specific form of postural management vs daily walking 6. Specific form of postural management vs no treatment

Outcomes	**Critical**
	• Cephalic presentation in labour
	• Method of birth
	  ○ Breech vaginal birth
	  ○ Caesarean birth
	  ○ Cephalic vaginal birth
	• Admission to SCBU/NICU
	• Fetal death after 36^{+0} weeks gestation
	• Infant death up to 4 weeks chronological age

Important
- Apgar score <7 at 5 minutes
- Birth before 39^{+0} weeks of gestation

ECV: external cephalic version; NICU: neonatal intensive care unit; NSAID: non-steroidal anti-inflammatory drug; SCBU: special care baby unit.

For further details see the review protocol in appendix A.

Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual 2014. Methods specific to this review question are described in the review protocol in appendix A.

Declarations of interest were recorded according to NICE's conflicts of interest policy.

Clinical evidence

Included studies

Thirty-six randomised controlled trials (RCTs) were identified for this review.

The included studies are summarised in Table 2.

Three studies reported on external cephalic version (ECV) versus no intervention (Dafallah 2004, Hofmeyr 1983, Rita 2011). One study reported on a 4-arm trial comparing acupuncture, sweeping of fetal membranes, acupuncture plus sweeping, and no intervention (Andersen 2013). Two studies reported on postural management versus no intervention (Chenia 1987, Smith 1999).

Seven studies reported on ECV plus anaesthesia (Chalifoux 2017, Dugoff 1999, Khaw 2015, Mancuso 2000, Schorr 1997, Sullivan 2009, Weiniger 2010). Of these studies, 1 study compared ECV plus anaesthesia to ECV plus other dosages of the same anaesthetic (Chalifoux 2017); 4 studies compared ECV plus anaesthesia to ECV only (Dugoff 1999, Mancuso 2000, Schorr 1997, Weiniger 2010); and 2 studies compared ECV plus anaesthesia to ECV plus a different anaesthetic (Khaw 2015, Sullivan 2009).

Ten studies reported ECV plus a β2 receptor agonist (Brocks 1984, Fernandez 1997, Hindawi 2005, Impey 2005, Mahomed 1991, Marquette 1996, Nor Azlin 2005, Robertson 1987, Van Dorsten 1981, Vani 2009). Of these studies, 5 studies compared ECV plus a β2 receptor agonist to ECV plus placebo (Fernandez 1997, Impey 2005, Marquette 1996, Nor Azlin 2005, Vani 2009); 1 study compared ECV plus a β2 receptor agonist to ECV alone (Robertson 1987); and 4 studies compared ECV plus a β2 receptor agonist to no intervention (Brocks 1984, Hindawi 2005, Mahomed 1991, Van Dorsten 1981).

One study reported on ECV plus Ca^{2+} channel blocker versus ECV plus placebo (Kok 2008). Two studies reported on ECV plus β2 receptor agonist versus ECV plus Ca^{2+} channel blocker (Collaris 2009, Mohamed Ismail 2008). Four studies reported on ECV plus a μ-receptor agonist (Burgos 2016, Liu 2016, Munoz 2014, Wang 2017), of which 3 compared against ECV plus placebo (Liu 2016, Munoz 2014, Wang 2017) and 1 compared to ECV plus nitrous oxide (Burgos 2016).

Four studies reported on ECV plus nitroglycerin (Bujold 2003a, Bujold 2003b, El-Sayed 2004, Hilton 2009), of which 2 compared it to ECV plus β2 receptor agonist (Bujold 2003b, El-Sayed 2004) and compared it to ECV plus placebo (Bujold 2003a, Hilton 2009). One study compared ECV plus amnioinfusion versus ECV alone (Diguisto 2018) and 1 study compared ECV plus talcum powder to ECV plus gel (Vallikkannu 2014).

One study was conducted in Australia (Smith 1999); 4 studies in Canada (Bujold 2003a, Bujold 2003b, Hilton 2009, Marquette 1996); 2 studies in China (Liu 2016, Wang 2017); 2 studies in Denmark (Andersen 2013, Brocks 1984); 1 study in France (Diguisto 2018); 1 study in Hong Kong (Khaw 2015); 1 study in India (Rita 2011); 1 study in Israel (Weiniger 2010); 1 study in Jordan (Hindawi 2005); 5 studies in Malaysia (Collaris 2009, Mohamed Ismail 2008, Nor Azlin 2005, Vallikkannu 2014, Vani 2009); 1 study in South Africa (Hofmeyr 1983); 2 studies in Spain (Burgos 2016, Munoz 2014); 1 study in Sudan (Dafallah 2004); 1 study in The Netherlands (Kok 2008); 2 studies in the UK (Impey 2005, Chenia 1987); 9 studies in US (Chalifoux 2017, Dugoff 1999, El-Sayed 2004, Fernandez 1997, Mancuso 2000, Robertson 1987, Schorr 1997, Sullivan 2009, Van Dorsten 1981); and 1 study in Zimbabwe (Mahomed 1991).

The majority of studies were 2-arm trials, but there was one 3-arm trial (Khaw 2015) and two 4-arm trials (Andersen 2013, Chalifoux 2017). All studies were conducted in a hospital or an outpatient ward connected to a hospital.

See the literature search strategy in appendix B and study selection flow chart in appendix C.

Excluded studies

Studies not included in this review with reasons for their exclusions are provided in appendix K.

Summary of clinical studies included in the evidence review

Summaries of the studies that were included in this review are presented in Table 2.

Table 2: Summary of included studies

Study	Population	Intervention	Comparison	Outcomes
Andersen 2013 RCT Denmark	N=407 pregnant women Maternal mean age: 30.5 years Mean maternal gestational age: 41 weeks (±0.7)	Acupuncture Needles placed bilaterally for at least 30 minutes Sweeping of fetal membrane Performed by investigator Acupuncture + sweeping	Control (no intervention)	• Method of birth • Admission to SCBU/NICU • Apgar score <7 at 5 minutes
Brocks 1984 RCT Denmark	N=65 pregnant women Maternal mean age: Not reported Mean maternal gestational age: Not mentioned	ECV + Ritodrine IV ritodrine, administered for 15 minutes	Control (no intervention)	• Method of birth • Fetal death after 36^{+0} weeks gestation

Study	Population	Intervention	Comparison	Outcomes
Bujold 2003a RCT Canada	N=99 pregnant women Maternal mean age: 29.5 years Median maternal gestational age: 37.5 weeks (min 36.0, max 40.7)	ECV + Nitroglycerin Two sublingual sprays of nitroglycerin (400 micrograms)	ECV + Placebo Sublingual placebo spray	• Cephalic presentation in labour • Method of birth
Bujold 2003b RCT Canada	N=74 pregnant women Maternal mean age: 31.6 years Median maternal gestational age: 37.4 (min 36.1, max 39.3)	ECV + Ritodrine IV ritodrine (10mg/mL) plus sublingual placebo	ECV + Nitroglycerin IV placebo plus sublingual nitroglycerin (400 micrograms)	• Cephalic presentation in labour • Method of birth
Burgos 2016 RCT Spain	N=120 pregnant women Maternal mean age: 34.95 years Mean maternal gestational age: 37 weeks	ECV + Remifentanil Injectable solution or infusion of remifentanil (1mg vials) Note: All ECVs were performed under tocolysis (either ritodrine 200µg/min for 30 minutes or 6.75mg atosiban, given as an IV bolus 2 min before procedure).	ECV + Nitrous oxide Medicinal gas mixture of 50% nitrous oxide and 50% oxygen	• Method of birth • Admission to SCBU/NICU • Apgar score <7 at 5 minutes
Chalifoux 2017 RCT US	N=240 pregnant women Maternal mean age: Not reported Median maternal gestational age: 37.3 weeks [IQR 37 to 38]	ECV + Bupivacaine 2.5mg + fentanyl 15 micrograms ECV + Bupivacaine 5.0mg + fentanyl 15 micrograms ECV + Bupivacaine 7.5mg + fentanyl 15 micrograms	ECV + Bupivacaine 10mg + fentanyl 15 micrograms	• Method of birth

Study	Population	Intervention	Comparison	Outcomes
Chenia 1987 RCT UK	N=76 pregnant women Maternal mean age: 26.1 years Mean maternal gestational age: 38.4 weeks (±1.74)	Postural management Knee-chest position for 15 minutes, three times a day, for 1 week	Control (no intervention)	• Cephalic presentation in labour • Method of birth • Admission to SCBU/NICU • Apgar score <7 at 5 minutes
Collaris 2009 RCT Malaysia	N=90 pregnant women Maternal mean age: 30 years Mean maternal gestational age: 38 weeks (±1.0)	ECV + Nifedipine Nifedipine tablet (10mg) + placebo injection	ECV + Terbutaline Placebo tablet + 0.5mL terbutaline injection (500 micrograms/mL)	• Cephalic presentation in labour • Method of birth • Admission to SCBU/NICU • Apgar score <7 at 5 minutes
Dafallah 2004 RCT Sudan	N=620 pregnant women Maternal mean age: Not reported Mean maternal gestational age: Not mentioned	ECV Classic forward roll technique used, in slight Trendelenburg. Repeated up to 3 times at subsequent visits but not more than twice in one week.	Control (no intervention)	• Cephalic presentation in labour • Method of birth • Fetal death after 36^{+0} weeks gestation
Diguisto 2018 RCT France	N=199 pregnant women Maternal mean age: 29.5 years Median maternal gestational age: 37.1 weeks [IQR 36.1 to 37.8]	ECV + Amnioinfusion Transabdominal amnioinfusion with saline solution (500mL)	ECV	• Cephalic presentation in labour • Method of birth
Dugoff 1999 RCT US	N=102 pregnant women Maternal mean age: 25 years Mean maternal gestational age: 38 weeks (±0.2)	ECV + Sufentanil Sufentanil (10 micrograms) 0.25% bupivacaine (1mL) administered after lactated Ringer's solution (500mL)	ECV	• Cephalic presentation in labour • Method of birth

Study	Population	Intervention	Comparison	Outcomes
		+ IV terbutaline (0.25mg)		
El-Sayed 2004 RCT US	N=59 pregnant women Maternal mean age: 31.3 years Mean maternal gestational age: 38.4 weeks (±0.8)	ECV + Nitroglycerin IV nitroglycerin (200 micrograms)	ECV + Terbutaline Subcutaneous terbutaline injection (0.25mg)	• Method of birth
Fernandez 1997 RCT US	N=103 pregnant women Maternal mean age: 24 years Mean maternal gestational age: 38.5 weeks (±1.6)	ECV + Terbutaline Subcutaneous injection of terbutaline (0.25mg)	ECV + Placebo Subcutaneous injection of placebo	• Method of birth
Hilton 2009 RCT Canada	Nulliparous women N=82 pregnant women Multiparous women N=44 pregnant women Maternal mean age: 29.5 and 31.5 years, respectively Mean maternal gestational age: Nulliparous 37 weeks (±5.0) Multiparous 37 weeks (±4.0)	ECV + Nitroglycerin IV nitroglycerin (100 micrograms/mL)	ECV + Placebo IV saline (10mL)	• Cephalic presentation in labour • Method of birth
Hindawi 2005 RCT Jordan	N=192 pregnant women Maternal mean age: 28 years Mean maternal gestational age: 38 weeks (±2.0)	ECV + Ritodrine Infusion of ritodrine (0.3mg/minute for 30 minutes)	Control (no intervention)	• Cephalic presentation in labour • Method of birth • Fetal death after 36^{+0} weeks gestation

Study	Population	Intervention	Comparison	Outcomes
Hofmeyr 1983 RCT South Africa	N=60 pregnant women Maternal mean age: 24.8 years Mean maternal gestational age: 37.6 weeks (±1.0)	ECV ECV attempt initially without tocolysis. If unsuccessful (7 cases), attempt repeated following hexoprenaline (10 micrograms) by slow IV injection.	Control (no intervention)	• Cephalic presentation in labour • Method of birth • Fetal death after 36^{+0} weeks gestation • Apgar score <7 at 5 minutes
Impey 2005 RCT UK	N=124 pregnant women Maternal mean age: 30.7 years Mean maternal gestational age: 37.5 weeks (±0.83)	ECV + Ritodrine 17mL ritodrine hydrochloride (3mg/mL)	ECV + Placebo Dextrose saline (17mL)	• Cephalic presentation in labour • Method of birth • Admission to SCBU/NICU • Apgar score <7 at 5 minutes
Khaw 2015 RCT Hong Kong	N=189 pregnant women Maternal mean age: 32 years Median maternal gestational age: 36.5 weeks (Range 36.1 to 39.6)	ECV + Bupivacaine Hyperbaric bupivacaine 0.5% (1.8mL) + fentanyl (15 micrograms) ECV + Remifentanil IV remifentanil (0.1 micrograms/kg/minute)	ECV alone	• Method of birth • Apgar score <7 at 5 minutes
Kok 2008 RCT The Netherlands	N=320 pregnant women Maternal mean age: 33.85 years Mean maternal gestational age: 37 weeks (±6.1)	ECV + Nifedipine Two nifedipine capsules (10mg)	ECV + Placebo Two placebo capsules	• Cephalic presentation in labour • Method of birth • Admission to SCBU/NICU • Fetal death after 36^{+0} weeks gestation • Apgar score <7 at 5 minutes
Liu 2016 RCT	N=152 pregnant women	ECV + Remifentanil	ECV + Placebo Saline placebo	• Method of birth

Study	Population	Intervention	Comparison	Outcomes
China	Maternal mean age: 33.95 years Mean maternal gestational age: 37 weeks	Remifentanil (01 micrograms/kg/minute) 3 minutes before ECV		
Mahomed 1991 RCT Zimbabwe	N=208 pregnant women Maternal mean age: 26.65 years Mean maternal gestational age: 38 weeks (±1.0)	ECV + Hexoprenaline IV hexaprenaline (Ipradol 10 micrograms) over 1 minute	Control (no intervention)	• Cephalic presentation in labour • Method of birth • Admission to SCBU/NICU • Fetal death after 36^{+0} weeks gestation • Apgar score <7 at 5 minutes
Mancuso 2000 RCT US	N=108 pregnant women Maternal mean age: 28.3 years Mean maternal gestational age: 38.0 weeks (±1.1)	ECV + Lidocaine + Epinephrine + Fentanyl 2% lidocaine epinephrine (3 mL) infused through lumbar epidural catheters.	ECV alone	• Cephalic presentation in labour • Method of birth
Marquette 1996 RCT Canada	N=283 pregnant women Maternal mean age: 28.9 years Mean maternal gestational age: 37.4 weeks (±0.08)	ECV + Ritodrine IV ritodrine (111 micrograms/minute)	ECV + Placebo Placebo saline	• Method of birth
Mohamed Ismail 2008 RCT Malaysia	N=86 pregnant women Maternal mean age: 29.2 years Mean maternal gestational age: 37.7 weeks (±0.6)	ECV + Nifedipine Oral nifedipine (20mg)	ECV + Terbutaline IV terbutaline (50 micrograms)	• Method of birth • Admission to SCBU/NICU • Apgar score <7 at 5 minutes
Munoz 2014 RCT Spain	N=63 pregnant women Maternal mean age: 32.7 years	ECV + Remifentanil 100mL remifentanil (1mg)	ECV + Placebo Placebo saline (100mL)	• Method of birth

Study	Population	Intervention	Comparison	Outcomes
	Mean maternal gestational age: Not mentioned	at 0.1 microgram/kg/min		
Nor Azlin 2005 RCT Malaysia	N=60 pregnant women Maternal mean age: 28 years Mean maternal gestational age: Not mentioned	ECV + Ritodrine IV ritodrine (0.4mg/mL)	ECV + Placebo IV placebo saline	• Cephalic presentation in labour • Method of birth • Admission to SCBU/NICU
Rita 2011 RCT India	N=60 pregnant women Maternal mean age: 27.2 years Mean maternal gestational age: 38 weeks (±1.4)	ECV	Control (no intervention)	• Method of birth • Admission to SCBU/NICU • Fetal death after 36^{+0} weeks gestation • Apgar score <7 at 5 minutes
Robertson 1987 RCT US	N=58 pregnant women Maternal mean age: 23 years Mean maternal gestational age: 38.6 weeks (±0.2)	ECV + Ritodrine IV ritodrine (200 micrograms/minute)	ECV alone	• Method of birth
Schorr 1997 RCT US	N=69 pregnant women Maternal mean age: 26 years Mean maternal gestational age: 37.7 weeks (±2.22)	ECV + Lidocaine + Epinephrine 2% lidocaine with epinephrine	ECV alone	• Method of birth • Admission to SCBU/NICU
Smith 1999 RCT Australia	N=100 pregnant women Maternal mean age: 29 years Mean maternal gestational age: 36.7 weeks (±0.6)	ECV + Postural management Knee-chest position, for 15 minutes, three times a day, for one week	ECV alone	• Method of birth • Apgar score <7 at 5 minutes

Study	Population	Intervention	Comparison	Outcomes
Sullivan 2009 RCT US	N=96 pregnant women Maternal mean age: 32.5 years Median maternal gestational age: 37 weeks [IQR 37 to 38]	ECV + Bupivacaine + Fentanyl Bupivacaine (2.5mg) + fentanyl (15 micrograms)	ECV + Fentanyl IV fentanyl (50 micrograms)	• Method of birth
Vallikkannu 2014 RCT Malaysia	N=95 pregnant women Maternal mean age: 30.3 years Median maternal gestational age: 37.7 weeks [IQR 37.4 to 38.2]	ECV + Talcum powder Subcutaneous terbutaline (250 micrograms) given 5-10 minutes prior to attempting ECV.	ECV + Gel Subcutaneous terbutaline (250 micrograms) given 5-10 minutes prior to attempting ECV.	• Cephalic presentation in labour • Method of birth • Admission to SCBU/NICU
Van Dorsten 1981 RCT US	N=48 pregnant women Maternal mean age: 25 years Mean maternal gestational age: 37.7 weeks (±0.2)	ECV + Terbutaline Terbutaline (5 micrograms/minute) given 10-15 minutes before ECV	Control (no intervention)	• Cephalic presentation in labour • Method of birth • Admission to SCBU/NICU • Fetal death after 36^{+0} weeks gestation • Apgar score <7 at 5 minutes
Vani 2009 RCT Malaysia	N=144 pregnant women Maternal mean age: 28.45 years Mean maternal gestational age: 38 weeks (±0.65)	ECV + Salbutamol IV salbutamol (0.1mg)	ECV + Placebo	• Method of birth • Admission to SCBU/NICU
Wang 2017 RCT China	N=144 pregnant women Maternal mean age: 32.05 years Mean maternal gestational age: 37 weeks	ECV + Remifentanil Remifentanil (0.1 micrograms/kg/min) for 3 minutes	ECV + Placebo Saline placebo	• Method of birth • Fetal death after 36^{+0} weeks gestation
Weiniger 2010	N=65 pregnant women	ECV + Bupivacaine	ECV alone	• Method of birth

Study	Population	Intervention	Comparison	Outcomes
RCT Israel	Maternal mean age: 28.55 years Mean maternal gestational age: 38.1 weeks (±1.0)	Bupivacaine (7.5mg)		

ECV: external cephalic version; IV: intravenous; NICU: neonatal intensive care unit; NSAID: non-steroidal anti-inflammatory drug; SCBU: special care baby unit.

See the full evidence tables in appendix D and the forest plots in appendix E.

Quality assessment of clinical outcomes included in the evidence review

See the evidence profiles in appendix F.

Economic evidence

Included studies

A systematic review of the economic literature was conducted but no economic studies were identified which were applicable to this review question.

A single economic search was undertaken for all topics included in the scope of this guideline. See supplementary material 2 for details.

Excluded studies

Economic studies not included in this review are listed, and reasons for their exclusion are provided in appendix K.

Summary of studies included in the economic evidence review

No economic studies were identified which were applicable to this review question.

Economic model

No economic modelling was undertaken for this review because the committee agreed that other topics were higher priorities for economic evaluation.

Evidence statements

Clinical evidence statements

Comparison 1. Complementary therapy versus control (no intervention)

Critical outcomes

Cephalic presentation in labour

No evidence was identified to inform this outcome.

Method of birth

Caesarean section

- Very low quality evidence from 1 RCT (N=204) showed that there is no clinically important difference between acupuncture and control (no intervention) on the number of caesarean sections in pregnant women with breech presentation: RR 0.74 (95% CI 0.38 to 1.43).
- Very low quality evidence from 1 RCT (N=200) showed that there is no clinically important difference between acupuncture plus membrane sweeping and control (no intervention) on the number of caesarean sections in pregnant women with breech presentation: RR 1.29 (95% CI 0.73 to 2.29).

Admission to SCBU/NICU

- Very low quality evidence from 1 RCT (N=204) showed that there is no clinically important difference between acupuncture and control (no intervention) on admission to SCBU/NICU in pregnant women with breech presentation: RR 0.19 (95% CI 0.02 to 1.62).
- Very low quality evidence from 1 RCT (N=200) showed that there is no clinically important difference between acupuncture plus membrane sweeping and control (no intervention) on admission to SCBU/NICU in pregnant women with breech presentation: RR 0.40 (0.08 to 2.01).

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Very low quality evidence from 1 RCT (N=204) showed that there is no clinically important difference between acupuncture and control (no intervention) on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RR 0.32 (95% CI 0.01 to 7.78).
- Very low quality evidence from 1 RCT (N=200) showed that there is no clinically important difference between acupuncture plus membrane sweeping and control (no intervention) on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RR 0.33 (0.01 to 8.09).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 2. Complementary therapy versus Other treatment

Critical outcomes

Cephalic presentation in labour

No evidence was identified to inform this outcome.

Method of birth

Caesarean section

- Low quality evidence from 1 RCT (N=207) showed that there is no clinically important difference between acupuncture and membrane sweeping on the number of caesarean sections in pregnant women with breech presentation: RR 0.64 (95% CI 0.34 to 1.22).

- Low quality evidence from 1 RCT (N=204) showed that there is no clinically important difference between acupuncture and acupuncture plus membrane sweeping on the number of caesarean sections in pregnant women with breech presentation: RR 0.57 (95% CI 0.30 to 1.07).
- Very low quality evidence from 1 RCT (N=203) showed that there is no clinically important difference between acupuncture plus membrane sweeping and membrane sweeping on the number of caesarean sections in pregnant women with breech presentation: RR 1.13 (95% CI 0.66 to 1.94).

Admission to SCBU/NICU

- Very low quality evidence from 1 RCT (N=207) showed that there is no clinically important difference between acupuncture and membrane sweeping on admission to SCBU/NICU in pregnant women with breech presentation: RR 0.33 (95% CI 0.03 to 3.12).
- Very low quality evidence from 1 RCT (N=204) showed that there is no clinically important difference between acupuncture and acupuncture plus membrane sweeping on admission to SCBU/NICU in pregnant women with breech presentation: RR 0.48 (95% CI 0.04 to 5.22).
- Very low quality evidence from 1 RCT (N=203) showed that there is no clinically important difference between acupuncture plus membrane sweeping and membrane sweeping on admission to SCBU/NICU in pregnant women with breech presentation: RR 0.69 (95% CI 0.12 to 4.02).

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Low quality evidence from 1 RCT (N=207) showed that there is no clinically important difference between acupuncture and membrane sweeping on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RD 0.00 (95% CI -0.02 to 0.02).
- Low quality evidence from 1 RCT (N=204) showed that there is no clinically important difference between acupuncture and acupuncture plus membrane sweeping on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RD 0.00 (95% CI -0.02 to 0.02).
- Low quality evidence from 1 RCT (N=203) showed that there is no clinically important difference between acupuncture plus membrane sweeping and membrane sweeping on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RD 0.00 (95% CI -0.02 to 0.02).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 3. ECV versus no ECV

Critical outcomes

Cephalic presentation in labour

- Moderate quality evidence from 2 RCTs (N=680) showed that there is clinically important difference favouring ECV over no ECV on cephalic presentation in labour in pregnant women with breech presentation: RR 1.83 (95% CI 1.53 to 2.18).

Method of birth

Cephalic vaginal birth

- Very low quality evidence from 3 RCTs (N=740) showed that there is a clinically important difference favouring ECV over no ECV on cephalic vaginal birth in pregnant women with breech presentation: RR 1.67 (95% CI 1.20 to 2.31).

Breech vaginal birth

- Very low quality evidence from 2 RCTs (N=680) showed that there is no clinically important difference between ECV and no ECV on breech vaginal birth in pregnant women with breech presentation: RR 0.29 (95% CI 0.03 to 2.84).

Caesarean section

- Very low quality evidence from 3 RCTs (N=740) showed that there is no clinically important difference between ECV and no ECV on the number of caesarean sections in pregnant women with breech presentation: RR 0.52 (95% CI 0.23 to 1.20).

Admission to SCBU/NICU

- Very low quality evidence from 1 RCT (N=60) showed that there is no clinically important difference between ECV and no ECV on admission to SCBU//NICU in pregnant women with breech presentation: RR 0.50 (95% CI 0.14 to 1.82).

Fetal death after 36^{+0} weeks gestation

- Very low evidence from 3 RCTs (N=740) showed that there is no statistically significant difference between ECV and no ECV on fetal death after 36^{+0} weeks gestation in pregnant women with breech presentation: Peto OR 0.29 (95% CI 0.05 to 1.73) p=0.18.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Very low quality evidence from 2 RCTs (N=120) showed that there is no clinically important difference between ECV and no ECV on Apgar score <7 at 5 minutes in pregnant women with breech presentation: Peto OR 0.28 (95% CI 0.04 to 1.70).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 4. ECV + Amnioinfusion versus ECV only

Critical outcomes

Cephalic presentation in labour

- Very low quality evidence from 1 RCT (N=109) showed that there is no clinically important difference between ECV plus amnioinfusion and ECV alone on cephalic presentation in labour in pregnant women with breech presentation: RR 1.74 (95% CI 0.74 to 4.12).

Method of birth

Caesarean section

- Low quality evidence from 1 RCT (N=109) showed that there is no clinically important difference between ECV plus amnioinfusion and ECV alone on the number of caesarean sections in pregnant women with breech presentation: RR 0.95 (95% CI 0.75 to 1.19).

Critical outcomes

Admission to SCBU/NICU

No evidence was identified to inform this outcome.

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

No evidence was identified to inform this outcome.

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 5. ECV + Anaesthesia versus ECV only

Critical outcomes

Cephalic presentation in labour

- Very low quality evidence from 2 RCTs (N=210) showed that there is no clinically important difference between ECV plus anaesthesia and ECV alone on cephalic presentation in labour in pregnant women with breech presentation: RR 1.16 (95% CI 0.56 to 2.41).

Method of birth

Cephalic vaginal birth

- Very low quality evidence from 5 RCTs (N=435) showed that there is no clinically important difference between ECV plus anaesthesia and ECV alone on cephalic vaginal birth in pregnant women with breech presentation: RR 1.16 (95% CI 0.77 to 1.74).

Breech vaginal birth

- Very low quality evidence from 1 RCT (N=108) showed that there is no clinically important difference between ECV plus anaesthesia and ECV alone on breech vaginal birth in pregnant women with breech presentation: RR 0.33 (95% CI 0.04 to 3.10).

Caesarean section

- Very low quality evidence from 3 RCTs (N=263) showed that there is no clinically important difference between ECV plus anaesthesia and ECV alone on the number of caesarean sections in pregnant women with breech presentation: RR 0.76 (95% CI 0.42 to 1.38).

Admission to SCBU/NICU

- Moderate quality evidence from 1 RCT (N=69) showed that there is a clinically important difference favouring ECV plus anaesthesia over ECV alone on admission to SCBU/NICU in pregnant women with breech presentation: MD -1.80 (95% CI -2.53 to -1.07).

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Low quality evidence from 1 RCT (N=126) showed that there is no clinically important difference between ECV plus anaesthesia and ECV alone on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RD 0.00 (95% CI -0.03 to 0.03).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 6. ECV + Anaesthesia versus ECV + Anaesthesia

Critical outcomes

Cephalic presentation in labour

No evidence was identified to inform this outcome.

Method of birth

Cephalic vaginal birth

- Very low quality evidence from 1 RCT (N=120) showed that there is no clinically important difference between ECV plus 2.5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 5mg Bupivacaine plus 0.015mg Fentanyl on cephalic vaginal birth in pregnant women with breech presentation: RR 1.13 (95% CI 0.73 to 1.74).
- Low quality evidence from 1 RCT (N=119) showed that there is no clinically important difference between ECV plus 2.5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 7.5mg Bupivacaine plus 0.015mg Fentanyl on cephalic vaginal birth in pregnant women with breech presentation: RR 0.81 (95% CI 0.53 to 1.23).
- Very low quality evidence from 1 RCT (N=120) showed that there is no clinically important difference between ECV plus 2.5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 10mg Bupivacaine plus 0.015mg Fentanyl on cephalic vaginal birth in pregnant women with breech presentation: RR 0.96 (95% CI 0.61 to 1.50).
- Very low quality evidence from 1 RCT (N=95) showed that there is no clinically important difference between ECV plus 2.5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 0.05mg Fentanyl on cephalic vaginal birth in pregnant women with breech presentation: RR 0.69 (95% CI 0.37 to 1.28).

- Low quality evidence from 1 RCT (N=119) showed that there is no clinically important difference between ECV plus 5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 7.5mg Bupivacaine plus 0.015mg Fentanyl on cephalic vaginal birth in pregnant women with breech presentation: RR 0.81 (95% CI 0.53 to 1.23).
- Very low quality evidence from 1 RCT (N=120) showed that there is no clinically important difference between ECV plus 5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 10mg Bupivacaine plus 0.015mg Fentanyl on cephalic vaginal birth in pregnant women with breech presentation: RR 0.96 (95% CI 0.61 to 1.50).
- Very low evidence from 1 RCT (N=119) showed that there is no clinically important difference between ECV plus 7.5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 10mg Bupivacaine plus 0.015mg Fentanyl on cephalic vaginal birth in pregnant women with breech presentation: RR 1.19 (95% CI 0.79 to 1.79).

Caesarean section

- Low quality evidence from 1 RCT (N=120) showed that there is no clinically important difference between ECV plus 2.5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 5mg Bupivacaine plus 0.015mg Fentanyl on the number of caesarean sections in pregnant women with breech presentation: RR 0.92 (95% CI 0.68 to 1.24).
- Very low evidence from 1 RCT (N=119) showed that there is no clinically important difference between ECV plus 2.5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 7.5mg Bupivacaine plus 0.015mg Fentanyl on the number of caesarean sections in pregnant women with breech presentation: RR 1.08 (95% CI 0.78 to 1.50).
- Very low evidence from 1 RCT (N=120) showed that there is no clinically important difference between ECV plus 2.5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 10mg Bupivacaine plus 0.015mg Fentanyl on the number of caesarean sections in pregnant women with breech presentation: RR 0.94 (95% CI 0.70 to 1.28).
- Low quality evidence from 1 RCT (N=119) showed that there is no clinically important difference between ECV plus 5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 7.5mg Bupivacaine plus 0.015mg Fentanyl on the number of caesarean sections in pregnant women with breech presentation: RR 1.17 (95% CI 0.86 to 1.61).
- Very low quality evidence from 1 RCT (N=120) showed that there is no clinically important difference between ECV plus 5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 10mg Bupivacaine plus 0.015mg Fentanyl on the number of caesarean sections in pregnant women with breech presentation: RR 1.03 (95% CI 0.77 to 1.37).
- Low quality evidence from 1 RCT (N=119) showed that there is no clinically important difference between ECV plus 7.5mg Bupivacaine plus 0.015mg Fentanyl and ECV plus 10mg Bupivacaine plus 0.015mg Fentanyl on the number of caesarean sections in pregnant women with breech presentation: RR 0.88 (95% CI 0.64 to 1.20).

Admission to SCBU/NICU

No evidence was identified to inform this outcome.

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

No evidence was identified to inform this outcome.

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 7. ECV + β2 agonist versus Control (no intervention)

Critical outcomes

Cephalic presentation in labour

- Moderate quality evidence from 2 RCTs (N=256) showed that there is a clinically important difference favouring ECV plus β2 agonist over control (no intervention) on cephalic presentation in labour in pregnant women with breech presentation: RR 4.83 (95% CI 3.27 to 7.11).

Method of birth

Cephalic vaginal birth

- Very low quality evidence from 3 RCTs (N=265) showed that there no clinically important difference between ECV plus β2 agonist and control (no intervention) on cephalic vaginal birth in pregnant women with breech presentation: RR 2.03 (95% CI 0.22 to 19.01).

Breech vaginal birth

- Very low quality evidence from 4 RCTs (N=513) showed that there is a clinically important difference favouring ECV plus β2 agonist over control (no intervention) on breech vaginal birth in pregnant women with breech presentation: RR 0.38 (95% CI 0.20 to 0.69).

Caesarean section

- Low quality evidence from 4 RCTs (N=513) showed that there is a clinically important difference favouring ECV plus β2 agonist over control (no intervention) on the number of caesarean sections in pregnant women with breech presentation: RR 0.53 (95% CI 0.41 to 0.67).

Admission to SCBU/NICU

- Very low quality evidence from 1 RCT (N=48) showed that there is no clinically important difference between ECV plus β2 agonist and control (no intervention) on admission to SCBU/NICU in pregnant women with breech presentation: RD 0.00 (95% CI -0.08 to 0.08).

Fetal death after 36^{+0} weeks gestation

- Very low quality evidence from 3 RCTs (N=208) showed that there is no statistically significant difference between ECV plus β2 agonist and control (no intervention) on fetal death after 36^{+0} weeks gestation in pregnant women with breech presentation: RD -0.01 (95% CI -0.03 to 0.01) p=0.66.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Very low quality evidence from 2 RCTs (N=208) showed that there is no clinically important difference between ECV plus β2 agonist and control (no intervention) on Apgar score <7 at 5 minutes in pregnant women with breech presentation: Peto OR 0.80 (95% CI 0.31 to 2.10).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 8. ECV + β2 agonist versus ECV only

Critical outcomes

Cephalic presentation in labour

No evidence was identified to inform this outcome.

Method of birth

Cephalic vaginal birth

- Very low quality evidence from 2 RCTs (N=172) showed that there is no clinically important difference between ECV plus β2 agonist and ECV only on cephalic vaginal birth in pregnant women with breech presentation: RR 1.32 (95% CI 0.67 to 2.62).

Breech vaginal birth

- Very low quality evidence from 1 RCT (N=58) showed that there is no clinically important difference between ECV plus β2 agonist and ECV only on breech vaginal birth in pregnant women with breech presentation: RR 0.75 (95% CI 0.22 to 2.50).

Caesarean section

- Very low quality evidence from 2 RCTs (N=172) showed that there is no clinically important difference between ECV plus β2 agonist and ECV only on the number of caesarean sections in pregnant women with breech presentation: RR 0.79 (95% CI 0.27 to 2.28).

Admission to SCBU/NICU

- Very low quality evidence from 1 RCT (N=114) showed that there is no clinically important difference between ECV plus β2 agonist and ECV only on admission to SCBU/NICU in pregnant women with breech presentation: RR 1.00 (95% CI 0.21 to 4.75).

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

No evidence was identified to inform this outcome.

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 9. ECV + β2 agonist versus ECV + Placebo

Critical outcomes

Cephalic presentation in labour

- Very low quality evidence from 2 RCTs (N=146) showed that there is no clinically important difference between ECV plus β2 agonist and ECV plus placebo on cephalic presentation in labour in pregnant women with breech presentation: RR 1.54 (95% CI 0.24 to 9.76).

Method of birth

Cephalic vaginal birth

- Very low quality evidence from 2 RCTs (N=125) showed that there is no clinically important difference between ECV plus β2 agonist and ECV plus placebo on cephalic vaginal birth in pregnant women with breech presentation: RR 1.27 (95% CI 0.41 to 3.89).

Breech vaginal birth

- Very low quality evidence from 2 RCTs (N=227) showed that there is no clinically important difference between ECV plus β2 agonist and ECV plus placebo on breech vaginal birth in pregnant women with breech presentation: RR 1.00 (95% CI 0.33 to 2.97).

Caesarean section

- Low quality evidence from 4 RCTs (N=532) showed that there is no clinically important difference between ECV plus β2 agonist and ECV plus placebo on the number of caesarean sections in pregnant women with breech presentation: RR 0.81 (95% CI 0.72 to 0.92)

Admission to SCBU/NICU

- Very low quality evidence from 2 RCTs (N=146) showed that there is no clinically important difference between ECV plus β2 agonist and ECV plus placebo on admission to SCBU/NICU in pregnant women with breech presentation: RR 0.78 (95% CI 0.17 to 3.63).

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Very low quality evidence from 1 RCT (N=124) showed that there is no clinically important difference between ECV plus β2 agonist and ECV plus placebo on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RD 0.00 (95% CI -0.03 to 0.03).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 10. ECV + Ca^{2+} channel blocker versus ECV + Placebo

Critical outcomes

Cephalic presentation in labour

- Moderate quality evidence from 1 RCT (N=310) showed that there is no clinically important difference between ECV plus Ca^{2+} channel blocker and ECV plus placebo on cephalic presentation in labour in pregnant women with breech presentation: RR 1.13 (95% CI 0.87 to 1.48).

Method of birth

Cephalic vaginal birth

- Moderate quality evidence from 1 RCT (N=310) showed that there is no clinically important difference between ECV plus Ca^{2+} channel blocker and ECV plus placebo on cephalic vaginal birth in pregnant women with breech presentation: RR 0.90 (95% CI 0.73 to 1.12).

Caesarean section

- Moderate quality evidence from 1 RCT (N=310) showed that there is no clinically important difference between ECV plus Ca^{2+} channel blocker and ECV plus placebo on the number of caesarean sections in pregnant women with breech presentation: RR 1.11 (95% CI 0.88 to 1.40).

Admission to SCBU/NICU

- High quality evidence from 1 RCT (N=310) showed that there is no clinically important difference between ECV plus Ca^{2+} channel blocker and ECV plus placebo on admission to SCBU/NICU in pregnant women with breech presentation: MD -0.20 (95% CI -0.70 to 0.30).

Fetal death after 36^{+0} weeks gestation

- Moderate quality evidence from 1 RCT (N=310) showed that there is no statistically significant difference between ECV plus Ca^{2+} channel blocker and ECV plus placebo on fetal death after 36^{+0} weeks gestation in pregnant women with breech presentation: RD 0.00 (95% CI -0.01 to 0.01) p=1.00.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Low quality evidence from 1 RCT (N=310) showed that there is no clinically important difference between ECV plus Ca^{2+} channel blocker and ECV plus placebo on Apgar score <7 at 5 minutes in pregnant women with breech presentation: Peto OR 0.52 (95% 0.05 to 5.02).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 11. ECV + Ca2+ channel blocker versus ECV + β2 agonist

Critical outcomes

Cephalic presentation in labour

- Low quality evidence from 1 RCT (N=90) showed that there is a clinically important difference favouring ECV plus β2 agonist over ECV plus Ca^{2+} channel blocker on cephalic presentation in labour in pregnant women with breech presentation: RR 0.62 (95% CI 0.39 to 0.98).

Method of birth

Cephalic vaginal birth

- Very low quality evidence from 2 RCTs (N=126) showed that there is no clinically important difference between ECV plus Ca^{2+} channel blocker and ECV plus β2 agonist on cephalic vaginal birth in pregnant women with breech presentation: RR 1.26 (95% CI 0.55 to 2.89).

Caesarean section

- Very low quality evidence from 2 RCTs (N=132) showed that there is a clinically important difference favouring ECV plus β2 agonist over ECV plus Ca^{2+} channel blocker on the number of caesarean sections in pregnant women with breech presentation: RR 1.42 (95% CI 1.06 to 1.91).

Admission to SCBU/NICU

- Very low quality evidence from 2 RCTs (N=176) showed that there is no clinically important difference between ECV plus Ca^{2+} channel blocker and ECV plus β2 agonist on admission to SCBU/NICU in pregnant women with breech presentation: Peto OR 0.53 (95% CI 0.05 to 5.22).

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Very low quality evidence from 2 RCTs (N=176) showed that there is no clinically important difference between ECV plus Ca^{2+} channel blocker and ECV plus β2 agonist on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RD 0.00 (95% CI -0.03 to 0.03).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 12. ECV + μ-receptor agonist versus ECV only

Critical outcomes

Cephalic presentation in labour

No evidence was identified to inform this outcome.

Method of birth

Cephalic vaginal birth

- High quality evidence from 1 RCT (N=80) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV alone on cephalic vaginal birth in pregnant women with breech presentation: RR 1.00 (95% CI 0.80 to 1.24).

Caesarean section

- Low quality evidence from 1 RCT (N=80) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV alone on the number of caesarean sections in pregnant women with breech presentation: RR 1.00 (95% CI 0.42 to 2.40).

Admission to SCBU/NICU

No evidence was identified to inform this outcome.

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Low quality evidence from 1 RCT (N=126) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV alone on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RD 0.00 (95% CI -0.03 to 0.03).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 13. ECV + μ-receptor agonist versus ECV + Placebo

Critical outcomes

Cephalic presentation in labour

No evidence was identified to inform this outcome.

Method of birth

Cephalic vaginal birth after successful ECV

- High quality evidence from 2 RCTs (N=98) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV plus placebo on cephalic vaginal birth after successful ECV in pregnant women with breech presentation: RR 1.00 (95% CI 0.86 to 1.17).

Caesarean section after successful ECV

- Low quality evidence from 2 RCTs (N=98) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV plus placebo on caesarean section after successful ECV in pregnant women with breech presentation: RR 0.97 (95% CI 0.33 to 2.84).

Breech vaginal birth after unsuccessful ECV

- High quality evidence from 3 RCTs (N=186) showed that there is a clinically important difference favouring ECV plus μ-receptor agonist over ECV plus placebo on breech vaginal birth after unsuccessful ECV in pregnant women with breech presentation: RR 0.10 (95% CI 0.02 to 0.53).

Caesarean section after unsuccessful ECV

- Moderate quality evidence from 3 RCTs (N=186) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV plus placebo on caesarean section after unsuccessful ECV in pregnant women with breech presentation: RR 1.19 (95% CI 1.09 to 1.31).

Admission to SCBU/NICU

No evidence was identified to inform this outcome.

Fetal death after 36^{+0} weeks gestation

- Low quality evidence from 1 RCT (N=137) showed that there is no statistically significant difference between ECV plus μ-receptor agonist and ECV plus placebo on fetal death after 36^{+0} weeks gestation in pregnant women with breech presentation: RD 0.00 (95% CI -0.03 to 0.03) p=1.00.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

No evidence was identified to inform this outcome.

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 14. ECV + μ-receptor agonist versus ECV + Anaesthesia

Critical outcomes

Cephalic presentation in labour

No evidence was identified to inform this outcome.

Method of birth

Cephalic vaginal birth

- Moderate quality evidence from 1 RCT (N=92) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV plus anaesthesia on cephalic vaginal birth in pregnant women with breech presentation: RR 1.04 (95% CI 0.84 to 1.29).

Caesarean section

- Very low quality evidence from 2 RCTs (N=212) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV plus anaesthesia on the number of caesarean sections in pregnant women with breech presentation: RR 0.90 (95% CI 0.61 to 1.34).

Admission to SCBU/NICU

- Very low quality evidence from 1 RCT (N=129) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV plus anaesthesia on admission to SCBU/NICU in pregnant women with breech presentation: RR 2.30 (95% CI 0.21 to 24.74).

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Low quality evidence from 2 RCTs (N=255) showed that there is no clinically important difference between ECV plus μ-receptor agonist and ECV plus anaesthesia on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RD 0.00 (95% CI -0.02 to 0.02).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 15. ECV + Nitric oxide donor versus ECV + Placebo

Critical outcomes

Cephalic presentation in labour

- Very low quality evidence from 3 RCTs (N=224) showed that there is no clinically important difference between ECV plus nitric oxide donor and ECV plus placebo on cephalic presentation in labour in pregnant women with breech presentation: RR 1.13 (95% CI 0.59 to 2.16).

Method of birth

Cephalic vaginal birth

- Low quality evidence from 1 RCT (N=99) showed that there is no clinically important difference between ECV plus nitric oxide donor and ECV plus placebo on cephalic vaginal birth in pregnant women with breech presentation: RR 0.78 (95% CI 0.49 to 1.22).

Caesarean section

- Low quality evidence from 2 RCTs (N=125) showed that there is no clinically important difference between ECV plus nitric oxide donor and ECV plus placebo on the number of caesarean sections in pregnant women with breech presentation: RR 0.83 (95% CI 0.68 to 1.01).

Admission to SCBU/NICU

No evidence was identified to inform this outcome.

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

No evidence was identified to inform this outcome.

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 16. ECV + Nitric oxide donor versus ECV + β2 agonist

Critical outcomes

Cephalic presentation in labour

- Low quality evidence from 1 RCT (N=74) showed that there is no clinically important difference between ECV plus β2 agonist and ECV plus nitric oxide donor on cephalic presentation in labour in pregnant women with breech presentation: RR 0.56 (95% CI 0.29 to 1.09).

Method of birth

Cephalic vaginal birth

- Very low quality evidence from 2 RCTs (N=97) showed that there is no clinically important difference between ECV plus nitric oxide donor and ECV plus β2 agonist on cephalic vaginal birth in pregnant women with breech presentation: RR 0.98 (95% CI 0.47 to 2.05).

Caesarean section

- Very low quality evidence from 1 RCT (N=59) showed that there is no clinically important difference between ECV plus nitric oxide donor and ECV plus β2 agonist on the number of caesarean sections in pregnant women with breech presentation: RR 1.07 (95% CI 0.73 to 1.57).

Admission to SCBU/NICU

No evidence was identified to inform this outcome.

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

No evidence was identified to inform this outcome.

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 17. ECV + Talcum powder versus ECV + Gel

Critical outcomes

Cephalic presentation in labour

- Low quality evidence from 1 RCT (N=95) showed that there is no clinically important difference between ECV plus talcum powder and ECV plus gel on cephalic presentation in labour in pregnant women with breech presentation: RR 1.02 (95% CI 0.68 to 1.53).

Method of birth

Cephalic vaginal birth

- Low quality evidence from 1 RCT (N=95) showed that there is no clinically important difference between ECV plus talcum powder and ECV plus gel on cephalic vaginal birth in pregnant women with breech presentation: RR 1.08 (95% CI 0.67 to 1.74).

Caesarean section

- Low quality evidence from 1 RCT (N=95) showed that there is no clinically important difference between ECV plus talcum powder and ECV plus gel on the number of caesarean sections in pregnant women with breech presentation: RR 0.94 (95% CI 0.67 to 1.33).

Admission to SCBU/NICU

- Low quality evidence from 1 RCT (N=95) showed that there is no clinically important difference between ECV plus talcum powder and ECV plus gel on admission to SCBU/NICU in pregnant women with breech presentation: RR 1.96 (95% CI 0.38 to 10.19).

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

No evidence was identified to inform this outcome.

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 18. Postural management versus No postural management

Critical outcomes

Cephalic presentation in labour

- Low quality evidence from 1 RCT (N=76) showed that there is no clinically important difference between postural management and no postural management on cephalic presentation in labour in pregnant women with breech presentation: RR 1.26 (95% CI 0.70 to 2.30).

Method of birth

Cephalic vaginal birth

- Low quality evidence from 1 RCT (N=76) showed that there is no clinically important difference between postural management and no postural management on cephalic vaginal birth in pregnant women with breech presentation: RR 1.11 (95% CI 0.59 to 2.07).

Breech vaginal delivery

- Low quality evidence from 1 RCT (N=76) showed that there is no clinically important difference between postural management and no postural management on breech vaginal delivery in pregnant women with breech presentation: RR 1.15 (95% CI 0.67 to 1.99).

Caesarean section

- Low quality evidence from 1 RCT (N=76) showed that there is no clinically important difference between postural management and no postural management on the number of caesarean sections in pregnant women with breech presentation: RR 0.69 (95% CI 0.31 to 1.52).

Admission to SCBU/NICU

No evidence was identified to inform this outcome.

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Low quality evidence from 1 RCT (N=76) showed that there is no clinically important difference between postural management and no postural management on Apgar score <7 at 5 minutes in pregnant women with breech presentation: RR 0.24 (95% CI 0.03 to 2.03).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Comparison 19. Postural management + ECV versus ECV only

Critical outcomes

Cephalic presentation in labour

No evidence was identified to inform this outcome.

Method of birth

Caesarean section

- Moderate quality evidence from 1 RCT (N=100) showed that there is no clinically important difference between postural management plus ECV and ECV only on the number of caesarean sections in pregnant women with breech presentation: RR 1.05 (95% CI 0.80 to 1.38).

Admission to SCBU/NICU

No evidence was identified to inform this outcome.

Fetal death after 36^{+0} weeks gestation

No evidence was identified to inform this outcome.

Infant death up to 4 weeks chronological age

No evidence was identified to inform this outcome.

Important outcomes

Apgar score <7 at 5 minutes

- Low quality evidence from 1 RCT (N=100) showed that there is no clinically important difference between postural management plus ECV and ECV only on Apgar score <7 at 5 minutes in pregnant women with breech presentation: Peto OR 0.13 (95% CI 0.00 to 6.55).

Birth before 39^{+0} weeks of gestation

No evidence was identified to inform this outcome.

Economic evidence statements

No economic evidence was identified which was applicable to this review question.

The committee's discussion of the evidence

Interpreting the evidence

The outcomes that matter most

Provision of antenatal care is important for the health and wellbeing of both mother and baby with the aim of avoiding adverse pregnancy outcomes and enhancing maternal satisfaction and wellbeing. Breech presentation in labour may be associated with adverse outcomes for the fetus, which has contributed to an increased likelihood of caesarean birth. The committee therefore agreed that cephalic presentation in labour and method of birth were critical outcomes for the woman, and admission to SCBU/NICU, fetal death after 36^{+0} weeks gestation, and infant death up to 4 weeks chronological age were critical outcomes for the baby. Apgar score <7 at 5 minutes and birth before 39^{+0} weeks of gestation were important outcomes for the baby.

The quality of the evidence

The quality of the evidence for interventions for managing a longitudinal lie fetal malpresentation (that is breech presentation) in late pregnancy ranged from very low to high, with most of the evidence being of a very low or low quality.

This was predominately due to serious overall risk of bias in some outcomes; imprecision around the effect estimate in some outcomes; indirect population in some outcomes; and the presence of serious heterogeneity in some outcomes, which was unresolved by subgroup analysis. The majority of included studies had a small sample size, which contributed to imprecision around the effect estimate.

No evidence was identified to inform the outcomes of infant death up to 4 weeks chronological age and birth before 39^{+0} weeks of gestation.

There was no publication bias identified in the evidence. However, the committee noted the influence pharmacological developers may have in these trials as funders, and took this into account in their decision making.

Benefits and harms

ECV

The committee discussed that in the case of breech presentation, a discussion with the woman about the different options and their potential benefits, harms and implications is needed to ensure an informed decision. The committee discussed that some women may prefer a breech vaginal birth or choose an elective caesarean birth, and that her preferences should be supported, in line with shared decision making.

The committee discussed that external cephalic version is standard practice for managing breech presentation in uncomplicated singleton pregnancies at or after 36+0 weeks. The committee discussed that there could be variation in the success rates of ECV based on the experience of the healthcare professional providing the ECV. There was some evidence supporting the use of ECV for managing a breech presentation in late pregnancy. The evidence showed ECV had a clinically important benefit in terms of cephalic presentations in labour and cephalic vaginal deliveries, when compared to no intervention. The committee noted that the evidence suggested that ECV was not harmful to the baby, although the effect estimate was imprecise relating to the relative rarity of the fetal death as an outcome.

Cephalic (head-down) vaginal birth is preferred by many women and the evidence suggests that external cephalic version is an effective way to achieve this. The evidence suggested ECV increased the chance for a cephalic vaginal birth and the committee agreed that it was important to explain this to the woman during her consultation.

The committee discussed the optimum timing for ECV. Timing of ECV must take into account the likelihood of the baby turning naturally before a woman commences labour and the possibility of the baby turning back to a breech presentation after ECV if it is done too early. The committee noted that in their experience, current practice was to perform ECV at 37 gestational weeks. The majority of the evidence demonstrating a benefit of ECV in this review involved ECV performed around 37 gestational weeks, although the review did not look for studies directly comparing different timings of ECV and their relative success rates.

The evidence in this review excluded women with previous complicated pregnancies, such as those with previous caesarean section or uterine surgery. The committee discussed that a previous caesarean section indicates a complicated pregnancy and that this population of women are not the focus of this guideline, which concentrates on women with uncomplicated pregnancies.

The committee's recommendations align with other NICE guidance and cross references to the NICE guideline on caesarean birth and the section on breech presenting in labour in the NICE guideline on intrapartum care for women with existing medical conditions or obstetric complications and their babies were made.

ECV combined with pharmacological agents

There were some small studies comparing a variety of pharmacological agents (including β2 agonists, Ca^{2+} channel blockers, μ-receptor agonists and nitric oxide donors) given alongside ECV. Overall the evidence typically showed no clinically important benefit of adding any pharmacological agent to ECV except in comparisons with a control arm with no ECV where it was not possible to isolate the effect of the ECV versus the pharmacological agent. The evidence tended toward benefit most for β2 agonists and μ-receptor agonists however there was no consistent or high quality evidence of benefit even for these agents. The committee agreed that although these pharmacological agents are used in practice, there was insufficient evidence to make a recommendation supporting or refuting their use or on which pharmacological agent should be used.

The committee discussed that the evidence suggesting μ-receptor agonist, remifentanil, had a clinically important benefit in terms reducing breech vaginal births after unsuccessful ECV was biologically implausible. The committee noted that this pharmacological agent has strong sedative effects, depending on the dosage, and therefore studies comparing it to a placebo had possible design flaws as it would be obvious to all parties whether placebo or active drug had been received. The committee discussed that the risks associated with using remifentanil such as respiratory depression, likely outweigh any potential added benefit it may have on managing breech presentation.

There was some evidence comparing different anaesthetics together with ECV. Although there was little consistent evidence of benefit overall, one small study of low quality showed a combination of 2% lidocaine and epinephrine via epidural catheter (anaesthesia) with ECV showed a clinically important benefit in terms of cephalic presentations in labour and the method of birth. The committee discussed the evidence and agreed the use of anaesthesia via epidural catheter during ECV was uncommon practice in the UK and could be expensive, overall they agreed the strength of the evidence available was insufficient to support a change in practice.

Postural management

There was limited evidence on postural management as an intervention for managing breech presentation in late pregnancy, which showed no difference in effectiveness. Postural management was defined as 'knee-chest position for 15 minutes, 3 times a day'. The committee agreed that in their experience women valued trying interventions at home first which might make postural management an attractive option for some women, however, there was no evidence that postural management was beneficial. The committee also noted that in their experience postural management can cause notable discomfort so it is not an intervention without disadvantages.

Cost effectiveness and resource use

A systematic review of the economic literature was conducted but no relevant studies were identified which were applicable to this review question.

The committee's recommendations to offer external cephalic version reinforces current practice. The committee noted that, compared to no intervention, external cephalic version results in clinically important benefits and that there would also be overall downstream cost savings from lower adverse events. It was therefore the committee's view that offering external cephalic version is cost effective and would not entail any resource impact.

References

Andersen 2013

Andersen,B.B., Knudsen,B., Lyndrup,J., Faelling,A.E., Illum,D., Johansen,M., Borgen,A., Jager,H., Bjerre,C., Secher,N.J., Acupuncture and/or sweeping of the fetal membranes before induction of labor: A prospective, randomized, controlled trial, Journal of Perinatal Medicine, 41, 555-560, 2013

Brocks 1984

Brocks,V., Philipsen,T., Secher,N.J., A randomized trial of external cephalic version with tocolysis in late pregnancy, British Journal of Obstetrics and Gynaecology, 91, 653-656, 1984

Bujold 2003

Bujold, E., Boucher, M., Rinfret, D., Berman, S., Ferreira, E., Marquette, G. P., Sublingual nitroglycerin versus placebo as a tocolytic for external cephalic version: a randomized controlled trial in parous women, American Journal of Obstetrics and Gynecology, 189, 1070-1073, 2003

Bujold 2003

Bujold, E., Marquette, G. P., Ferreira, E., Gauthier, R. J., Boucher, M., Sublingual nitroglycerin versus intravenous ritodrine as tocolytic for external cephalic version: a double-blinded randomized trial, American Journal of Obstetrics & Gynecology, 188, 1454-7; discussion 1457-9, 2003

Burgos 2016

Burgos, J., Pijoan, J. I., Osuna, C., Cobos, P., Rodriguez, L., Centeno Mdel, M., Serna, R., Jimenez, A., Garcia, E., Fernandez-Llebrez, L., Melchor, J. C., Increased pain relief with remifentanil does not improve the success rate of external cephalic version: a randomized controlled trial, Acta Obstetricia et Gynecologica Scandinavica, 95, 547-54, 2016

Chalifoux 2017

Chalifoux, L. A., Bauchat, J. R., Higgins, N., Toledo, P., Peralta, F. M., Farrer, J., Gerber, S. E., McCarthy, R. J., Sullivan, J. T., Effect of Intrathecal Bupivacaine Dose on the Success of External Cephalic Version for Breech Presentation: A Prospective, Randomized, Blinded Clinical Trial, Anesthesiology, 127, 625-632, 2017

Chenia 1987

Chenia, F., Crowther, C. A., Does advice to assume the knee-chest position reduce the incidence of breech presentation at delivery? A randomized clinical trial, Birth (Berkeley, Calif.), 14, 75-78, 1987

Collaris 2009

Collaris,R., Tan,P.C., Oral nifepidine versus subcutaneous terbutaline tocolysis for external cephalic version: a double-blind randomised trial, BJOG: An International Journal of Obstetrics and Gynaecology, 116, 74-80, 2009

Dafallah 2004

Dafallah,S.E., Elhag,S.M., The role of external cephalic version on the presentation at delivery, Saudi Medical Journal, 25, 386-388, 2004

Diguisto 2018

Diguisto, C., Winer, N., Descriaud, C., Tavernier, E., Weymuller, V., Giraudeau, B., Perrotin, F., Amnioinfusion for women with a singleton breech presentation and a previous failed external cephalic version: a randomized controlled trial, Journal of Maternal-Fetal & Neonatal Medicine, 31, 993-999, 2018

Dugoff 1999

Dugoff, L., Stamm, C. A., Jones, O. W., 3rd, Mohling, S. I., Hawkins, J. L., The effect of spinal anesthesia on the success rate of external cephalic version: a randomized trial, Obstetrics and gynecology, 93, 345-9, 1999

El-Sayed 2004

El-Sayed, Y. Y., Pullen, K., Riley, E. T., Lyell, D., Druzin, M. L., Cohen, S. E., Chitkara, U., Randomized comparison of intravenous nitroglycerin and subcutaneous terbutaline for external cephalic version under tocolysis, American Journal of Obstetrics and Gynecology, 191, 2051-2055, 2004

Fernandez 1997

Fernandez, C. O., Bloom, S. L., Smulian, J. C., Ananth, C. V., Wendel, G. D., Jr., A randomized placebo-controlled evaluation of terbutaline for external cephalic version, Obstetrics & Gynecology, 90, 775-9, 1997

Hindawi 2005

Hindawi,I., Value and pregnancy outcome of external cephalic version, Eastern Mediterranean Health Journal, 11, 633-639, 2005

Hilton 2009

Hilton, J., Allan, B., Swaby, C., Wahba, R., Jarrell, J., Wood, S., Ross, S., Tran, Q., Intravenous nitroglycerin for external cephalic version: a randomized controlled trial, Obstetrics & Gynecology, 114, 560-7, 2009

Hofmeyr 1983

Hofmeyr,G.J., Effect of external cephalic version in late pregnancy on breech presentation and caesarean section rate: a controlled trial, British Journal of Obstetrics and Gynaecology, 90, 392-399, 1983

Impey 2005

Impey,L., Pandit,M., Tocolysis for repeat external cephalic version in breech presentation at term: a randomised, double-blinded, placebo-controlled trial, BJOG: An International Journal of Obstetrics and Gynaecology, 112, 627-631, 2005

Khaw 2015

Khaw, K. S., Lee, S. W., Ngan Kee, W. D., Law, L. W., Lau, T. K., Ng, F. F., Leung, T. Y., Randomized trial of anaesthetic interventions in external cephalic version for breech presentation, British Journal of Anaesthesia, 114, 944-50, 2015

Kok 2008

Kok,M., Bais,J.M., van Lith,J.M., Papatsonis,D.M., Kleiverda,G., Hanny,D., Doornbos,J.P., Mol,B.W., van der Post,J.A., Nifedipine as a uterine relaxant for external cephalic version: a randomized controlled trial, Obstetrics and Gynecology, 112, 271-276, 2008

Liu 2016

Liu, X., Xue, A., A randomized trial of remifentanil for analgesia in external cephalic version for breech presentation, Medicine (Baltimore), 95, e5483, 2016

Mahomed 1991

Mahomed,K., Seeras,R., Coulson,R., External cephalic version at term. A randomized controlled trial using tocolysis, British Journal of Obstetrics and Gynaecology, 98, 8-13, 1991

Mancuso 2000

Mancuso, K. M., Yancey, M. K., Murphy, J. A., Markenson, G. R., Epidural analgesia for cephalic version: a randomized trial, Obstetrics and Gynecology, 95, 648-651, 2000

Marquette 1996

Marquette,G.P., Boucher,M., Theriault,D., Rinfret,D., Does the use of a tocolytic agent affect the success rate of external cephalic version?, American Journal of Obstetrics and Gynecology, 175, 859-861, 1996

Mohamed Ismail 2008

Mohamed Ismail, N. A., Ibrahim, M., Mohd Naim, N., Mahdy, Z. A., Jamil, M. A., Mohd Razi, Z. R., Nifedipine versus terbutaline for tocolysis in external cephalic version, International journal of gynaecology and obstetrics, 102, 263-266, 2008

Munoz 2014

Munoz, H., Guerra, S., Perez-Vaquero, P., Valero Martinez, C., Aizpuru, F., Lopez-Picado, A., Remifentanil versus placebo for analgesia during external cephalic version: a randomised clinical trial, International Journal of Obstetric Anesthesia, 23, 52-7, 2014

NorAzlin 2005

Nor Azlin,M.I., Haliza,H., Mahdy,Z.A., Anson,I., Fahya,M.N., Jamil,M.A., Tocolysis in term breech external cephalic version, International Journal of Gynaecology and Obstetrics, 88, 5-8, 2005

Rita 2011

Rita, Mehboobas,, Sultana, S., Khurshid, R., A randomized trial of external cephalic version in late pregnancy, JK Science, 14, 25-29, 2011

Robertson 1987

Robertson, A. W., Kopelman, J. N., Read, J. A., Duff, P., Magelssen, D. J., Dashow, E. E., External cephalic version at term: is a tocolytic necessary?, Obstetrics & Gynecology, 70, 896-9, 1987

Schorr 1997

Schorr, S. J., Speights, S. E., Ross, E. L., Bofill, J. A., Rust, O. A., Norman, P. F., Morrison, J. C., A randomized trial of epidural anesthesia to improve external cephalic version success, American journal of obstetrics and gynecology, 177, 1133-7, 1997

Smith 1999

Smith, C., Crowther, C., Wilkinson, C., Pridmore, B., Robinson, J., Knee-chest postural management for breech at term: a randomized controlled trial, Birth, 26, 71-5, 1999

Sullivan 2009

Sullivan,J.T., Grobman,W.A., Bauchat,J.R., Scavone,B.M., Grouper,S., McCarthy,R.J., Wong,C.A., A randomized controlled trial of the effect of combined spinal-epidural analgesia on the success of external cephalic version for breech presentation, International Journal of Obstetric Anesthesia, 18, 328-334, 2009

VanDorsten 1981

Van Dorsten,J.P., Schifrin,B.S., Wallace,R.L., Randomized control trial of external cephalic version with tocolysis in late pregnancy, American Journal of Obstetrics and Gynecology, 141, 417-424, 1981

Vallikkannu 2014

Vallikkannu, N., Nadzratulaiman, W. N., Omar, S. Z., Si Lay, K., Tan, P. C., Talcum powder or aqueous gel to aid external cephalic version: a randomised controlled trial, BMC Pregnancy and Childbirth, 14, 49, 2014

Vani 2009

Vani,S., Lau,S.Y., Lim,B.K., Omar,S.Z., Tan,P.C., Intravenous salbutamol for external cephalic version, International Journal of Gynaecology and Obstetrics, 104, 28-31, 2009

Wang 2017

Wang, Z. H., Yang, Y., Xu, G. P., Remifentanil analgesia during external cephalic version for breech presentation in nulliparous women at term: A randomized controlled trial, Medicine (Baltimore), 96, e6256, 2017

Weiniger 2010

Weiniger,C.F., Ginosar,Y., Elchalal,U., Sela,H.Y., Weissman,C., Ezra,Y., Randomized controlled trial of external cephalic version in term multiparae with or without spinal analgesia, British Journal of Anaesthesia, 104, 613-618, 2010

Appendices

Appendix A – Review protocols

Review protocol for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

Table 3: Review protocol

Field (based on PRISMA-P)	Content
Review question	What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy? Note: the safety of any pharmacological interventions used to manage fetal malpresentation during pregnancy will not be covered in this review. For information on the safety of any pharmacological interventions, please consult the BNF/MHRA.
Type of review question	Intervention
Objective of the review	The aim of this review is to examine the most effective way to manage a longitudinal lie fetal malpresentation (a breech presentation) in late pregnancy but before labour or delivery.
Eligibility criteria – population	All pregnant women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36^{+0} weeks

Eligibility criteria – intervention(s)	Cephalic version by the following listed interventions will be considered:
	• Complementary therapy
	  ○ Acupressure
	  ○ Acupuncture
	  ○ Moxibustion
	  ○ Reflexology
	Note: complementary therapy interventions will be analysed separately.
	• External cephalic version (ECV)
	  ○ ECV only
	  ○ ECV + additional component (for example, fetal acoustic stimulation, pharmacological [for example, beta-2 agonist, Ca^{2+} channel blocker, NSAID, oxytocin receptor anatagonist])
	• Postural management (for example, knee-chest, supine)
	• Any combination of these interventions

Eligibility criteria – comparator(s)	**For all between-intervention comparisons:** 7. Any listed intervention vs any other listed intervention 8. Any listed intervention vs control (including no treatment, placebo or sham treatment) 9. Any combination of listed interventions vs one of the interventions **For postural management:** 10. Specific form of postural management vs another form of postural management 11. Specific form of postural management vs daily walking

Field (based on PRISMA-P)	Content
	12. Specific form of postural management vs no treatment

Outcomes and prioritisation	**Critical**
	• Cephalic presentation in labour
	• Method of birth
	  ○ Breech vaginal birth
	  ○ Caesarean birth
	  ○ Cephalic vaginal birth
	• Admission to SCBU/NICU
	• Fetal death after 36^{+0} weeks gestation
	• Infant death up to 4 weeks chronological age
	
	Important
	• Apgar score <7 at 5 minutes
	• Birth before 39^{+0} weeks of gestation

Eligibility criteria – study design	INCLUDE: • Systematic reviews • Randomised or quasi-randomised controlled trials Note: For further details, see the algorithm in appendix H, Developing NICE guidelines: the manual.
Other inclusion exclusion criteria	**Exclusion** POPULATION: • Multiple pregnancy STUDY DESIGN: • Case-control studies • Cohort studies • Cross-over studies • Cross-sectional studies • Epidemiological reviews or reviews on associations • Non-comparative studies PUBLICATION STATUS: • Conference abstract LANGUAGE: • Non-English **Inclusion** COUNTRY: • No restriction
Proposed sensitivity/sub-group analysis, or meta-regression	For ECV interventions, the following subgroup analysis will be conducted: • Type of component (for example, pharmacological, other)

Field (based on PRISMA-P)	Content
	In the presence of heterogeneity, the following subgroup analyses will be conducted: • Week of intervention (for example, 36^{+0} weeks, 37^{+0} weeks) For ECV interventions: • Type of component (for example, pharmacological, other) Statistical heterogeneity will be assessed by visually examining the forest plots and by calculating the I^2 inconsistency statistic (with an I^2 value≥50% indicating serious heterogeneity, and ≥80% indicating very serious heterogeneity).
Selection process – duplicate screening/selection/analysis	Studies included in the 2008 NICE guideline on antenatal care for uncomplicated pregnancies (CG62) that satisfy the review protocol will be included in this review. Review questions selected as high priorities for health economic analysis (and those selected as medium priorities and where health economic analysis could influence recommendations) will be subject to dual weeding and study selection; any discrepancies above 10% of the dual weeded resources will be resolved through discussion between the first and second reviewers or by reference to a third person. All data extraction will quality assured by a senior reviewer. Draft excluded studies and evidence tables will be circulated to the Topic Group for their comments. Resolution of disputes will be by discussion between the senior reviewer, Topic Advisor and Chair.
Data management (software)	NGA STAR software will be used to generate bibliographies/citations, and perform conduct sifting and data extraction. Pairwise meta-analyses, if possible, will be conducted using Cochrane Review Manager (RevMan5). For details please see Supplement 1: methods. 'GRADEpro' will be used to assess the quality of evidence for each outcome.
Information sources – databases and dates	Sources to be searched: Medline, Medline In-Process, CCTR, CDSR, DARE, HTA, Embase. Limits (for example, date, study design): • Date limit: 2006 (date of last search for the 2008 NICE guideline on antenatal care for uncomplicated pregnancies (CG62)) • Apply standard animal/non-English language exclusion • Limit to RCTs and systematic reviews in first instance but download all results.
Identify if an update	This antenatal care update will replace the 2008 NICE guideline on antenatal care for uncomplicated pregnancies (CG62) which will be taken down in due course. The following relevant recommendations in the 2008 NICE guideline on antenatal care for uncomplicated pregnancies (CG62) on the management of fetal malpresentation during pregnancy were made: **1.11.2 Breech presentation at term** 1.11.2.1 All women who have an uncomplicated singleton breech pregnancy at 36 weeks should be offered external cephalic version. Exceptions include women in labour and women with a uterine scar or abnormality, fetal compromise, ruptured membranes, vaginal bleeding and medical conditions. 1.11.2.2 Where it is not possible to schedule an appointment for external cephalic version at 37 weeks, it should be scheduled at 36 weeks.
Author contacts	Developer: National Guideline Alliance.
Highlight if amendment to previous protocol	For details please see section 4.5 of Developing NICE guidelines: the manual.
Search strategy – for one database	For details please see appendix B.
Data collection process – forms/duplicate	A standardised evidence table format will be used, and published as appendix D (clinical evidence tables) or H (economic evidence tables).
Data items – define all variables to be collected	For details please see evidence tables in appendix D (clinical evidence tables) or H (economic evidence tables).
Methods for assessing bias at outcome/study level	Quality assessment of individual studies will be performed using the following checklists: • ROBIS for systematic reviews • Cochrane RoB tool, v.2, for RCTs or quasi-RCTs

Field (based on PRISMA-P)	Content
	For details please see section 6.2 of Developing NICE guidelines: the manual. The risk of bias across all available evidence will be evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group: http://www.gradeworkinggroup.org/
Criteria for quantitative synthesis (where suitable)	For details please see section 6.4 of Developing NICE guidelines: the manual.
Methods for analysis – combining studies and exploring (in)consistency	For details please see Supplement 1: methods.
Meta-bias assessment – publication bias, selective reporting bias	For details please see Supplement 1: methods and section 6.2 of Developing NICE guidelines: the manual. If sufficient relevant RCT evidence is available, publication bias will be explored using RevMan software to examine funnel plots. Trial registries will be examined to identify missing evidence: Clinical trials.gov, NIHR Clinical Trials Gateway.
Assessment of confidence in cumulative evidence	For details please see sections 6.4 and 9.1 of Developing NICE guidelines: the manual.
Rationale/context – Current management	For details please see the introduction to the evidence review.
Describe contributions of authors and guarantor	A multidisciplinary committee developed the guideline. The committee was convened by the National Guideline Alliance and chaired by Kate Harding in line with section 3 of Developing NICE guidelines: the manual. Staff from the National Guideline Alliance undertook systematic literature searches, appraised the evidence, conducted meta-analysis and cost-effectiveness analysis where appropriate, and drafted the guideline in collaboration with the committee. For details please see Supplement 1: methods.
Sources of funding/support	The National Guideline Alliance is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists.
Name of sponsor	The National Guideline Alliance is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists.
Roles of sponsor	NICE funds the National Guideline Alliance to develop guidelines for those working in the NHS, public health, and social care in England.
PROSPERO registration number	This protocol is not registered with PROSPERO.

CCTR: Cochrane Controlled Trials Register; CDSR: Cochrane Database of Systematic Reviews; CENTRAL: Cochrane Central Register of Controlled Trials; DARE: Database of Abstracts of Reviews of Effects; GRADE: Grading of Recommendations Assessment, Development and Evaluation; HTA: Health Technology Assessment; ITU, intensive treatment unit; NGA: National Guideline Alliance; NICE: National Institute for Health and Care Excellence; NIHR: National Institute for Health Research; RCT(s): randomised controlled trial(s); RoB: risk of bias; ROBIS: Risk Of Bias In Systematic reviews tool; ROBINS-I: Risk Of Bias In Non-randomized studies – of Interventions tool.

Appendix B – Literature search strategies

Literature search strategies for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

Database(s): Medline & Embase (Multifile)
Last searched on **Embase Classic+Embase** 1947 to 2020 September 04, **Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily** 1946 to September 04, 2020
Date of last search: 7th September 2020
Multifile database codes: emczd = Embase Classic+Embase; ppez= MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily

#	Searches
1	(exp Labor Presentation/ or Breech Presentation/) use ppez
2	breech presentation/ use emczd
3	breech$.tw,kw.
4	abnormal lie.tw,kw.
5	((abnormal$ or transvers$ or anterior$ or posterior$ or face$ or brow$ or compound$ or breach$) adj2 (position$ or presentation$)).tw,kw.
6	((occiput$ or cephalic$ or non-cephalic$) adj3 (position$ or presentation$)).tw,kw.
7	(malpresentation$ or malposition$).tw,kw.
8	1 or 2 or 3 or 4 or 5 or 6 or 7
9	(exp Acupuncture Therapy/ or exp Acupuncture/ or Acupressure/) use ppez
10	exp acupuncture/ use emczd
11	(acupuncture$ or acupressure$).tw,kw.
12	(*Drugs, Chinese Herbal/ or Moxibustion/) use ppez
13	(herbaceous agent/ or moxibustion/) use emczd
14	moxibust$.tw,kw.
15	(Massage/ or Musculoskeletal Manipulations/ or *Yoga/) use ppez
16	(reflexology/ or musculoskeletal manipulation/ or *yoga/) use emczd
17	reflexolog$.tw,kw.
18	Version, Fetal/ use ppez
19	exp fetal version/ use emczd
20	((cephalic$ or external$) adj version$).tw,kw.
21	(external adj (maneuv$ or manoeuv$ or manipulat$)).tw,kw.
22	((leopold$ or pre-natal$ or prenatal$ or ante-natal$ or antenatal$) adj (maneuv$ or manoeuv$)).tw,kw.
23	(postural$ adj (manag$ or technique$ or measure$ or method$)).tw,kw.
24	9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23
25	8 and 24
26	ECV.mp.
27	breech$.mp.
28	26 and 27
29	25 or 28
30	limit 29 to english language
31	limit 30 to yr="2006 -Current"
32	letter/
33	editorial/
34	news/
35	exp historical article/
36	Anecdotes as Topic/
37	comment/
38	case report/
39	(letter or comment*).ti.
40	32 or 33 or 34 or 35 or 36 or 37 or 38 or 39
41	randomized controlled trial/ or random*.ti,ab.
42	40 not 41
43	animals/ not humans/
44	exp Animals, Laboratory/
45	exp Animal Experimentation/
46	exp Models, Animal/
47	exp Rodentia/
48	(rat or rats or mouse or mice).ti.
49	42 or 43 or 44 or 45 or 46 or 47 or 48

#	Searches
50	letter.pt. or letter/
51	note.pt.
52	editorial.pt.
53	case report/ or case study/
54	(letter or comment*).ti.
55	50 or 51 or 52 or 53 or 54
56	randomized controlled trial/ or random*.ti,ab.
57	55 not 56
58	animal/ not human/
59	nonhuman/
60	exp Animal Experiment/
61	exp Experimental Animal/
62	animal model/
63	exp Rodent/
64	(rat or rats or mouse or mice).ti.
65	57 or 58 or 59 or 60 or 61 or 62 or 63 or 64
66	49 use ppez
67	65 use emczd
68	66 or 67
69	31 and 68
70	31 not 69

Database(s): Cochrane Library
Last searched on **Cochrane Database of Systematic Reviews**, Issue 9 of 12, September 2020, **Cochrane Central Register of Controlled Trials**, Issue 9 of 12, September 2020
Date of last search: 7th September 2020

#	Searches
#1	MeSH descriptor: [Labor Presentation] explode all trees
#2	MeSH descriptor: [Breech Presentation] this term only
#3	(breech*):ti,ab,kw
#4	("abnormal lie"):ti,ab,kw
#5	(((abnormal* or transvers* or anterior* or posterior* or face* or brow* or compound* or breach*) NEAR/2 (position* or presentation*))):ti,ab,kw
#6	(((occiput* or cephalic* or non-cephalic*) NEAR/3 (position* or presentation*))):ti,ab,kw
#7	((malpresentation* or malposition*)):ti,ab,kw
#8	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7
#9	MeSH descriptor: [Acupuncture Therapy] explode all trees
#10	MeSH descriptor: [Acupuncture] explode all trees
#11	MeSH descriptor: [Acupressure] this term only
#12	((acupuncture* or acupressure*)):ti,ab,kw
#13	MeSH descriptor: [Drugs, Chinese Herbal] this term only
#14	MeSH descriptor: [Moxibustion] this term only
#15	(moxibust*):ti,ab,kw
#16	MeSH descriptor: [Massage] this term only
#17	MeSH descriptor: [Musculoskeletal Manipulations] this term only
#18	MeSH descriptor: [Yoga] this term only
#19	(reflexolog*):ti,ab,kw
#20	MeSH descriptor: [Version, Fetal] this term only
#21	(((cephalic* or external*) NEXT version*)):ti,ab,kw
#22	((external NEXT (maneuv* or manoeuv* or manipulat*))):ti,ab,kw
#23	(((leopold* or pre-natal* or prenatal* or ante-natal* or antenatal*) NEXT (maneuv* or manoeuv*))):ti,ab,kw
#24	((postural* NEXT (manag* or technique* or measure* or method*))):ti,ab,kw
#25	#9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24
#26	#8 AND #25
#27	(ECV):ti,ab,kw
#28	#3 AND #27
#29	#26 OR #28 Publication Year from 2006 to current

Database(s): CRD: Database of Abstracts of Reviews of Effects (DARE), HTA Database
Date of last search: 7th September 2020

#	Searches
1	MeSH DESCRIPTOR Labor Presentation EXPLODE ALL TREES IN DARE,HTA
2	MeSH DESCRIPTOR Breech Presentation IN DARE,HTA
3	(breech*) IN DARE, HTA
4	(abnormal lie) IN DARE, HTA

#	Searches
5	(((abnormal* or transvers* or anterior* or posterior* or face* or brow* or compound* or breach*) NEAR2 (position* or presentation*))) IN DARE, HTA
6	(((occiput* or cephalic* or non-cephalic*) NEAR3 (position* or presentation*))) IN DARE, HTA
7	((malpresentation* or malposition*)) IN DARE, HTA
8	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7
9	MeSH DESCRIPTOR Acupuncture Therapy EXPLODE ALL TREES IN DARE,HTA
10	MeSH DESCRIPTOR Acupuncture EXPLODE ALL TREES IN DARE,HTA
11	MeSH DESCRIPTOR Acupressure IN DARE,HTA
12	((acupuncture* or acupressure*)) IN DARE, HTA
13	MeSH DESCRIPTOR Drugs, Chinese Herbal IN DARE,HTA
14	MeSH DESCRIPTOR Moxibustion IN DARE,HTA
15	(moxibust*) IN DARE, HTA
16	MeSH DESCRIPTOR Massage IN DARE,HTA
17	MeSH DESCRIPTOR Musculoskeletal Manipulations IN DARE,HTA
18	MeSH DESCRIPTOR Yoga IN DARE,HTA
19	(reflexolog*) IN DARE, HTA
20	MeSH DESCRIPTOR Version, Fetal IN DARE,HTA
21	(((cephalic* or external*) NEAR1 version*)) IN DARE, HTA
22	((external NEAR1 (maneuv* or manoeuv* or manipulat*))) IN DARE, HTA
23	(((leopold* or pre-natal* or prenatal* or ante-natal* or antenatal*) NEAR1 (maneuv* or manoeuv*))) IN DARE, HTA
24	((postural* NEAR1 (manag* or technique* or measure* or method*))) IN DARE, HTA
25	#9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24
26	#8 AND #25
27	(ECV) IN DARE, HTA
28	#3 AND #27
29	#26 OR #28 Publication Year from 2006 to current

Database(s): Cinahl Plus

Date of last search: 7th September 2020

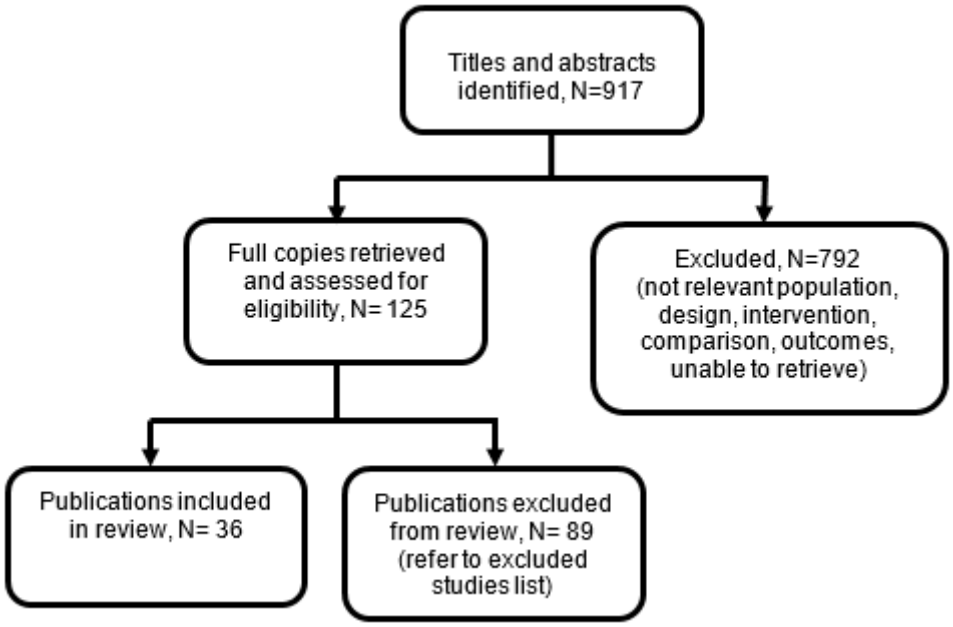
#	Searches
S32	S28 NOT S29 Limiters - Publication Year: 2006-2020; English Language;
S29	PT anecdote or PT audiovisual or PT bibliography or PT biography or PT book or PT book review or PT brief item or PT cartoon or PT commentary or PT computer program or PT editorial or PT games or PT glossary or PT historical material or PT interview or PT letter or PT listservs or PT masters thesis or PT obituary or PT pamphlet or PT pamphlet chapter or PT pictorial or PT poetry or PT proceedings or PT “questions and answers” or PT response or PT software or PT teaching materials or PT website
S28	S24 OR S27
S27	S25 AND S26
S26	breech*
S25	ECV
S24	S7 AND S23
S23	S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22
S22	TI (postural* N1 (manag* or technique* or measure* or method*)) OR AB (postural* N1 (manag* or technique* or measure* or method*))
S21	TI ((leopold* or pre-natal* or prenatal* or ante-natal* or antenatal*) N1 (maneuv* or manoeuv*)) OR AB ((leopold* or pre-natal* or prenatal* or ante-natal* or antenatal*) N1 (maneuv* or manoeuv*))
S20	TI (external N1 (maneuv* or manoeuv* or manipulat*)) OR AB (external N1 (maneuv* or manoeuv* or manipulat*))
S19	TI ((cephalic* or external*) N1 version*) OR AB ((cephalic* or external*) N1 version*)
S18	(MH "Version, Fetal")
S17	TI reflexolog* OR AB reflexolog*
S16	(MM "Yoga")
S15	(MH "Manipulation, Orthopedic") OR (MH "Manipulation, Chiropractic") OR (MH "Manipulation, Osteopathic")
S14	(MH "Reflexology")
S13	TI moxibust* OR AB moxibust*
S12	(MH "Moxibustion")
S11	(MM "Drugs, Chinese Herbal")
S10	TI (acupuncture* or acupressure*) OR AB (acupuncture* or acupressure*)
S9	(MH "Acupressure")
S8	(MH "Acupuncture+")
S7	S1 OR S2 OR S3 OR S4 OR S5 OR S6
S6	TI (malpresentation* or malposition*) OR AB (malpresentation* or malposition*)
S5	TI ((occiput* or cephalic* or non-cephalic*) N3 (position* or presentation*)) OR AB ((occiput* or cephalic* or non-cephalic*) N3 (position* or presentation*))
S4	TI ((abnormal* or transvers* or anterior* or posterior* or face* or brow* or compound* or breach*) N2 (position* or presentation*)) OR AB ((abnormal* or transvers* or anterior* or posterior* or face* or brow* or compound* or breach*) N2 (position* or presentation*))
S3	TI "abnormal lie" OR AB "abnormal lie"

#	Searches
S2	TI breech* OR AB breech*
S1	(MH "Labor Presentation+") OR (MH "Breech Presentation")

Appendix C – Clinical evidence study selection

Clinical study selection for: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

Figure 1: Study selection flow chart



Appendix D – Clinical evidence tables

Clinical evidence tables for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

Table 4: Clinical evidence tables

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation Andersen,B.B., Knudsen,B., Lyndrup,J., Faelling,A.E., Illum,D., Johansen,M., Borgen,A., Jager,H., Bjerre,C., Secher,N.J., Acupuncture and/or sweeping of the fetal membranes before induction of labor: A prospective, randomized, controlled trial, Journal of Perinatal Medicine, 41, 555-560, 2013 **Ref Id** 298937 **Country/ies where the study was carried out**	**Sample size** N=407 Acupuncture: n=104 Sweeping: n=103 Acupuncture and sweeping: n=100 Control: n=100 **Discontinued treatment (received only first treatment at 41+3): n=9* **Characteristics** <u>Maternal age (mean)- years (SD):</u> Acupuncture: 31 (4.2) Sweeping: 30 (4.5) Acupuncture + sweeping: 31 (4.1) Control: 31 (5.1) p=0.16 <u>Parity (primiparous)- number (%):</u> Acupuncture: 25 (24%) Sweeping: 26 (25%) Acupuncture + sweeping: 24 (24%) Control: 25 (25%) p=0.91 <u>Parity (multiparous)- number (%):</u> Acupuncture: 79 (76%)	**Interventions** <u>Acupuncture</u> • Needles were placed bilaterally at points LI 4, ST 36, LR 3, BL 60, BL 31 and BL 32. • One needle was placed at GV 20 and two needles at right SP 6. • Electrical stimulation was performed at points BL 31 and BL 32 bilaterally and at right SP 6. • The needles were left in place for at least 30 min. Stimulation was performed at a frequency of 80 Hz medium. • The needles used were Carbo acupuncture needles (Suzhou	**Details** **Power analysis** The estimated sample size of 400 participants was based on a 50% to 30% reduction in induced labour, a power of 80% and a significance level of 5%. **Statistical analyses** The statistical methods used were analysis of variance, Pearson $\chi 2$-test (categorical data in four groups), Fisher's test (categorical data in two groups), Mann-Whitney's test and Student's t-test. Confidence intervals were chosen as 95% and significance level as 5%. **Intention-to-treat (ITT) analysis** Not mentioned.	**Results** **<u>Critical outcomes</u>** **<u>Method of birth</u>** <u>Caesarean birth- number (%):</u> Acupuncture: 13 (13%) Sweeping: 20 (19%) Acupuncture + sweeping: 22 (22%) Control: 17 (17%) p=0.33 **Admission to SCBU/NICU** <u>NICU admission (%):</u> Acupuncture: 1 (1%) Sweeping: 3 (3%) Acupuncture + sweeping: 2 (2%) Control: 5 (5%) p=0.31 **<u>Important outcomes</u>**	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Some concerns. (Computer-randomisation system accessible through a telephone line (voice response). No details provided on allocation concealment). Deviations from intended interventions: High risk of bias. (Participants were not blinded and there is a chance they may have told the personnel). Measurement of the outcome: Low risk of bias. (No blinding of outcomes however all outcomes were objective). Missing outcome data: Low risk of bias. (High

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Denmark **Study type** Prospective randomised controlled trial. **Aim of the study** To evaluate the efficacy of acupuncture, and sweeping of the fetal membranes, as methods for induction of labour. **Study dates** January 2007 to 31 November 2009. **Source of funding** Not mentioned.	Sweeping: 77 (75%) Acupuncture + sweeping: 76 (76%) Control: 75 (75%) p=0.91 **Inclusion criteria** • Healthy women with an uncomplicated spontaneous singleton pregnancy • Cephalic presentation • Intact fetal membranes • Danish speaking women **Exclusion criteria** • Women treated with any kind of acupuncture within the last 2 weeks before the study • Women treated with sweeping of the fetal membrane within the last 2 weeks before the study	Sen Sen, SuZhou, Jiangsu, China), 0.30 × 50 mm at BL 31 and BL 32 and 0.25 × 25 mm at the remaining points. Sweeping of the fetal membranes • This was performed by circulating the investigating fingers three times between the lower membranes and their attachment to the cervix, separating membranes and the cervix as much as possible. • If membrane sweeping was not possible because of a closed cervix, cervical massage was performed by moving the cervix in relation to the pregnancy.		**Apgar score <7 at 5 minutes** Apgar <7, 5 min (%): Acupuncture: 0 (0%) Sweeping: 0 (0%) Acupuncture + sweeping: 0 (0%) Control: 1 (1%) p=0.37	retention rate and no reported loss to follow-up). Selection of the reported result: Some concerns. (No outcomes pre-specified in trial protocol). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Some concerns
Full citation Brocks,V., Philipsen,T.,	**Sample size** N=65 External cephalic version (ECV) + ritodrine: n=31	**Interventions** ECV+ IV Ritodrine (50 micrograms/min) for 15 min.	**Details** **Power analysis** Not mentioned. **Statistical analyses**	**Results** **Critical outcomes** **Method of birth**	**Limitations**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Secher,N.J., A randomized trial of external cephalic version with tocolysis in late pregnancy, British Journal of Obstetrics and Gynaecology, 91, 653-656, 1984 **Ref Id** 194032 **Country/ies where the study was carried out** Denmark **Study type** Randomised control trial **Aim of the study** To determine the benefits and the risks of external version under tocolysis, after the 37th week of pregnancy, compared with a control group in which version was not attempted. **Study dates** Not mentioned.	No ECV: n=34 **Characteristics** Not reported. **Inclusion criteria** • 37th week gestation with a single pregnancy in breech presentation. • No contra-indications to attempting external version and vaginal delivery. **Exclusion criteria** • Contra-indications to external version or vaginal delivery. Contradictions to external version are defined as: • previous operation on the uterus and uterine anomalies; • vaginal bleeding during the 3rd trimester of pregnancy; • signs of placental insufficiency;	(Ritodrine given if non-stress test based on cardiotocogram was positive).	Analysis of data was carried out with the χ^2 test and continuous data with the paired t-test. Statistical significance was regarded as p<0.05. **Intention to treat** Not mentioned.	Breech vaginal birth (assisted breech)-number ECV group: 10/31 Control group: 17/34 Caesarean section- number (%) ECV group: 7/31 Control group: 12/34 P<0.05 Cephalic vaginal birth (vertex vaginal delivery)-number (%) ECV group: 14/31 Control group: 5/34 p<0.001 **Fetal death after 36+0 weeks gestation** Perinatal death-Number ECV group: 0/31 Control group: 0/34	**Cochrane risk of bias tool V2**: Randomisation process: Some concerns. (No details provided). Deviations from intended interventions: High risk of bias. (Selection based on women who wanted a vaginal birth. Blinding of personnel not possible). Measurement of the outcome: Some concerns. (No details provided). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Source of funding Not mentioned.	• placenta praevia; • conditions favouring premature labour; • rhesus negative mother; • pre-eclampsia or arterial hypertension; • maternal contra-indications to the use of betamimetic drugs				**Other information** Note: Result included data for participants who consented to the trial and those who did not consent to the trial.

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Full citation Bujold, E., Marquette, G. P., Ferreira, E., Gauthier, R. J., Boucher, M., Sublingual nitroglycerin versus intravenous ritodrine as tocolytic for external cephalic version: a double-blinded randomized trial, American Journal of Obstetrics & Gynecology, 188, 1454-7; discussion 1457-9, 2003 **Ref Id** 391298 **Country/ies where the study was carried out** Canada **Study type** Randomised controlled trial **Aim of the study** To evaluate the efficacy of sublingual nitroglycerin as a tocolytic agent for external cephalic	**Sample size** N=99 Intervention: n=50 Placebo: n=49 **Characteristics** <u>Maternal age (years)- median (minimum, maximum)</u> Intervention: 31.5 (21, 41) Placebo: 31.7 (21, 44) p=0.65 **Inclusion criteria** • Parity ≥ 1; • Between 36 and 40 weeks of gestation with a singleton pregnancy; • Fetus in breech presentation. **Exclusion criteria** • Intrauterine growth restriction (defined as an estimated fetal weight [determined by ultrasound examination] < 10th percentile for gestational age); • Oligohydramnios (defined as an amniotic fluid index of ≤5 cm);	**Interventions** Intervention: two sublingual sprays of 400µg nitroglycerin Placebo: sublingual placebo spray	**Details** **Power analysis** A power analysis was performed on the basis of an a error of .05 (two-tailed), a b error of .2, and a baseline ECV success rate of 55%. Using these parameters, we estimated that to detect a 20% difference in ECV success rate, it would be necessary to randomly place 196 patients. **Statistical analyses** Statistical analysis was performed by χ2 test, Mann Whitney U test, Student t test (independent and paired), and Fisher exact test when appropriate. A probability value of < .05 was considered statistically significant. **Intention to treat analysis**	**Results** **<u>Critical outcomes</u>** **Cephalic presentation in labour** <u>Vertex presentation at delivery- number (%)</u> Intervention: 24 (48) Placebo: 32 (65) p=0.08 **Method of birth** <u>Vertex vaginal delivery- number (%)</u> Intervention: 19 (38) Placebo: 24 (49) p=0.27	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Some concerns. (Computerised randomisation table, randomised by a block of 6. No information provided about allocation concealment). Deviations from intended interventions: Low risk of bias. (Both patients and participants blinded to allocation group). Measurement of the outcome: Some concerns. (Some outcome data collected from participants). Missing outcome data: Low risk of bias. (High retention and no loss to follow up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk. (No other biases detected).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
version in parous women. **Study dates** April 1999 to August 2002 **Source of funding** Not mentioned.	• The presence of a placenta previa or an abruptio placentae; • A previous uterine scar other than a low transverse cesarean delivery; • Active labor; • Rupture of membranes; • Fetal anomalies incompatible with life; • A nonmobile breech by abdominal palpation; • Any contraindication to vaginal delivery; • A medical/allergic contraindication to nitroglycerin.				Overall risk of bias: Some concerns
Full citation	**Sample size** N=74	**Interventions**	**Details** **Power analysis**	**Results**	**Limitations**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Bujold, E., Boucher, M., Rinfret, D., Berman, S., Ferreira, E., Marquette, G. P., Sublingual nitroglycerin versus placebo as a tocolytic for external cephalic version: a randomized controlled trial in parous women, American Journal of Obstetrics and Gynecology, 189, 1070-1073, 2003 **Ref Id** 1042686 **Country/ies where the study was carried out** Canada **Study type** Randomised controlled trial. **Aim of the study** To compare the efficacy of sublingual nitroglycerin with that of intravenous ritodrine as a tocolytic agent for external	Ritodrine: n=38 Nitroglycerin: n=36 **Characteristics** Maternal age (years)- median (minimum, maximum) Intervention: 30 (19, 42) Placebo: 29 (19, 38) p=0.55 **Inclusion criteria** • 36 to 40 weeks of gestation with a singleton pregnancy in breech presentation. **Exclusion criteria** • Intrauterine growth restriction (defined as an estimated fetal weight [determined by ultrasound examination] < 10th percentile for gestational age); • Oligohydramnios (defined as an amniotic fluid index of ≤5 cm); • The presence of a placenta previa or an abruptio placentae;	Ritodrine: IV ritodrine (10mg/mL) + sublingual placebo Nitroglycerin: IV placebo + sublingual nitroglycerin (400µg)	Our power analysis was based on an α error of .05, a β error of .2, and a clinically significant difference of 20% from our baseline success rate of 40%. Using these parameters, we estimated that 130 participants would be needed for this study to detect a 20% difference. **Statistical analyses** A statistical analysis of the data was performed by χ2 test, Mann-Whitney test, and Fisher exact test, when appropriate. A probability value of <.05 was considered statistically significant. **Intention to treat analysis** Not mentioned.	**Critical outcomes** **Cephalic presentation in labour** Vertex presentation at the time of delivery- number (%) Ritodrine: 17 (45) Nitroglycerin: 9 (25) p=0.08 **Method of birth** Vertex vaginal delivery- number (%) Ritodrine: 11 (29) Nitroglycerin: 7 (19) p=0.34	**Cochrane risk of bias tool V2**: Randomisation process: Some concerns. (Computerised table of randomisation. No information provided about allocation concealment). Deviations from intended interventions: Low risk of bias. (All participants and personnel were blinded to the treatment). Measurement of the outcome: Low risk of bias. (Outcomes are objectively assessed). Missing outcome data: Low risk of bias. (High retention rate and low loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
cephalic version in nulliparous women. **Study dates** April 1999 to August 2001 **Source of funding** Supported by Rhône-Poulenc Rorer Pharmaceuticals Inc, Montréal, Québec, Canada.	• A previous uterine scar other than a low transverse cesarean delivery; • Active labor; • Rupture of membranes; • Fetal anomalies incompatible with life; • A nonmobile breech by abdominal palpation; • Any contraindication to vaginal delivery; • A medical/allergic contraindication to ritodrine or nitroglycerin.				Overall risk of bias: Some concerns **Other information** The study was stopped after 74 patients were enrolled because ritodrine was withdrawn from the market in July 2001.
Full citation Burgos, J., Pijoan, J. I., Osuna, C., Cobos, P., Rodriguez, L., Centeno Mdel, M., Serna, R., Jimenez, A., Garcia, E., Fernandez-Llebrez, L., Melchor, J. C., Increased pain relief with remifentanil does not improve the success rate of external cephalic version: a randomized controlled trial, Acta Obstetricia et Gynecologica	**Sample size** N=120 Intervention (remifentanil): n=60 Control (nitrous oxide): n=60 *Note: one woman failed treatment with nitrous oxide and was therefore given remifentanil. This woman was analysed as in the nitrous oxide group, according to ITT. **Characteristics** <u>Maternal age- years (SD)</u> Intervention: 34.8 (4) Control: 35.1 (5) p=0.73 <u>Parity (nulliparous)- number (%)</u> Intervention: 40 (66.7) Control: 42 (70)	**Interventions** Intervention: remifentanil (1mg vials for injectable solution or infusion) Control: nitrous oxide (medicinal gas mixture of 50% nitrous oxide and 50% oxygen) Note: All ECVs were performed under tocolysis (either ritodrine 200µg/min for 30 minutes or 6.75mg atosiban, given as an IV bolus 2 min before procedure).	**Details** **Power analysis** Estimated that 180 women (90 per arm) would be required to achieve 80% statistical power to detect as statistically significant an absolute difference in success rate of 20% in a superiority design. **Statistical analyses** The primary endpoint was analysed sequentially using the chi-squared test and Z critical values. For secondary analysis, chi-squared or Fisher's exact tests were used for qualitative variables and Student's t or Mann–Whitney U tests for quantitative variables depending on which theoretical assumptions were met by the study data	**Results** **<u>Critical outcomes</u>** **Method of birth** <u>Caesarean birth-number (%)</u> Intervention: 22 (36.7) Control: 24 (40.0) p=0.71 **Admission to SCBU/NICU** <u>Neonatal care unit admission-number (%)</u> Intervention: 2 (3.34) Control: 1 (1.67) p=0.56	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Low risk of bias. (A balanced 1:1 restricted randomisation scheme used with variably sized permuted block. Allocation concealed by numbered, opaque, sealed envelopes stored in the delivery room). Deviations from intended interventions:

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Scandinavica, 95, 547-54, 2016 **Ref Id** 649839 **Country/ies where the study was carried out** Spain **Study type** Randomised controlled trial. **Aim of the study** The aim of the study was to compare the efficacy (success rate of ECV) and safety of analgesia with remifentanil vs. nitrous oxide in the context of ECV procedures in noncephalic singleton pregnancies at term. **Study dates** July 2012 to February 2013 **Source of funding**	p=0.94 Parity (multiparous)- number (%) Intervention: 20 Control: 18 p=0.94 **Inclusion criteria** • Women with non-cephalic presentations at term (≥37+0 weeks) **Exclusion criteria** • Women with placenta previa; • Women with placental abruption; • Women with uterine malformation; • Women with oligohydramnios (amniotic fluid index <5 cm); • Women with signs of fetal distress; • Fetal death or severe fetal malformations; • Women with multiple pregnancies; • Rhesus incompatibility; • Clotting disorders;		(expected cell frequencies and Gaussian distribution, respectively). **Intention-to-treat (ITT) analysis** All the analyses were conducted on an intention-to-treat basis.	**Important outcomes** **Apgar score <7 at 5 minutes** 5-min Apgar score <7- number Intervention: 0 Control: 0	Some concerns. (No details provided). Measurement of the outcome: Some concerns. (No details provided). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Low risk of bias. (Trial protocol is reported and all outcomes have been reported). Other bias: Some concerns. (The trial was stopped early after the second interim analysis, with a p-value for efficacy of 1.00 and probability of achieving statistically significant differences between treatments with 30 additional cases per arm of less than 2%. After reviewing these results and the overall safety data, the external data and safety monitoring board recommended that the trial be halted and its results analysed and disseminated). Overall risk of bias: Some concerns

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Independent Clinical Research Grant (EC11-295) from the Spanish Ministry of Health and Consumer Affairs	• Any indications for cesarean section.				**Other information** There were no ECV-related complications in the nitrous oxide group but three cases of mild vaginal bleeding straight after the maneuver (5%) in the remifentanil group (p = 0.24).
Full citation Chalifoux, L. A., Bauchat, J. R., Higgins, N., Toledo, P., Peralta, F. M., Farrer, J., Gerber, S. E., McCarthy, R. J., Sullivan, J. T., Effect of Intrathecal Bupivacaine Dose on the Success of External Cephalic Version for Breech Presentation: A Prospective, Randomized, Blinded Clinical Trial, Anesthesiology, 127, 625-632, 2017 **Ref Id** 827589	**Sample size** N= 240 Bupivacaine 2.5mg: n=60 Bupivacaine 5mg: n=60 Bupivacaine 7.5mg: n=59 (60 randomised to group but 59 received intervention and ECV not performed on 1 woman) Bupivacaine 10mg: n=60 **Characteristics** <u>Parity- nulliparous, number (%)</u> Bupivacaine 2.5mg: 34 (57) Bupivacaine 5mg: 38 (63) Bupivacaine 7.5mg: 39 (65) Bupivacaine 10mg: 38 (63) <u>Parity- multiparous, number (%)</u> Bupivacaine 2.5mg: 26 (43) Bupivacaine 5mg: 22 (37) Bupivacaine 7.5mg: 21 (35) Bupivacaine 10mg: 22 (37)	**Interventions** Intervention: • ECV + Bupivacaine 2.5mg + fentanyl 15 micrograms • ECV + Bupivacaine 5.0mg + fentanyl 15 micrograms • ECV + Bupivacaine 7.5mg + fentanyl 15 micrograms • ECV + Bupivacaine 10mg + fentanyl 15 micrograms There is no control group.	**Details** **Power analysis** Based on the expected proportion of successful versions for the four study doses, a sample size of 226 (57 per group) would achieve 80% power to detect an effect size Cramér's ω of 0.23 using a four degree of freedom chi-squared test with significance level *P* value of 0.05. **Statistical analyses** The primary outcome was compared among groups by constructing a 2 × 4 cross-tabulation matrix and chi-squared test. Secondary nominal outcomes were analysed using a chi-squared test. Interval data were compared among groups using the Kruskal–Wallis test. **Intention-to-treat (ITT) analysis** ITT analysis was used.	**Results** **<u>Critical outcomes</u>** **Method of birth** <u>Mode of delivery-Vaginal, number (%)</u> Bupivacaine 2.5mg: 26 (43) Bupivacaine 5mg: 23 (38) Bupivacaine 7.5mg: 28 (47) Bupivacaine 10mg: 24 (40) <u>Mode of delivery-Caesarean, number (%)</u> Bupivacaine 2.5mg: 34 (57) Bupivacaine 5mg: 37 (62) Bupivacaine 7.5mg: 31 (53) Bupivacaine 10mg: 36 (60) p=0.76	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Low risk of bias. (Four-group block randomisation performed using a computer-generated allocation list with randomly selected block sizes of 4, 8, and 12. Group allocations were concealed in sequentially numbered, opaque envelopes). Deviations from intended interventions: Some concerns. (Participants and some personnel were blinded to group assignment-anaesthetists were not blinded).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Country/ies where the study was carried out US **Study type** Double-blind, randomised, four-arm controlled trial. **Aim of the study** To study the effect of intrathecal bupivacaine dose on the success of external cephalic version for breech presentation. **Study dates** August 2011 to September 2015. **Source of funding** Supported by grant No. 69779 from the Robert Wood Johnson Foundation Harold Amos Medical Faculty Development Program (Princeton, New Jersey; to Dr. Toledo) and the Department of	**Inclusion criteria** Not mentioned. **Exclusion criteria** • Women less than 18 years of age; • Women less than 37 estimated gestational weeks; • Women with a BMI greater than 40kg/m^2; • Women who were non-English speaking; • Women who had a transverse lie, ruptured membranes, or a contraindication to neuraxial anaesthesia.				Measurement of the outcome: Low risk of bias. (No blinding of outcomes however all outcomes were objective). Missing outcome data: High risk of bias. (57/240 (24%) women lost to follow-up, ITT analysis used for outcome data). Selection of the reported result: Low risk of bias. (Trial protocol is available and all outcomes reported). Other bias: Low risk of bias. (There was no control group for this study). Overall risk of bias: Some concerns

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Anaesthesiology, Northwestern University Feinberg School of Medicine (Chicago, Illinois).					
Full citation Chenia, F., Crowther, C. A., Does advice to assume the knee-chest position reduce the incidence of breech presentation at delivery? A randomized clinical trial, Birth (Berkeley, Calif.), 14, 75-78, 1987 **Ref Id** 1045360 **Country/ies where the study was carried out** Zimbabwe **Study type** Randomised controlled trial **Aim of the study** To test the value of advising women to assume the knee-chest position to	**Sample size** N=76 Intervention: n=39 Control: n=37 **Characteristics** Maternal age (years)- mean (±SD) Intervention: 25.4 (6) Control: 26.8 (6.2) Parity- 0- number Intervention: 11 Control: 4 Parity- 1 to 3- number Intervention: 23 Control: 22 Parity- 4 or more- number Intervention: 5 Control: 11 **Inclusion criteria** • Singleton breech presentation at or after the 37th week of pregnancy. **Exclusion criteria**	**Interventions** Intervention: knee-chest position for 15 minutes, three times each day for one week. Control: no postural management. *Knee-chest position was demonstrated to women in the outpatient clinic and each participant in that group was given a printed sheet with written instructions.	**Details** **Power analysis** Not mentioned. **Statistical analyses** Analysis of data was by chi square and Student's T test. **Intention to treat analysis** Not mentioned.	**Results** **Critical outcomes** **Cephalic presentation in labour** Rotation to cephalic (at one week follow up)- number Intervention: 16/39 Control: 12/37 **Method of birth** Normal vertex delivery- number Intervention: 14/39 Control: 12/37 Breech vaginal birth- number Intervention: 17/39 Control: 14/37 Caesarean section- number Intervention: 8/39 Control: 11/37 **Important outcomes** **Apgar score <7 at 5 minutes**	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Random number table and block randomisation. Allocation concealed by sequentially numbered opaque envelopes). Deviations from intended interventions: Low risk of bias. (Participants were not blinded to study allocation group as this was not feasible in this study). Measurement of the outcome: Low risk of bias. (Outcomes are objectively assessed). Missing outcome data: Low risk of bias. (High retention rate and no loss to follow-up). Selection of the reported result:

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
reduce the incidence of breech presentation at delivery. **Study dates** Not mentioned. **Source of funding** Not mentioned.	• Women with hypertensive disease; • Antepartum haemorrhage; • Placenta previa; • Previous uterine surgery; • Rhesus isoimmunisation; • Intrauterine death; • Multiple pregnancy; • Congenitally malformed fetuses.			Apgar score <7 at 5 minutes- number Intervention: 1/39 Control: 4/37	Some concerns. (No trial protocol reported). Other bias: Low risk. (No other biases detected). Overall risk of bias: Low risk
Full citation Collaris,R., Tan,P.C., Oral nifepidine versus subcutaneous terbutaline tocolysis for external cephalic version: a double-blind randomised trial, BJOG: An International Journal of Obstetrics and Gynaecology, 116, 74-80, 2009 **Ref Id** 52496 **Country/ies where the study was carried out**	**Sample size** N=90 Nifedipine: n=44 Terbutaline: n=46 *Seven women having failed ECV were secondarily recruited after they opted for a second ECV attempt a few days later and were re-randomised. **Characteristics** Maternal age (years)- mean (±SD) Nifedipine: 30 (5) Terbutaline: 30 (5) Parity- median [IQR] Nifedipine: 0 [2] Terbutaline: 0 [1] Nullipara- number (%) Nifedipine: 23 (52.3)	**Interventions** Nifedipine: ECV + 10mg nifedipine tablet + placebo vial of 0.9% sodium chloride and 1mL syringe to prepare 0.5mL placebo injection. Terbutaline: ECV + placebo tablet + vial of 500µg/mL terbutaline sulphate and 1mL syringe to prepare 0.5mL (250µg terbutaline) injection. ECV commenced 20-30 minutes after trial medication was given, without any analgesia or anaesthesia.	**Details** **Power analysis** Assuming ECV success rate of 58% with terbutaline,9 to detect a 50% reduction in success rate with nifedipine, taking alpha of 0.05 and power of 80%, 1 to 1 recruitment ratio, a total of 90 women would be needed. **Statistical analyses** The Kolmogorov–Smirnoff test was used to check for normal distribution. The t-test was used on continuous data, and the Mann–Whitney U test was used for non-normally distributed and ordinal data. Fisher's exact test was applied for 2·2 categorical data set and chi-square test for larger than 2·2 categorical data set.	**Results** **Critical outcomes** **Cephalic presentation in labour** Cephalic presentation at delivery- number (%) Nifedipine: 16 (36.4) Terbutaline: 27 (58.7) RR (95% CI): 0.6 (0.39 to 0.98) p=0.04 **Method of birth** Caesarean delivery- number (%)	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Randomisation sequence was computer generated, and variable blocks of 8 or 12 were used. Allocation concealment by sealed, numbered opaque envelopes). Deviations from intended interventions: Low risk of bias. (Both participants and personnel

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Malaysia **Study type** Randomised controlled trial. **Aim of the study** To evaluate oral nifepidine versus subcutaneous terbutaline tocolysis for external cephalic version (ECV). **Study dates** December 2005 to December 2007. **Source of funding** Department of Obstetrics and Gynaecology, University of Malaya.	Terbutaline: 25 (54.3) **Inclusion criteria** • Women with their fetus in breech presentation or transverse lie; • Women whose condition was reassuring and between 36 and 41 weeks of gestation (confirmed by early ultrasound). **Exclusion criteria** Women with: • gross fetal anomalies; • severe hypertensive disease of pregnancy; • intrauterine growth restriction (fetal abdominal circumference <10th percentile—local chart) • oligohydramnios (amniotic fluid index <5 cm); • recent antepartum haemorrhage; • prelabour rupture of membrane; • established labour;		**Intention-to-treat (ITT) analysis** Analysis was performed on intention-to-treat basis of participants at primary enrolment.	Nifedipine: 34 (77.3) Terbutaline: 26 (56.5) RR (95% CI): 1.4 (1.01 to 1.85) p=0.046 NNTb (95% CI): 5 (2.5 to 55) p<0.05 Vaginal delivery-number (%) Nifedipine: 10 (22.7) Terbutaline: 20 (43.5) **Admission to SCBU/NICU** Neonatal admission-number (%) Nifedipine: 1/44 (2.3) Terbutaline: 2/46 (4.3) RR (95% CI): 0.5 (0.05 to 5.6) p=1.0 **Important outcomes** **Apgar score <7 at 5 minutes** Apgar score <7 at 5 minutes-number (%) Nifedipine: 0 (0) Terbutaline: 0 (0)	were blinded to group allocation). Measurement of the outcome: Low risk of bias. (No blinding of outcomes however all outcomes were objective). Missing outcome data: Low risk of bias. (High retention rate and no reported loss to follow-up). Selection of the reported result: Some concerns. (No reported trial protocol). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk **Other information** Primary analysis was based on the 90 women at their first attempt at ECV. A secondary analysis was performed on the 83 participants who did not have a second ECV to remove the confounding effect of a second attempt in caesarean delivery.

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	• previous caesarean or uterine surgery,uterine anomaly, placenta praevia or any other indication for elective primary caesarean; • presence of any allergy to trial medications.				
Full citation Dafallah,S.E., Elhag,S.M., The role of external cephalic version on the presentation at delivery, Saudi Medical Journal, 25, 386-388, 2004 **Ref Id** 52518 **Country/ies where the study was carried out** Sudan **Study type** Randomised controlled trial. **Aim of the study** To investigate the effect of ECV versus no ECV on the	**Sample size** N=620 ECV: n=310 No ECV: n=310 **Characteristics** Not mentioned. **Inclusion criteria** • Women with uncomplicated pregnancy; • Breech presentation between 36-38 weeks gestation. **Exclusion criteria** • Uterine abnormality; • Previous cesarean section;	**Interventions** ECV: performed by same physician throughout using classic forward roll technique, in slight Trendelenburg. Repeated up to 3 times at subsequent visits but not more than twice in one week. Control: No ECV.	**Details** **Power analysis** Not mentioned. **Statistical analyses** The significance or differences between relative values or frequencies was assessed by the mean χ^2 analysis or by Fisher test. P value <0.05 was considered significant and 95% confidence interval (CI) were calculated where appropriate. **Intention to treat analysis** Not mentioned.	**Results** **Critical outcomes** **Cephalic presentation in labour** Cephalic presentation in labour- Number ECV: 175/310 No ECV: 100/310 p<0.101 **Method of birth** Cephalic vaginal birth- Number ECV: 143/310 No ECV: 96/310 Breech vaginal birth- Number ECV: 117/310 No ECV: 180/310 Caesarean section- Number ECV: 44/310 No ECV: 45/310 p>0.05 **Fetal death after 36+0 weeks gestation**	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Some concerns. (Randomly allocated. No other details provided). Deviations from intended interventions: Low risk of bias. (Blinding not possible for this study design). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result:

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
presentation at delivery. **Study dates** January 1995 to December 2001 **Source of funding** Not mentioned.	• Hypertensive disorders with pregnancy; • Antepartum haemorrhage; • Intrauterine growth retardation.			Neonatal death- Number ECV: 0/310 No ECV: 2/310* *died few hours after delivery due to pneumonia resulting most likely from intrauterine infection as a sequel of early rupture membranes.	Some concerns. (No trial protocol reported). Other bias: Low risk. (No other biases detected). Overall risk of bias: Some concerns
Full citation Diguisto, C., Winer, N., Descriaud, C., Tavernier, E., Weymuller, V., Giraudeau, B., Perrotin, F., Amnioinfusion for women with a singleton breech presentation and a previous failed external cephalic version: a randomized controlled trial, Journal of Maternal-Fetal & Neonatal MedicineJ Matern Fetal Neonatal Med, 31, 993-999, 2018 **Ref Id**	**Sample size** N=119 Intervention: n=59 Control: n=60 **Characteristics** Maternal age (years)- median [IQR] Intervention: 30 [26 to 33] Control: 29 [26 to 32] Nulliparous- number (%) Intervention: 40 (68) Control: 41 (68) **Inclusion criteria** • Women with an ultrasound confirmed	**Interventions** Intervention: ECV + transabdominal amnioinfusion with 500mL saline solution Control: ECV only *Parenteral salbutamol administered for 30 mins (15 drops/min of a 15mg/mL solution) before ECV.	**Details** **Power analysis** In accordance with the sequential design, the number of participants was not specified beforehand. Interim analyzes were to be performed every 20 participants, and the trial steering committee would then decide on the continuation or termination of the study. We used the PEST (Planning and Evaluating Sequential Trials, University of Reading) software to calculate a maximum number of 240 participants. **Statistical analyses** Qualitative data are expressed with numbers and percentages and compared with a v2 test (or Fisher's exact test, when appropriate). Quantitative data	**Results** **Critical outcomes** **Cephalic presentation in labour** Cephalic presentation at delivery- number (%) Intervention: 12/59 (20.3) Control: 7/60 (11.7) p=0.20 **Method of birth** Caesaren deliveries- number (%) Intervention: 41/59 (69.5) Control: 44/60 (73.3)	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Some concerns. (Randomisation was computer-generated with random blocks of four and stratified for study centre and AFI. No details provided on allocation concealment). Deviations from intended interventions: Some concerns. (Neither participants nor personnel blinded). Measurement of the outcome: Low risk of bias. (Outcomes

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
1075628 **Country/ies where the study was carried out** France **Study type** Randomised controlled trial. **Aim of the study** To assess the effectiveness of amnioinfusion for a second attempt at external cephalic version (ECV). **Study dates** July 2006 to March 2011. **Source of funding** The French Ministry of Health under grant number "PHRCN-05" (PHRCN: Programme Hospitalier de Recherche Clinique National).	singleton breech presentation; • Gestational age of ≥36 weeks; • A first unsuccessful ECV attempt. **Exclusion criteria** • Women younger than 18 years; • Women with no health insurance coverage; • Women with a previous caesarean delivery; • Polyhydramnios (AFI >25) or oligohydramnios (AFI <2), known major fetal anomalies or congenital uterine malformations, non-reassuring fetal heart rate (FHR), or premature rupture of the membranes; • Hyperextended fetal head or cord entanglement.		were expressed as medians with their interquartile ranges and compared with a Wilcoxon test. Statistical analyses were conducted with R statisical software (version 2.13) and SAS software version 9.3. **Intention-to-treat (ITT) analysis** The analyses were conducted with an intention-to-treat analysis.	p=0.64	were objectively assessed and researchers considered effects of clinician influence). Missing outcome data: High risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: High risk of bias. (Trial protocol is available and all outcomes reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: High risk **Other information** The scientific committee decided after a 57-month recruiting period that recruitment was insufficient to continue the trial. Due to these recruiting difficulties the initial sequential design of the trial could not be applied. The data were handled as if the trial were a standard two parallel-group trial.
Full citation	**Sample size** N=102	**Interventions**	**Details** **Power analysis**	**Results**	**Limitations**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Dugoff, L., Stamm, C. A., Jones, O. W., 3rd, Mohling, S. I., Hawkins, J. L., The effect of spinal anesthesia on the success rate of external cephalic version: a randomized trial, Obstet GynecolObstetrics and gynecology, 93, 345-9, 1999 **Ref Id** 1094472 **Country/ies where the study was carried out** US **Study type** Randomised controlled trial. **Aim of the study** To identify the effect of spinal anaesthesia on the success rate of external cephalic version after 36 weeks' gestation.	Intervention: n=50 Control: n=52 **Characteristics** Maternal age (years)- mean (±SD) Intervention: 24.3 (0.9) Control: 26.8 (0.9) Parity- mean (±SD) Intervention: 1.5 (0) Control: 1.6 (0.1) **Inclusion criteria** • No less than 36 weeks' gestation; • Breech presentation; • Reactive non-stress test; • Intact membranes with a minimum 2x2-cm pocket of amniotic fluid; • Absence of gross fetal anomalies, uterine malformation, macrosomia, fetal growth restriction, or placenta previa; • No known maternal history of third-trimester vaginal bleeding; • Labour;	Intervention: 10µg sufentanil and 1 mL of 0.25% bupivacaine administered after 500mL lactated Ringer's solution + 0.25mg IV terbutaline + ECV Control: ECV only.	Sample size was estimated on the basis of a error of .05, β error of .2, and a clinically significant difference of an increase of 20% from baseline success rate of 50% (one-tailed test). A sample size of 50 in each group was calculated on the basis of these characteristics. **Statistical analyses** Statistical analysis was performed using Student t test and χ2 when appropriate. Logistic regression was used for multivariate analysis to adjust for potential confounding factors. P <.05 was statistically significant. **Intention-to-treat analysis** Statistical analysis based on intent-to-treat was performed.	**Critical outcomes** **Cephalic presentation in labour** Delivery position-vertex- number (%) Intervention: 20/50 (40) Control: 26/52 (50) **Method of birth** Delivery method-vaginal- number (%) Intervention: 16/50 (32) Control: 34/52 (68) Delivery method-caesarean-number (%) Intervention: 25/50 (48) Control: 27/52 (52) p=0.098	**Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Computer generated number-sequence used. Allocation concealed by numbered sealed opaque envelopes). Deviations from intended interventions: Low risk of bias. (All personnel blinded to group allocation; no details available for participants). Measurement of the outcome: Some concerns. (Majority of outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk. (No other biases detected)

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study dates October 1993 to August 1997 **Source of funding** Not mentioned.	• No contraindications to spinal anaesthesia or terbutaline. **Exclusion criteria** Not mentioned.				Overall risk of bias: Some concerns
Full citation El-Sayed, Y. Y., Pullen, K., Riley, E. T., Lyell, D., Druzin, M. L., Cohen, S. E., Chitkara, U., Randomized comparison of intravenous nitroglycerin and subcutaneous terbutaline for external cephalic version under tocolysis, American Journal of Obstetrics and Gynecology, 191, 2051-2055, 2004 **Ref Id** 1042886 **Country/ies where the study was carried out** US	**Sample size** N=59 Nitroglycerine: n=30 Terbutaline: n=29 **Characteristics** Maternal age (years)- mean (±SD) Nitroglycerine: 31.1 (5.6) Terbutaline: 31.7 (4.8) Multiparity- number (%) Nitroglycerine: 13 (43) Terbutaline: 11 (38) **Inclusion criteria** • Women between 37 and 42 weeks of gestation with a fetus in breech presentation. **Exclusion criteria** Maternal exclusion criteria:	**Interventions** Nitroglycerine: 200µg IV nitroglycerin (100µg before ECV and 100µg after ECV) + ECV Terbutaline: 0.25mg subcutaneous injection + ECV	**Details** **Power analysis** Assuming a 30% success rate with terbutaline therapy, we calculated that a total of at least 56 patients would be required to detect a 50% reduction in failed ECV with nitroglycerin therapy, with an a value of .05 and a power of 80%. **Statistical analyses** Statistical analysis of the data was performed using Student t tests and $\chi 2$ and Fisher exact tests where appropriate. **Intention-to-treat analysis** Not mentioned.	**Results** **Critical outcomes** **Method of birth** Successful ECV-vaginal delivery-number (%) Nitroglycerine: 6/7 (86) Terbutaline: 11/16 (69) p=0.60 Attempted ECV-caesarean delivery- number (%) Nitroglycerine: 20/30 (67) Terbutaline: 18/29 (62) p=0.71	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Some concerns. (No information provided on randomisation process. Allocation concealed with unmarked, sealed, sequentially numbered, opaque envelopes). Deviations from intended interventions: Low risk of bias. (Personnel blinded to group allocation). Measurement of the outcome: Low risk of bias. (Majority of outcomes objectively assessed). Missing outcome data: Low risk of bias. (High

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study type Randomised controlled trial **Aim of the study** To compare the efficacy and safety of intravenous nitroglycerin with that of subcutaneous terbutaline as a tocolytic agent for external cephalic version at term. **Study dates** Not mentioned. **Source of funding** Not mentioned.	• Chronic hypertension; • Preeclampsia; • Placental abruption; • Placenta previa; • Maternal cardiac disease; • Chorioamnionitis; • Previous uterine surgery. Fetal exclusion criteria: • Ruptured membranes; • Intrauterine growth restriction (estimated fetal weight, !10th percentile for gestational age by ultrasonography); • Decreased amniotic fluid or oligohydramnios (amniotic fluid index, !8 cm); • Fetal anomalies incompatible with life; • An extended fetal head.				retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk. (No other biases detected). Overall risk of bias: Some concerns **Other information** 20 participants (8 terbutaline and 12 nitroglycerine) were given alternate intervention + ECV in a second round, when first intervention was unsuccessful.
Full citation Fernandez, C. O., Bloom, S. L., Smulian, J. C., Ananth, C. V., Wendel, G. D., Jr., A	**Sample size** N=103 Intervention: n=52 Placebo: n=51	**Interventions** Intervention: 0.25mg terbutaline administered subcutaneously Placebo: equal volume of placebo saline solution	**Details** **Power analysis** With an estimated 70% success rate with tocolysis and 50% without, a sample of 194 patients would be needed for this study to detect a 20% difference. The type	**Results** **Critical outcomes** **Method of birth** Effect of treatment on route of delivery- vaginal	**Limitations** **Cochrane risk of bias tool V2**:

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
randomized placebo-controlled evaluation of terbutaline for external cephalic version, Obstetrics & Gynecology, 90, 775-9, 1997 **Ref Id** 649942 **Country/ies where the study was carried out** US **Study type** Randomised controlled trial **Aim of the study** To evaluate the efficacy of subcutaneous terbutaline therapy on the success rate of external cephalic version in term gestation. **Study dates** January 1994 to June 1995	**Characteristics** Maternal age (years)- mean (±SD) Intervention: 23.4 (4.9) Placebo: 25.7 (5.4) Parity- median (range) Intervention: 1 (0-5) Placebo: 1 (0-5) Gravidity- median (range) Intervention: 2 (1-7) Placebo: 2 (1-9) **Inclusion criteria** • Singleton pregnancies with noncephalic presentations identified after 36 completed weeks' gestation. **Exclusion criteria** • Under 17 years of age; • Prior uterine surgery; • Rupture of membranes; • Placenta previa; • Anomalous fetus; • Multiple gestation; • Sensitivity to terbutaline; • Other maternal medical complications.		I error rate (α) was fixed at 0.05, and the power (1-β) was fixed at 80%. **Statistical analyses** Statistical analyses included Student *t* test between group comparisons for normally distributed continuous data. χ2 and Fisher exact test were used for categorical data as appropriate. Relative risks (RRs) with 95% confidence intervals (CIs) were calculated. Statistical significance was set at P<0.05. **Intention-to-treat analysis** Not mentioned.	vertex delivery- number (%) Intervention: 21/52 (4) Placebo: 11/51 (22) RR (95% CI)- 1.81 (1.0 to 5.9) Effect of treatment on route of delivery- vaginal breech delivery- number (%) Intervention: 1/52 (2) Placebo: 1/51 (2) RR (95% CI)- 1.00 (0.1 to 7.2) Effect of treatment on route of delivery- caesarean delivery- number (%) Intervention: 30/52 (58) Placebo: 39/51 (76) RR (95% CI)- 0.76 (0.2 to 1.0)	Randomisation process: Low risk of bias. (Computer generated random numbers. Numbered sealed envelopes used for allocation concealment). Deviations from intended interventions: Low risk of bias. (Participants and investigator were blinded). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Source of funding Supported in part by a grant from the March of Dimes, Dallas Chapter					
Full citation Hilton, J., Allan, B., Swaby, C., Wahba, R., Jarrell, J., Wood, S., Ross, S., Tran, Q., Intravenous nitroglycerin for external cephalic version: a randomized controlled trial, Obstetrics & GynecologyObstet Gynecol, 114, 560-7, 2009 **Ref Id** 1075679 **Country/ies where the study was carried out** Canada **Study type** Randomised controlled trial.	**Sample size** <u>Nulliparous women</u> N=82 Intervention: n=42 Placebo: n=40 *Four women in the nulliparous trial did not receive their allocated intervention but were included in the analyses of the primary and secondary outcomes. One woman who was lost to follow-up was included in the analysis of the primary outcome but not in the analysis of the secondary outcomes. <u>Multiparous women</u> N=44 Intervention: n=23 Placebo: n=21 *Three women in the multiparous trial did not receive their allocated intervention but were included in the analyses of the primary and secondary outcomes. **Characteristics** <u>Maternal age (nulliparous trial)-mean (±SD):</u> Intervention: 30 (5) Placebo: 29 (4)	**Interventions** Intervention: ECV + 10mL of IV nitroglycerin (100µg/mL) Control: ECV + 10 mL of IV saline *ECV was conducted with the participant in the supine Trenelenburg position. Further doses were given in 1mL to 3mL increments up to a max of 10mL, if ECV was unsuccessful on first attempt.	**Details** **Power analysis** Based on a 100% increase in success of external cephalic version with a one-sided analysis and α=0.05 (80% power), the sample size required was 39 patients per group for the nulliparous trial (total 78) and 20 patients per group for the multiparous trial (total 40). **Statistical analyses** Odds ratios were calculated with single-sided confidence intervals to describe treatment effect. Statistical significance was assessed with the Mann–Whitney test and Fisher exact test where appropriate. **Intention-to-treat (ITT) analysis** Intention-to-treat analysis was planned a priori. Patients who were recruited but did not undergo external cephalic version or treatment are included in the analysis of the primary outcome as unsuccessful external cephalic versions.	**Results** **<u>Critical outcomes</u>** **Cephalic presentation in labour** <u>Cephalic presentation at delivery (nulliparous trial)-number (%)</u> Intervention: 12/42 (29) Placebo: 4/39 (10) OR 3.50 (lower bound 1.24), 0.04 <u>Cephalic presentation at delivery (multiparous trial)-number (%)</u> Intervention: 12 (52) Placebo: 10 (48) OR 1.20 (lower bound 0.44), 0.50 *single-sided test, statistical significance measured by one-sided Fisher Exact test	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Low risk of bias. (Randomisation tables used. Allocation concealed by sequentially numbered opaque envelopes). Deviations from intended interventions: Low risk of bias. (Participants and personnel blinded to treatment allocation). Measurement of the outcome: Some concerns. (No details provided). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Aim of the study To estimate whether treatment with intravenous nitroglycerin for uterine relaxation increases the chance of successful external cephalic version. **Study dates** March 2003 to September 2006 **Source of funding** A peer-reviewed grant from the Adult Research Committee, Calgary Health Region, Alberta, Canada.	Maternal age (multiparous trial)-mean (±SD): Intervention: 31 (5) Placebo: 32 (5) **Inclusion criteria** • Any noncephalic singleton presentation; • Gestational age at least 37 weeks; • Normal amniotic fluid index (more than 5 to less than 20), and reassuring fetal heart rate. **Exclusion criteria** • In labour or if they had ruptured membranes; • history of third-trimester bleeding; • any pre-existing uterine scar; • pregnancy-induced hypertension or gestational diabetes; • oligohydramnios, hydramnios, intrauterine growth restriction, macrosomia, maternal hypotension, or any serious medical			**Method of birth** Caesarean delivery rate (nulliparous trial)-number (%) Intervention: 32/42 (76) Placebo: 36/39 (92) OR 0.27 (upper bound 0.85), 0.05 Caesarean delivery rate (multiparous trial)-number (%) Intervention: 12 (52) Placebo: 13 (62) OR 0.67 (upper bound 1.84), 0.37	Selection of the reported result: Low risk of bias. (Trial protocol is available and all outcomes reported). Other bias: Some concerns. (No details provided). Overall risk of bias: Some concerns

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	condition or inability to comprehend the consent form.				
Full citation Hindawi,I., Value and pregnancy outcome of external cephalic version, Eastern Mediterranean Health Journal, 11, 633-639, 2005 **Ref Id** 52673 **Country/ies where the study was carried out** Jordan **Study type** Randomised control trial **Aim of the study** To determine the efficacy and pregnancy outcome of external cephalic version at ≥37 weeks gestation.	**Sample size** N=192 External cephalic version (ECV) group: n=90 Control group (ECV not attempted): n=102 **Characteristics** Maternal age (years)-mean (SD) ECV group: 27.2 (6.2) Control group: 28.9 (6.8) Parity-Nullipara, number (%) ECV group: 41 (46) Control group: 49 (48) Parity-Multipara, number (%) ECV group: 49 (54) Control group: 53 (52) **Inclusion criteria** • 37 weeks of gestation with a singleton pregnancy in breech presentation.	**Interventions** ECV+ Infusion of ritodrine (0.3 mg/minute for 30 minutes).	**Details** A reactive cardiotocogram (defined as the presence of ≥2 accelerations of ≥15 beats/minutes) and associated fetal movement over 40 minutes and known rhesus blood group were prerequisites for ECV. Contraindications were excluded before the ECV which include: • fetal abnormality • interuterine growth retardation • placenta previa • established labour ruptured membrane • abnormal cardiotocogram • gestational diabetes requiring insulin • protenuric hypertension disorders • previous caesarean section • oligohydramnios (amniotic fluid index<5cm) • polydramnios (amniotic fluid index>25cm) **Power analysis** Not mentioned	**Results** **Critical outcomes** **Method of birth** Breech vaginal birth, number (%) ECV group: 7(8) Control group: 31(30) Caesarean birth (breech), number (%) ECV group: 35(39) Control group: 62(61) p<0.05 Cephalic vaginal birth (Normal vertex), number (%) ECV group: 49(54) Control group: 9(9) p<0.001	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Some concerns. (Population randomised. No details provided). Deviations from intended interventions: High risk of bias. (No blinding for either participants or personnel). Measurement of the outcome: Some concerns. (It is unclear whether outcomes were objectively assessed). Missing outcome data: Some concerns. (No details provided so it is unclear whether there were any missing data). Selection of the reported result: Some concerns. (No trial protocol reported).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study dates January 1999 and December 2001 **Source of funding** Not mentioned.	**Exclusion criteria** • Not mentioned.		**Statistical analysis** Not mentioned **Intention to treat** Not mentioned		Other bias: High risk of bias. (baseline differences in fetal weight and large group size differences between intervention and control groups) Overall risk of bias: High risk
Full citation Hofmeyr,G.J., Effect of external cephalic version in late pregnancy on breech presentation and caesarean section rate: a controlled trial, British Journal of Obstetrics and Gynaecology, 90, 392-399, 1983 **Ref Id** 169288 **Country/ies where the study was carried out** South Africa **Study type**	**Sample size** N=60 ECV group: n=30 Control group: n=30 **Characteristics** Maternal age (years)-mean (SD) ECV group: 25.8 (6.7) Control group: 23.8 (5.4) Parity-mean (SD) ECV group: 1.5 (0.27) Control group: 1.3 (0.26) **Inclusion criteria** • 36 weeks of gestation with pregnancy in breech presentation.	**Interventions** ECV group: ECV attempt initially without tocolysis. If unsuccessful (7 cases), attempt repeated following hexoprenaline 10 µg by slow IVI injection. Control group: No ECV	**Details** **Power analysis** Not mentioned. **Statistical analysis** The findings and results in the 2 groups were compared by the t-test for continuous variables and the X^2 test for proportions. **Intention to treat** Not mentioned.	**Results** **Critical outcomes** **Cephalic presentation in labour** Cephalic presentation in labour- Number ECV group: 24/30 Control group: 9/30 **Method of Birth** Breech vaginal birth- Number ECV group: 0/30 Control group: 8/30 Caesarean birth- Number ECV group: 6/30 Control group: 13/30 Cephalic vaginal birth- Number	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Randomisation by shuffled cards marked 'V' or 'C'. Allocation cards were concealed). Deviations from intended interventions: Low risk of bias. (It was not possible to blind participants). Measurement of the outcome: Some concerns. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Randomised controlled trial **Aim of the study** To determine the effect of external cephalic version on pregnancy outcome. **Study dates** February 1 to October 31, 1981. **Source of funding** Not mentioned.	**Exclusion criteria** • Non-reactive fetal heart-rate (FHR) patterns after cardiotocogram. • Markedly contracted pelvis. • Severe obesity. • Rhesus-negative patients.			ECV group: 24/30 Control group: 17/30 **Fetal death after 36+0 weeks gestation** Perinatal death- Number ECV group: 0/30 Control group: 0/30 **Important outcomes** **Apgar score <7 at 5 minutes** Apgar score <7 at 5 minutes- Number ECV group: 0/30 Control group: 0/30	retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk. (No other biases detected). Overall risk of bias: Some concerns
Full citation Impey,L., Pandit,M., Tocolysis for repeat external cephalic version in breech presentation at term: a randomised, double-blinded, placebo-controlled trial, BJOG: An International Journal of Obstetrics and	**Sample size** N=124 Intervention: n=62 Placebo: n=62 **Characteristics** Maternal age (years)- mean (±SD) Intervention: 30.6 (4.5) Placebo: 30.9 (5.5) Nulliparous- number (%) Intervention: 44 (71)	**Interventions** Intervention: 17mL ritodrine hydrochloride (3mg/mL) Placebo: 17mL dextrose saline	**Details** **Power analysis** To detect an increase in the incidence of cephalic presentation from 5% to 25% with 90% power (a=0.05), 124 patients were required. **Statistical analyses** For categorical variables, relative risks were calculated, with 95% confidence intervals. Continuous variables, where normally	**Results** **Critical outcomes** **Cephalic presentation in labour** Cephalic presentation at delivery- number (%) Intervention: 18/62 (29)	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Random block sizes up to 20. Allocation concealed by numbered sealed opaque envelopes).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Gynaecology, 112, 627-631, 2005 **Ref Id** 52706 **Country/ies where the study was carried out** UK **Study type** Randomised controlled trial. **Aim of the study** To determine whether tocolysis should be used if ECV is being re-attempted after a failed attempt. **Study dates** June 2000 to November 2003 **Source of funding** This trial was funded by a grant from the NHS Executive South East Research and Development Directorate (CE0.093).	Placebo: 45 (72.6) **Inclusion criteria** • Singleton breech presentation at 36 or more (nullips) or 37 or more (multips) weeks; • Women who had undergone an unsuccessful attempt at ECV (without tocolysis) for a breech presentation. **Exclusion criteria** • Pre-existing indication for caesarean section; • Suspected unstable lie; • Pre-eclampsia; • Recent (<4 weeks) antepartum haemorrhage; • Suspected fetal compromise (abdominal circumference below the third centile, with either an umbilical artery resistance index above the 97th centile or deepest amniotic fluid pocket <2 cm);		distributed, were compared by a t test. **Intention-to-treat analysis** Analysis was by intention-to-treat.	Placebo: 7/62 (11.3) RR (95% CI): 3.21 (1.23 to 8.39) **Method of birth** Caesarean section- number (%) Intervention: 41/62 (66.1) Placebo: 53/62 (85.5) RR (95% CI): 0.33 (0.14 to 0.80) Breech delivery-number (%) Intervention: 5/62 (8.1) Placebo: 5/62 (8.1) RR (95% CI): 1.00 (0.14 to 7.33) **Admission to SCBU/NICU** SCBU admission-number (%) Intervention: 2/62 (3.2) Placebo: 2/62 (3.2) RR (95% CI): 1.00 (0.14 to 7.33) **Important outcomes** **Apgar score <7 at 5 minutes** Apgar <7 at 5-number (%) Intervention: 0 Placebo: 0	Deviations from intended interventions: Low risk of bias. (Participants and investigator were blinded). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Some concerns

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	• Rhesus isoimmunisation.				
Full citation Khaw, K. S., Lee, S. W., Ngan Kee, W. D., Law, L. W., Lau, T. K., Ng, F. F., Leung, T. Y., Randomized trial of anaesthetic interventions in external cephalic version for breech presentation, British Journal of Anaesthesia, 114, 944-50, 2015 **Ref Id** 417998 **Country/ies where the study was carried out** Hong Kong **Study type** Randomised controlled trial. **Aim of the study** To compare the success rate of ECV with either spinal	**Sample size** N=189 Intravenous analgesia: n=63 Spinal anaesthesia: n=63 Control: n=63 **Characteristics** <u>Maternal age (years)- mean [range]</u> Intravenous analgesia: 32 [23-42] Spinal anaesthesia: 32 [23-42] Control: 31 [20-39] <u>Parity- mean [range]</u> Intravenous analgesia: 1 [0-4] Spinal anaesthesia: 1 [0-3] Control: 1 [0-4] **Inclusion criteria** • ASA physical status I-II; • Term parturients with breech presenting fetus. **Exclusion criteria** • Women with contraindications to ECV including those with	**Interventions** Intravenous analgesia: IV infusion of remifentanil 0.1μg kg^{-1} min^{-1} + ECV 10 minutes after remifentanil infusion. Spinal anaesthesia: women were in the left lateral position, and were administered 1.8 mL hyperbaric bupivacaine 0.5% (9 mg) + fentanyl 15 μg injected at the L2/3 or L3/4 interspace using a 25G Whitacre needle. Followed by ECV. Control: ECV only. *ECV procedure: before commencing the procedure, 10μg hexoprenaline was given for tocolysis, injected intravenously slowly over 6 minutes in three equally divided doses, spaced at 2 minute intervals.	**Details** **Power analysis** From our database,we estimated that a sample size of 63 subjects in each study group would be required to detect a 50% difference in success rate with an alpha error of 0.05 and a power of 80%, assuming a baseline success rate of 55% in patients who received no interventions. **Statistical analyses** Data were tested for equality of variance using Levene's test, and the normal probability plot was used to test normality assumption. Based on the findings, statistical comparisons between groups were performed using analysis of variance (ANOVA) or the Kruskall-Wallis test with post-hoc comparisons using the Tamhane and Bonferroni procedures. The $\chi 2$ test for trend was used for comparison of equality of proportion. **Intention-to-treat (ITT) analysis** ITT analysis not mentioned.	**Results** **<u>Critical outcomes</u>** **Method of birth** <u>Cephalic vaginal birth- number (%)</u> Intravenous analgesia: 32/40 (80) Spinal anaesthesia: 40/52 (77) Control: 32/40 (80) <u>Caesarean birth- number</u> Intravenous analgesia: 8/40 Spinal anaesthesia: 12/52 Control: 8/40 **<u>Important outcomes</u>** **Apgar score <7 at 5 minutes** <u>Apgar score <7 at 5 minutes- number</u> Intravenous analgesia: 0 Spinal anaesthesia: 0 Control: 0	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Low risk of bias. (Random shuffling of the intervention codes. Allocation concealed by sequentially numbered opaque sealed envelopes). Deviations from intended interventions: Low risk of bias. (Both participants and personnel blinded, except in control group where blinding was not possible). Measurement of the outcome: Low risk of bias. (Outcomes were objectively assessed). Missing outcome data: Low risk of bias. (High retention and low reported loss to follow-up). Selection of the reported result: Low risk of bias. (Trial protocol

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
anaesthesia or IV analgesia using remifentanil. **Study dates** April 2004 to March 2010 **Source of funding** The study was substantially supported by a grant from the Research Grants Council of The Hong Kong Special Administrative Region, China (Project no. CUHK4405/03M) and internally funded by the Department of Anaesthesia and Intensive Care, The Chinese University of Hong Kong, Shatin, Hong Kong, SAR, China.	known uterine scar or anomaly; • Unexplained third-trimester bleeding, obstetric or medical conditions complicating pregnancy; • Compromised fetus, nuchal cord, fetal anomaly, pre-labour ruptured membranes and established labour.				available and all outcomes reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk **Other information** The study was conducted in two phases. In phase 1, all patients were randomised to receive one of the two anaesthetic interventions or Control. In phase 2, patients in the Control group with whom ECV failed, were recruited to have a re-attempt of ECV under one of the two anaesthetic interventions. In each phase, women were separately stratified according to parity before randomisation.
Full citation Kok,M., Bais,J.M., van Lith,J.M., Papatsonis,D.M., Kleiverda,G., Hanny,D., Doornbos,J.P., Mol,B.W., van der	**Sample size** N=320 Intervention: n=160 (n=154 analysed) Placebo: n=160 (n=156 analysed)	**Interventions** Intervention: 2 x nifedipine 10mg capsules Placebo: 2 x placebo capsules *Participating women received two doses of either nifedipine 10 mg or placebo, 30 and 15 minutes before	**Details** **Power analysis** A total sample size of 292 women (146 in each group) provided 80% power at the 5% significance level. **Statistical analyses** The χ^2 test was used to compare dichotomous variables, with	**Results** **Critical outcomes** **Cephalic presentation in labour** Cephalic presentation at	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Randomisation stratified by

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Post,J.A., Nifedipine as a uterine relaxant for external cephalic version: a randomized controlled trial, Obstetrics and Gynecology, 112, 271-276, 2008 **Ref Id** 52746 **Country/ies where the study was carried out** The Netherlands **Study type** Randomised controlled trial. **Aim of the study** To estimate the effectiveness of nifedipine as a uterine relaxant during external cephalic version to correct breech presentation. **Study dates** August 2004 to December 2006.	**Characteristics** Maternal age (years)- mean (±SD) Intervention: 33.6 (4.2) Control: 34.1 (4.5) Multiparous women- number (%) Intervention: 76 (49.4) Control: 73 (46.8) **Inclusion criteria** • From a gestational age of 36 weeks onwards; • Women with singleton fetus in breech presentation. **Exclusion criteria** • Any contraindication to labour or vaginal birth; • A scarred uterus other than transverse in the lower segment • Known uterine anomalies • Placental abruption in the obstetric history; • Preeclampsia; • Maternal cardiac disease; • Third-trimester bleeding.	the external cephalic version attempt.	Fisher exact test when appropriate. The Student t test was used to compare continuous variables. A difference was considered to be significant in cases where the P<.05 (two-tailed). Results are presented as RR with 95% CIs. **Intention-to-treat (ITT) analysis** Analysis was performed according to the intention-to-treat principle.	delivery- number (%) Intervention: 67/154 (43.5) Control: 60/156 (38.5) RR (95% CI): 1.13 (0.87 to 1.48) **Method of birth** Vaginal delivery- number (%) Intervention: 75 (48.7) Control: 84 (53.8) RR (95% CI): 0.91 (0.73 to 1.14) Caesarean delivery- number (%) Intervention: 79 (51.3) Control: 72 (46.1) RR (95% CI): 1.11 (0.88 to 1.40) **Admission to SCBU/NICU** Days of admission- mean (±SD) Intervention: 2.3 (2.2) Control: 2.5 (2.3) p=0.42 **Fetal death after 36+0 weeks gestation** Fetal death- number Intervention: 0 Control: 0	centre and by parity using computer generate blocks of 10. Allocation concealment by sealed opaque containers prepared by pharmacist). Deviations from intended interventions: Low risk of bias. (All participants and personnel involved with ECV procedure were blinded). Measurement of the outcome: Low risk of bias. (Outcomes were objectively assessed). Missing outcome data: Low risk of bias. (High retention and low reported loss to follow-up). Selection of the reported result: Low risk of bias. (Trial protocol is available and all outcomes reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Source of funding Not mentioned.	Fetal exclusion criteria were: • Intrauterine growth restriction (estimated fetal weight less than 5th percentile for gestational age assessed by ultrasonography); • Fetal anomalies or an extended fetal head; • Oligohydramnios (defined as an amniotic fluid index of 5 cm or less); • Non-reassuring signs of fetal well-being.			**Important outcomes** **Apgar score <7 at 5 minutes** Apgar score 5 min less than 7- number (%) Intervention: 1 (0.6) Control: 2 (1.3) RR (95% CI): 0.51 (0.05 to 5.53)	
Full citation Liu, X., Xue, A., A randomized trial of remifentanil for analgesia in external cephalic version for breech presentation, MedicineMedicine (Baltimore), 95, e5483, 2016 **Ref Id** 1075768 **Country/ies where the study was carried out** China	**Sample size** N=152 Intervention: n=76 (73 analysed) Control: n=76 (73 analysed) **Characteristics** Maternal age (years)- mean (±SD) Intervention: 34.1 (4.2) Control: 33.8 (3.9) Parity- 1, number (%) Intervention: 45 (59.2) Control: 42 (55.2) Parity- 2+, number (%) Intervention: 31 (40.7) Control: 34 (44.7)	**Interventions** Intervention: ECV + remifentanil (0.1μg/kg/min), 3 minutes before beginning the ECV. There were rescue boluses on demand of 0.1μg/kg and a lockout period of 5 minutes. Placebo: ECV + saline placebo *All participants were given IV paracetamol 1g in 100mL saline 5 minutes before ECV.	**Details** **Power analysis** The estimated sample size for the remifentanil and placebo groups with a 1:1 ratio was 63 patients in each group, to detect a 50% difference in success rate, with α=0.05 (2-sided) and β=0.20, assuming a baseline success rate of 55% in patients who received placebo. Assuming a 20% dropout rate, this estimate indicated that at least 152 patients with 76 in each group needed to be recruited for the study. **Statistical analyses** For differences between the 2 groups, categorical data were	**Results** **Critical outcomes** **Method of birth** Delivery after successful ECV- Spontaneous vaginal- number (%) Intervention: 50 (65.8) Placebo: 52 (68.4) p=0.73 Delivery after successful ECV- Instrumental vaginal- number (%) Intervention: 14 (18.4)	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Computerised number generator in the stratified block randomisation method in SAS. Allocation concealment by opaque sequentially numbered, sealed envelopes). Deviations from intended interventions: Low risk of bias. (All

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study type Randomised controlled trial **Aim of the study** This study aimed to evaluate the efficacy and safety of remifentanil for pain relief during ECV. **Study dates** January 2012 to December 2015 **Source of funding** Not mentioned.	**Inclusion criteria** • Singleton pregnancies with breech presentation at term (≥37^{+0} weeks), confirmed by ultrasound. **Exclusion criteria** • History of prior uterine surgery; • Uterine abnormalities; • Multiple pregnancy; • Contraindications to vaginal delivery; • Maternal cardiovascular disease; • Severe hypertension; • American Society of Anesthesiologists class >2; • Allergy to the trial medications • Prelabor ruptured membranes; • Placental abruption; • Fetal anomaly; • Intrauterine fetal death; • Fetal weight above 3800g. In addition, participants who received ECV, and also the		analysed using Fisher exact test, and *t* tests were used for continuous data with relative risks and 95% confidence intervals. Analysis was conducted blind to the study group by a study statistician. **Intention-to-treat (ITT) analysis** The clinical outcome data were analysed using an intention-to-treat approach and the baseline value of patients randomised to the trial.	Placebo: 18 (23.7) p=0.43 Delivery after successful ECV-Caesarean birth-number (%) Intervention: 12 (15.8) Placebo: 6 (7.9) p=0.14 Delivery after failed ECV-Breech vaginal birth- number (%) Intervention: 0 (0) Placebo: 8/46 (17.4) p=0.06 Delivery after failed ECV-Casearean birth-number (%) Intervention: 34/34 (100) Placebo: 38/46 (82.6) p=0.06	participants and personnel were blinded). Measurement of the outcome: Low risk of bias. (Outcomes relevant to this review were objectively assessed- there were some subjective outcomes for which data was not extracted). Missing outcome data: Low risk of bias. (High retention and little reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (Only Chinese patients recruited which may affect generalisability of results) Overall risk of bias: Low risk

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	moxibustion to correct breech presentation before the study recruitment were also excluded.				
Full citation Mahomed,K., Seeras,R., Coulson,R., External cephalic version at term. A randomized controlled trial using tocolysis, British Journal of Obstetrics and Gynaecology, 98, 8-13, 1991 **Ref Id** 159417 **Country/ies where the study was carried out** Zimbabwe **Study type** Randomised controlled trial **Aim of the study** To assess the role of external cephalic version (ECV) at term, using tocolysis. **Study dates**	**Sample size** N=208 ECV group: n=103 Control group: n=105 **Characteristics** <u>Maternal age (years)-Mean (SD)</u> ECV group: 26.6(6.6) Control group: 26.7(6.6) <u>Maternal age-<16 years(%)</u> ECV group: 3(3) Control group: 1(1) <u>Parity-Mean (SD)</u> ECV group: 2.0(1.8) Control group: 2.4 (2.0) <u>Parity-Primipara-Number(%)</u> ECV group: 27(26) Control group: 25(24) <u>Parity->3-Number (%)</u> ECV group: 41(40) Control group: 47 (45) **Inclusion criteria** • ≥37 weeks of gestation with singleton breech presentation. • Women with fetuses showing a reactive pattern or a normal baseline rate with good variability and no	**Interventions** ECV+IV Hexaprenaline (Ipradol 10µg) over 1 minute.	**Details** **<u>Power analysis</u>** The sample size had the power to demonstrate a reduction in breech presentation from 80% to 30% with 95% certainty. **<u>Statistical analysis</u>** Categorical variables were analysed with the X^2-test and continuous variable with Student's t-test; *P<0.05* was considered statistically significant. Outcome variables were compared using relative risks with 95% CI. **<u>Intention to treat</u>** Not mentioned. but there was no withdrawals or losses to follow-up after enrolment.	**Results** **<u>Critical outcomes</u>** **Cephalic presentation in labour** <u>Vertex presentation in labour (%)</u> ECV group: 89 (86) Control group: 18(17) p<0.001 **Method of birth** <u>Breech vaginal birth-number</u> ECV group: 13 Control group: 54 <u>Caesarean sections birth-number(%)</u> ECV group: 13 (13) Control group: 35(33) RR(95%CI): 0.31(0.16-0.60). **Admission to SCBU/NICU** <u>Admission to NICU-Number(%)</u> ECV group: 18(17) Control group: 19(18)	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Low risk of bias. (Randomised in blocks of 6. Allocation concealed by sealed opaque envelopes). Deviations from intended interventions: Low risk of bias. (No blinding possible in for this intervention). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Some concerns. (ECV group

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
February 1987 to March 1988 **Source of funding** A grant from the University of Zimbabwe Research Board.	decelerations after an ultrasound and a non-stressed cardiotocogram. **Exclusion criteria** A history of • antepartum haemorrhage • placenta praevia • uterine scar • severe proteinuric hypertension • diabetes • cardiac disease or ruptured membranes.			RR(95%CI): 0.96(0.5-1.3) Fetal death after 36+0 weeks gestation- Number ECV group: 11 Control group: 2 **Important outcomes** **Apgar score<7 at 5 minutes** Apgar score<7 at 5 minutes-number (%) ECV group: 8(8) Control group: 10(10) RR(95%CI): 0.8(0.3-2.1)	had more women with fundal placentas). Overall risk of bias: Some concerns **Other information** Note: The control arm was abandoned in April 1988 to address the issue of safety of the procedure. A further 104 women were recruited for ECV up to September 1988.
Full citation Mancuso, K. M., Yancey, M. K., Murphy, J. A., Markenson, G. R., Epidural analgesia for cephalic version: a randomized trial, Obstetrics and Gynecology, 95, 648-651, 2000 **Ref Id** 1044588	**Sample size** N=108 Intervention: n=54 Control: n=54 **Characteristics** Maternal age (years)- mean (±SD) Intervention: 28.5 (4.8) Control: 28.2 (4.8) Gravity- median [range] Intervention: 2 [1-6] Control: 2 [1-6] Parity- median [range] Intervention: 0 [0-3]	**Interventions** Intervention: 3-mL dose of 2% lidocaine with 1:200,000 epinephrine infused through lumbar epidural catheters. If no adverse effects were noted, 10 mL of 2% lidocaine with 100 mg fentanyl was infused, followed by ECV. Control: ECV only *All received intravenous infusions of 1500 mL of lactated Ringer's solution before version attempts. All participants received	**Details** **Power analysis** A priori sample size estimation was done with an α of .05 and β of .20. Based on observations of the version success rates at our institution before the investigation, we estimated that the success rate without epidural anaesthesia would be approximately 30%. A total sample of 108 women was estimated to provide 80% power to exclude more than a two-fold increase in success with epidural anaesthesia.	**Results** **Critical outcomes** **Cephalic presentation in labour** Cephalic presentation at delivery- number (%) Intervention: 32/54 (59) Control: 19/54 (35) RR (95% CI): 1.7 (1.1 to 2.6) p<0.05	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Randomisation by computer-generated random numbers table. Allocation concealed by sealed, sequentially numbered opaque envelopes). Deviations from intended interventions:

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Country/ies where the study was carried out US **Study type** Randomised controlled trial. **Aim of the study** To determine if epidural analgesia improves the success rate of external cephalic version. **Study dates** December 1994 to June 1998. **Source of funding** From the Department of Obstetrics and Gynecology, Tripler Army Medical Center, Honolulu, Hawaii.	Control: 0 [0-3] Nulliparas- number (%) Intervention: 30 (56) Control: 29 (54) **Inclusion criteria** • At least 18 years of age; • Singleton pregnancies of at least 37 weeks' gestation in breech or transverse presentations with intact membranes; • Estimated fetal weight (EFW) between 2000g and 4000g; • Reassuring fetal heart rate (FHR) testing. **Exclusion criteria** • Placenta previa; • Prior classical caesarean delivery; • Third-trimester bleeding; • An amniotic fluid index (AFI) of less than 5cm or greater than 25 cm; • Known uterine malformation; • Uncontrolled hypertension;	0.25mg subcutaneous terbutaline approximately 20 minutes before version attempts.	**Statistical analyses** Categoric variables were compared with $\chi 2$ with Yates continuity correction or Fisher exact tests. Ordinal variables were compared with Mann-Whitney U test, and continuous variables were compared with two-tailed Student t test. P <.05 was considered statistically significant. **Intention to treat analysis** Not mentioned.	**Method of birth** Vaginal delivery of cephalic infant- number (%) Intervention: 28/54 (54) Control: 13/54 (24) RR (95% CI): 2.2 (1.3 to 3.8) p<0.05 Vaginal delivery (breech or cephalic)- number (%) Intervention: 29/54 (54) Control: 16/54 (30) RR (95% CI): 1.9 (1.2 to 2.9) p<0.05	Low risk of bias. (No blinding of participants or personnel- not feasible with study design). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk of bias

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	• Suspected major fetal anomaly; • Active phase labour.				
Full citation Marquette,G.P., Boucher,M., Theriault,D., Rinfret,D., Does the use of a tocolytic agent affect the success rate of external cephalic version?, American Journal of Obstetrics and Gynecology, 175, 859-861, 1996 **Ref Id** 165034 **Country/ies where the study was carried out** Canada **Study type** Randomised controlled trial **Aim of the study** To study the effect of ritodrine tocolysis on the success rate of	**Sample size** N=283 Intervention: n=138 Placebo: n=145 **Characteristics** <u>Maternal age (years)- mean (±SD)</u> Intervention: 28.5 (0.43) Placebo: 29.3 (0.41) <u>Nulliparous- number (%)</u> Intervention: 80/138 (58) Placebo: 71/145 (49) p=0.12 **Inclusion criteria** • 36 to 41 weeks' gestation with singleton pregnancies in breech presentation. **Exclusion criteria** • Intrauterine growth restriction, defined as <10th percentile for	**Interventions** Intervention: IV ritodrine (111µg/min) initiated ≥20 minutes before ECV. Control: placebo saline initiated ≥20 minutes before ECV. *The vials were diluted in 20 ml of 5% dextrose in water and an infusion pump was used to administer the same amount of fluid regardless of content.	**Details** **Power analysis** This study was based on an α error of 0.05 and a β error of 0.2. We accepted a clinically significant difference of 15% from our basic success rate of 60% (<45% or >75% success rate). By use of these characteristics, 264 patients had to complete the study. **Statistical analyses** Statistical analysis of the data was performed by χ2 test, Student t test, Fisher's exact probability test, or Cochran-Mantel-Haenszel test. A p value <0.05 was considered statisticallysignificant. **Intention-to-treat analyses** No details provided.	**Results** **<u>Critical outcomes</u>** **Method of birth** <u>Caesarean section- attempted ECV- number (%)</u> Intervention: 76/138 (55) Control: 94/145 (65) p=0.04	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Low risk of bias. (Table of random numbers. Intervention and placebo supplied in identical form in 1.5mL vials). Deviations from intended interventions: Low risk of bias. (Participants and investigator were blinded). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
external cephalic version at ≥36 weeks' gestation. **Study dates** February 1994 to January 1996. **Source of funding** Not mentioned.	gestational age estimated by ultrasonography at the time of the study; • Oligohydramnios, defined as an amniotic fluid index -<5; • The presence of placenta previa or abruptio placentae; • Previous uterine scar other than a low transverse cesarean section; • Active labour; • Rupture of membranes; • Fetal anomalies incompatible with life; • Any contraindication to either vaginal delivery or the administration of intravenous ritodrine.				Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk
Full citation Mohamed Ismail, N. A., Ibrahim, M., Mohd Naim, N., Mahdy, Z. A., Jamil, M. A., Mohd Razi, Z. R., Nifedipine versus terbutaline for tocolysis in external cephalic version, International journal of gynaecology and obstetrics, 102, 263-266, 2008	**Sample size** N=86 Nifedipine: n=43 Terbutaline: n=43 **Characteristics** <u>Maternal age (years)- mean (±SD)</u> Nifedipine: n=28.5 (4.06) Terbutaline: n=29.9 (5.15) p=0.16 <u>Nulliparous- number (%)</u>	**Interventions** Nifedipine: 20mg nifedipine, orally + ECV Terbutaline: 50µg slow intravenous bolus of terbutaline + ECV *ECV was attempted 20 minutes after administering the medication.	**Details** **Power analysis** With an alpha error of 0.05 and a beta of 0.2, 86 patients were recruited into the study. **Statistical analyses** Categorical variables were analysed using the χ2 test, and continuous variables using the t-test and the controlled Cochran-Mantel-Haenszel test. P<0.05 was considered statistically significant. **Intention-to-treat (ITT) analysis**	**Results** **<u>Critical outcomes</u>** **Method of birth** <u>Caesarean delivery with successful ECV-number (%)</u> Nifedipine: 6/17 (35.3) Terbutaline: 5/25 (26.3) p=0.37	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Low risk of bias. (Computerised random number generator used to assign groups. Allocation concealed by sealed, numbered opaque envelopes).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Ref Id 1042032 **Country/ies where the study was carried out** Malaysia **Study type** Randomised controlled trial. **Aim of the study** To study the efficacy of nifedipine compared with terbutaline as a tocolytic agent in external cephalic version (ECV). **Study dates** Not mentioned. **Source of funding** Not mentioned.	Nifedipine: n=18 (41.9) Terbutaline: n=21 (48.8) p=0.52 **Inclusion criteria** • Women with a singleton term breech presentation between 37 and 40 weeks of pregnancy. **Exclusion criteria** • Women with oligohydramnios (amniotic fluid index less than 10 cm); • Macrosomia (estimated fetal weight of 4 kg or more); • Presence of a contraindication for vaginal delivery (for example, major placenta previa); • One previous cesarean delivery; • Multiple pregnancy; • Hypertension in pregnancy; • Rhesus negative mother; • Previous history of abruptio placentae;		Not mentioned.	<u>Vaginal birth with successful ECV-number (%)</u> Nifedipine: 11/17 (64.7) Terbutaline: 14/19 (73.7) p=0.25 **Admission to SCBU/NICU** Nifedipine: 0 Terbutaline: 0 **<u>Important outcomes</u>** **Apgar score <7 at 5 minutes** Nifedipine: 0 Terbutaline: 0	Deviations from intended interventions: High risk of bias. (Only personnel blinded). Measurement of the outcome: Low risk of bias. (Outcomes were objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Some concerns. (No details provided). Overall risk of bias: High risk

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	• Lethal fetal anomaly; • Contraindication against nifedipine or terbutaline.				
Full citation Munoz, H., Guerra, S., Perez-Vaquero, P., Valero Martinez, C., Aizpuru, F., Lopez-Picado, A., Remifentanil versus placebo for analgesia during external cephalic version: a randomised clinical trial, International Journal of Obstetric Anesthesia, 23, 52-7, 2014 **Ref Id** 392269 **Country/ies where the study was carried out** Spain **Study type** Randomised controlled trial **Aim of the study**	**Sample size** N=63 Intervention: n=33 (31 analysed) Control: n=30 (29 analysed) **Characteristics** Maternal age (years)- mean (±SD): Intervention: 32.9 (4.9) Control: 32.5 (5.7) Parity status- 1- number (%) Intervention: 18 (58.1) Control: 16 (57.1) Parity status- 2 or more- number (%) Intervention: 13 (41.9) Control: 12 (42.9) **Inclusion criteria** • All non-labouring pregnant women at 36–41 weeks of gestation with a non-cephalic presentation confirmed by ultrasound scan.	**Interventions** Intervention: 100mL remifentanil (1mg) at 0.1µg/kg/min Control: 100mL placebo saline *An IV infusion of ritodrine 200µg/min was given for tocolysis. All participants received IV paracetamol 1g in 100mL saline 5 minutes before ECV.	**Details** **Power analysis** Based on a previous pilot study, to detect a difference of ≥2 points on the pain numerical rating scale, with population standard deviation of 3 points, with an a risk of 0.05 and power of 90%, 30 participants were required in each arm of the study. **Statistical analyses** Demographic data were analysed with chi-squared tests for the categorical variables, and with Student's t tests for the continuous variables. For the primary end point, pain scores were compared using the Student's t test. Potential confounding variables were assessed using multivariate linear regression analysis. For the secondary end points, ECV success, and the numbers of vaginal and caesarean deliveries were compared using chi-squared or Fisher's exact tests as appropriate. **Intention-to-treat (ITT) analysis** Given the nature of the study, participant loss to follow-up was not anticipated.	**Results** **Critical outcomes** **Method of birth** Delivery after successful ECV-vaginal- number (%) Intervention: 14/17 (82.4) Control: 11/12 (91.7) p=0.533 Delivery after successful ECV-caesarean birth-number (%) Intervention: 3/17 (17.6) Control: 1/12 (8.3) p=0.533 Delivery after failed ECV-vaginal breech-number (%) Intervention: 0 Control: 2/17 (11.7) p=0.73 Delivery after failed ECV-caesarean birth-number (%)	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Computer generate random sequence. Allocation concealed by infusion bags being labelled with patient code). Deviations from intended interventions: Low risk of bias. (Participants and personnel blinded). Measurement of the outcome: Low risk of bias. (Outcomes are objective). Missing outcome data: Low risk of bias. (High retention and low reported loss to follow up). Selection of the reported result: Low risk of bias. (Trial protocol

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
To assess the efficacy of remifentanil versus placebo for pain relief during external cephalic version. **Study dates** April 2010 to March 2011 **Source of funding** Not mentioned.	**Exclusion criteria** • Fetal abnormalities; • Intrauterine fetal death; • Suspicion of fetal growth restriction; • Fetal weight above 3800g; • Maternal cardiovascular disease; • American Society of Anesthesiologists class >2; • Severe hypertension; • Allergy to any trial medications; • Amniotic fluid index <4 cm; • Doppler cerebroplacental ratio >5th percentile; • Abnormal cardiotocographic recordings; • Contraindications to vaginal delivery; • Uterine abnormalities; • Coagulation disorders; • Rhesus incompatibility; • Multiple gestation; • Rupture of membranes and/or placental abruption.			Intervention: 14/14 (100) Control: 15/17 (88.2) p=0.73	is available and all outcomes reported). Other bias: Low risk of bias. (Obstetric team performing ECV was not randomly assigned) Overall risk of bias: Low risk
Full citation	**Sample size**	**Interventions**	**Details**	**Results**	**Limitations**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Nor Azlin,M.I., Haliza,H., Mahdy,Z.A., Anson,I., Fahya,M.N., Jamil,M.A., Tocolysis in term breech external cephalic version, International Journal of Gynaecology and Obstetrics, 88, 5-8, 2005 **Ref Id** 52894 **Country/ies where the study was carried out** Malaysia **Study type** Randomised controlled trial **Aim of the study** To study the effect of ritodrine tocolysis on the success of external cephalic version (ECV) and to assess the role of ECV in breech presentation at our centre.	N=60 Intervention: n=30 Placebo: n=30 **Characteristics** Maternal age (years)- mean (±SD) Intervention: 29.13 (4.49) Placebo: 27.5 (4.28) Nulliparous- number (%) Intervention: 22 (73.3) Placebo: 23 (76.6) **Inclusion criteria** • Women with a singleton fetus in breech presentation at 37 weeks of pregnancy and beyond. **Exclusion criteria** • A previous cesarean section or other uterine scar (such as a myomectomy scar), or uterine malformation; • The present pregnancy complicated by antepartum haemorrhage, hypertension, diabetes mellitus, intrauterine	Intervention: IV 0.4mg/mL of ritodrine in 5% dextrose + ECV Placebo: IV placebo saline + ECV *Both administered via a syringe pump at the rate of 1.5 mL/min, beginning 15 minutes before and continuing throughout the procedure.	**Power analysis** A total of 60 patients (30 patients on each arm) were recruited based on an αerror of 0.05 and a β of 0.2. **Statistical analyses** Statistical analyses were performed using the t test or the controlled Cochran—Mantel—Haenszel test. A P value less than 0.05 was considered statistically significant. **Intention-to-treat analysis** Not mentioned.	**Critical outcomes** **Cephalic presentation in labour** Presentation at delivery following successful ECV- number (%) Intervention: 14/15 (93.3) Placebo: 7/7 (100) **Method of birth** Mode of delivery following successful ECV- vaginal birth- number (%) Intervention: 13/15 (86.7) Placebo: 7/7 (100) Mode of delivery following successful ECV- caesarean section- number (%) Intervention: 2/15 (13.3) Placebo: 0/7 (0) **Admission to SCBU/NICU** Admission to NICU- number of babies Intervention: 1/15 Placebo: 1/7	**Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Sequence generated by a computerised random number generator. Allocation concealed by numbered sealed opaque envelopes). Deviations from intended interventions: Low risk of bias. (Personnel blinded to group allocation, no details given for participants). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study dates Not mentioned. **Source of funding** Universiti Kebangsaan Malaysia	growth restriction (fetus <10th percentile for gestational age) or oligohydramnios (amniotic fluid index of 5 and below); • Pregnancy with fetal anomalies; • Early or active phase of labour; • Contraindications to intravenous ritodrine infusion or to vaginal delivery even if the fetus were in vertex presentation.				Overall risk of bias: Low risk **Other information** The patients fasted overnight and were admitted as day cases.
Full citation Rita,, Mehboobas,, Sultana, S., Khurshid, R., A randomized trial of external cephalic version in late pregnancy, JK Science, 14, 25-29, 2011 **Ref Id** 1040887 **Country/ies where the study was carried out** India	**Sample size** N=60 Intervention: n=30 Control: n=30 **Characteristics** <u>Maternal age (years)- mean (±SD)</u> Intervention: 26.9 (2.5) Control: 27.5 (2.9) <u>Parity- mean (±SD)</u> Intervention: 1.9 (0.9) Control: 1.7 (1.2) **Inclusion criteria**	**Interventions** Intervention: ECV only Control: no treatment	**Details** **Power analysis** Not mentioned. **Statistical analyses** Analysis of data was done by means of the χ2 test. Significance was regarded as p<0.05. **Intention-to-treat (ITT) analysis** Not mentioned.	**Results** **<u>Critical outcomes</u>** **Method of birth** <u>Caesarean section- number (%)</u> Intervention: 6/30 (20) Control: 22/30 (73.3) <u>Vaginal birth- number (%)</u> Intervention: 24 (80) Control: 8 (26.7) **Admission to SCBU/NICU**	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Some concerns. (No details provided for randomisation. Allocation concealed through numbered sealed opaque envelopes). Deviations from intended interventions: Some concerns. (No details provided).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study type Randomised controlled trial **Aim of the study** To assess the role of external cephalic version (ECV) in late pregnancy. **Study dates** Not mentioned. **Source of funding** Not mentioned.	• All women, in whom routine ultrasound examination during the 37th week of pregnancy had shown a single breech presentation were eligible for recruitment. **Exclusion criteria** The contraindications to attempting version were as follows: • Antepartum haemorrhage; • Placenta praevia; • Uterine anomalies; • Severe proteinuric hypertension; • Diabetes; • Cardiac disease; • Conditions favouring premature labour; • Rhesus negative mother; • Ruptured membranes; • Previous, two or more than two caesarean sections.			Neonatal unit admission-number Intervention: 3 Control: 6 **Fetal death after 36+0 weeks gestation** Perinatal deaths-number Intervention: 1 Control: 2 **Important outcomes** **Apgar score <7 at 5 minutes** Apgar score <7 at 5 minutes Intervention: 1 Control: 4	Measurement of the outcome: Low risk of bias. (All outcomes reported were objective). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol details provided). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Some concerns
Full citation	**Sample size** N=58	**Interventions**	**Details** **Power analysis**	**Results**	**Limitations**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Robertson, A. W., Kopelman, J. N., Read, J. A., Duff, P., Magelssen, D. J., Dashow, E. E., External cephalic version at term: is a tocolytic necessary?, Obstetrics & Gynecology, 70, 896-9, 1987 **Ref Id** 650289 **Country/ies where the study was carried out** US **Study type** Randomised controlled trial **Aim of the study** To evaluate the benefit of a beta-mimetic tocolytic for external cephalic version. **Study dates** July 1984 to May 1987	Intervention: n=30 Control: n-28 **Characteristics** Maternal age (years)- mean (±SD) Intervention: 24.1 (0.4) Control: 22.4 (0.3) Nulliparous- number (%) Intervention: 16/30 (53) Control: 17/28 (61) **Inclusion criteria** • Women with breech presentations between 37-41 weeks' gestation were considered. **Exclusion criteria** • Previous uterine scar; • Multiple gestation; • Undiagnosed vaginal bleeding; • Any contraindication to vaginal delivery; • Oligohydramnios; • Estimated fetal weight below 2500g (10th percentile or less) or above 4000 g;	Intervention: IV 200µg/minute of ritodrine hydrochloride for 20 minutes before ECV. Control: ECV only. *Those participants with unsuccessful versions in the placebo received, received IV ritodrine and underwent a second version attempt using the same techniques and precautions.	No details mentioned. **Statistical analyses** Differences in treatment effect were evaluated by means of the corrected $\chi 2$ test, Fisher's exact test, and the unpaired, two-tailed t test. $P<0.05$ was considered statistically significant. 95% confidence intervals were included where appropriate.	**Critical outcomes** **Method of birth** Vaginal vertex birth- number (%) Intervention: 18/30 (60) Control: 18/28 (64) Vaginal breech birth- number (%) Intervention: 4/30 (13) Control: 5/28 (18) Caesarean section- number (%) Intervention: 8/30 (27) Control: 5/28 (18)	**Cochrane risk of bias tool V2**: Randomisation process: High risk of bias. (Randomisation using the last digit of participant's social security number. No details provided for allocation concealment). Deviations from intended interventions: Some concerns. (No details provided). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Source of funding The division of maternal-fetal medicine, the Department of Obstetrics and Gynaecology, Madigan Army Medical Centre, Tacoma, Washington.	• Non-reactive NST.				Overall risk of bias: Some concerns
Full citation Schorr, S. J., Speights, S. E., Ross, E. L., Bofill, J. A., Rust, O. A., Norman, P. F., Morrison, J. C., A randomized trial of epidural anesthesia to improve external cephalic version success, Am J Obstet GynecolAmerican journal of obstetrics and gynecology, 177, 1133-7, 1997 **Ref Id** 1094474 **Country/ies where the study was carried out**	**Sample size** N=69 Intervention: n=35 Control: n=34 **Characteristics** <u>Maternal age (years)- mean (±SD)</u> Intervention: 27.7 (6.1) Control: 25.8 (6.6) p=0.06 <u>Nulliparity- number</u> Intervention: 14/35 Control: 16/34 <u>Multiparity- number</u> Intervention: 21/35 Control: 18/34 **Inclusion criteria**	**Interventions** Intervention: 2% lidocaine with 1:200,000 epinephrine + ECV Control: ECV only *Participants were prehydrated with 2000 ml of lactated Ringer's solution before dosing. Tocolysis was performed in all patients with up to one to three sequential doses of 250µg of terbutaline administered subcutaneously over 30-minute intervals as needed for uterine relaxation.	**Details** **Power analysis** A sample size of 33 in each group was projected to detect a 30% difference with a power of 80% and α= 0.05. **Statistical analyses** Statistical analysis was performed with use of the Student t test for comparison of interval and ratio data. These variables were expressed as the mean±SD. Categoric and ordinal data were analysed with the χ2 test. In an expected cell value <5, Fisher's exact test was used. In all cases a two-tailed test for significance was used. A p value <0.05 or a confidence interval not containing one was deemed statistically significant. **Intention-to-treat analysis** Not mentioned however the following quote implies ITT	**Results** **<u>Critical outcomes</u>** **Method of birth** <u>Caesarean delivery- number</u> Intervention: 12/35 Control: 27/34 p=0.01 <u>Vaginal delivery- number</u> Intervention: 23/35 Control: 7/34 p=0.001 **Admission to SCBU/NICU** <u>Hospital stay (days)- mean (±SD)</u> Intervention: 3.1 (1.5) Control: 4.9 (1.6)	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Low risk of bias. (Computer generated randomisation cards. Allocation concealed by sealed opaque envelopes). Deviations from intended interventions: Low risk of bias. (Investigators blinded to group allocation. Not feasible to blind other personnel and participants). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
US **Study type** Randomised controlled trial **Aim of the study** To determine whether epidural anaesthesia would improve external cephalic version success in a safe and effective manner. **Study dates** December 1993 to July 1996 **Source of funding** Vicksburg Hospital Medical Foundation	• Women for ECV at term. **Exclusion criteria** • Placenta previa; • Evidence of fetal compromise; • Intrauterine growth restriction; • Rupture of membranes.		analysis used: 'participants with failure to obtain an adequate epidural anaesthesia level remained in the epidural group for statistical analysis'.	p=0.05	Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk of bias
Full citation Smith, C., Crowther, C., Wilkinson, C., Pridmore, B., Robinson, J., Knee-chest postural management for breech at term: a randomized	**Sample size** N=100 Intervention: n=51 Control: n=49 **Characteristics** Maternal age (years)- mean (±SD)	**Interventions** Intervention: knee-chest position, for 15 minutes, 3x a day, for one week + ECV Control: no postural management + ECV	**Details** **Power analysis** From previous studies, a study size of 288 women would be required (p=0.05, power 80%). **Statistical analyses** The primary study outcomes were compared between the two groups using the Student's t test	**Results** **Critical outcomes** **Method of birth** Caesarean section- number Intervention: 35/51 (69)	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Variable block with stratification by parity. Allocation concealed

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
controlled trial, Birth, 26, 71-5, 1999 **Ref Id** 650344 **Country/ies where the study was carried out** Australia **Study type** Randomised controlled trial **Aim of the study** To assess if assuming the knee-chest position reduced the frequency of breech presentation at delivery, increased the success of the subsequent external cephalic version, or both, and to determine if this management plan reduced the need for cesarean delivery. **Study dates** 1990 to 1997	Intervention: 29.1 (4) Control: 29.2 (5) <u>Parity- 0- number</u> Intervention: 27/51 Control: 30/49 <u>Parity- 1 to 3- number</u> Intervention: 20/51 Control: 18/49 <u>Parity- 4 or more- number</u> Intervention: 4/51 Control: 1/49 **Inclusion criteria** • A singleton breech presentation, with a gestational age equal to or more than 36 weeks. **Exclusion criteria** • Placenta previa; • A history of antepartum haemorrhage; • Intra-uterine growth restriction; • Hypertensive disease; • Iso-immunisation; • Previous uterine operations; • Uterine anomaly; • Prelabour rupture of the membranes; • Multiple pregnancy;		for continuous variables and chi-square test for non continuous variables. No interim analyses were performed. **Intention-to-treat analysis** Not mentioned	Control: 32/49 (65) RR (95% CI): 1.05 (0.80 to 1.40) **<u>Important outcomes</u>** **Apgar <7 at 5 minutes** <u>Apgar <7 at 5 minutes</u> Intervention: 0/51 Control: 1/49 (2)	numbered sealed opaque envelopes). Deviations from intended interventions: Low risk of bias. (Personnel blinded to group allocation but participants were not). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and no reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk of bias

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Source of funding Not mentioned.	• Fetal congenital abnormality; • Contraindication to vaginal delivery; • Fetal death in utero.				
Full citation Sullivan,J.T., Grobman,W.A., Bauchat,J.R., Scavone,B.M., Grouper,S., McCarthy,R.J., Wong,C.A., A randomized controlled trial of the effect of combined spinal-epidural analgesia on the success of external cephalic version for breech presentation, International Journal of Obstetric Anesthesia, 18, 328-334, 2009 **Ref Id** 67393 **Country/ies where the study was carried out** US	**Sample size** N=96 Systemic analgesia: n=48 Combined spinal epidural: n=48 (47 analysed as one woman had an emergency c-section prior to intervention) **Characteristics** Maternal age (years)- median [IQR] Systemic analgesia: 33 [30-36] Combined spinal epidural: 32 [27-35] Nulliparous- percentage Systemic analgesia: 62 Combined spinal epidural: 63 **Inclusion criteria** • ≥36 weeks of gestation; • Singleton pregnancies; • Willing to receive either combined spinal epidural analgesia or	**Interventions** Systemic analgesia: IV fentanyl 50µg + ECV Combined spinal epidural: plain bupivacaine 2.5mg + fentanyl 15µg injected into the intrathecal space, followed by epidural administration of 45mg lidocaine and 15µg epinephrine + ECV *All women received 500mL Ringer's lactate solution before initiation of analgesia. All women also received 0.25mg IV terbutaline to provide uterine relaxation.	**Details** **Power analysis** A sample size calculation determined that 94 subject would be required to demonstrate a 30% difference in the success rate of ECV between groups (α-0.05, power=87%) assuming an overall success rate of 50%. **Statistical analyses** Rates of successful version and vaginal delivery were compared between the two groups using Fisher's exact test. Demographic data (maternal age, height and weight, parity and gestational age) and outcome data (obstetrician prediction and assessment of ECV difficulty, assessment of abdominal muscle relaxation, duration of the procedure, incidence and severity of nausea, incidence of vomiting, patient pain and satisfaction with analgesic method) were compared between groups using the v2, Fisher's exact or the Mann-Whitney U test. We also compared prediction and assessment of ECV difficulty,	**Results** **Critical outcomes** **Method of birth** Cephalic vaginal birth- percentage Systemic analgesia: 25% (12/48) Combined spinal epidural: 36% (17/47) p=0.27	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Randomisation by computer random number table. Allocation concealed by sequentially numbered opaque envelopes). Deviations from intended interventions: High risk of bias. (Patients, researchers and outcome assessors were not blinded to treatment allocation). Measurement of the outcome: High risk of bias. (Most outcomes were subjectively assessed). Missing outcome data: Low risk of bias. (High

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study type Randomised controlled trial **Aim of the study** To study the effect of combined spinal-epidural analgesia on the success of external cephalic version for breech presentation **Study dates** September 2002 to June 2006 **Source of funding** The Woman's Board of Northwestern Memorial Hospital, Chicago, Illinois and the Department of Anaesthesiology.	systemic opiod analgesia for ECV. **Exclusion criteria** • Contraindications to neuraxial anaesthesia; • Allergies to any study medication.		assessment of abdominal muscle relaxation, and duration of the procedure in patients with successful vs. unsuccessful ECV. P< 0.05 was used to reject the null hypothesis **Intention to treat analysis** No details provided.		retention and low reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: High risk of bias. (Study sample was under-powered and study subjects were chosen by obstetrician). Overall risk of bias: High risk
Full citation Vallikkannu, N., Nadzratulaiman, W. N., Omar, S. Z., Si Lay, K., Tan, P. C., Talcum powder or aqueous gel to aid external cephalic	**Sample size** N=95 Powder: n=48 Gel: n=47 **Characteristics**	**Interventions** Powder: ECV + talcum powder Gel: ECV + aqueous gel *All participants were given 250µg terbutaline subcutaneously 5-10 minutes prior to attempting ECV.	**Details** **Power analysis** Taking alpha 0.05 and beta 0.1, applying the Student t test, at least 78 participants were required for a suitably powered study. **Statistical analyses**	**Results** **Critical outcomes** **Cephalic presentation in labour** Cephalic presentation at birth- number (%)	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Randomisation by computer

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
version: a randomised controlled trial, BMC Pregnancy and Childbirth, 14, 49, 2014 **Ref Id** 963624 **Country/ies where the study was carried out** Malaysia **Study type** Randomised controlled trial **Aim of the study** To compare gel with powder during ECV on achieving successful version and increasing tolerability. **Study dates** January 2011 to December 2012 **Source of funding** University of Malaya	Maternal age (years)- mean (±SD) Powder: 31.1 (4.5) Gel: 29.5 (4.0) p=0.07 Parity- median [IQR] Powder: 1 [0-2] Gel: 0 [0-2] p=0.22 Nulliparous- number (%) Powder: 19 (39.6) Gel: 27 (57.8) p=0.10 **Inclusion criteria** • Scheduled ECV, breech presentation or transverse lie, singleton gestation, gestational age ≥36 weeks, intact membranes, non-anomalous fetus and reassuring fetal status on cardiotocogram. **Exclusion criteria** • If regular contractions were present; • Estimated fetal weight < 2 kg;		Normally distributed data was expressed in mean ± standard deviation and non-normally distributed or ordinal data as median [interquartile range]. The Student t test was applied in the analyses of normally distributed continuous variables (i.e, maternal age, weight, height, body mass index, estimated fetal weight, amniotic fluid index, gestation at delivery, birth weight and umbilical arterial blood pH and base deficit) with the Mann Whitney U test used in preference if data distribution was non-normal or ordinal in nature (gestational age at recruitment, parity, maternal pain VNRS score, provider satisfaction VNRS score, estimated blood loss at delivery and Apgar scores). **Intention to treat analysis** Per protocol analysis used.	Powder: 24 (50) Gel: 23 (48.9) RR (95% CI): 1.00 (0.7 to 1.5) p=0.99 **Method of birth** Mode of delivery-caesarean delivery- number (%) Powder: 27 (56.3) Gel: 28 (59.6) p=0.84 Mode of delivery-vaginal delivery-number (%) Powder:21 (43.8) Gel: 19 (40.4) p=0.84 **Admission to SCBU/NICU** Neonatal admission-number (%) Powder: 4 (8.3) Gel: 2 (4.3) RR (95% CI): 2.0 (0.4 to 12) p=0.68	generated randomisation sequence. Allocation concealed by numbered sealed opaque envelopes). Deviations from intended interventions: Low risk of bias. (No blinding attempted as it was considered unachievable). Measurement of the outcome: Low risk of bias. (Outcomes were objectively assessed). Missing outcome data: Low risk of bias. (High retention and low reported loss to follow-up). Selection of the reported result: Low risk of bias. (Trial protocol is available and all outcomes reported). Other bias: High risk of bias. (There was no placebo group to gauge superiority of either intervention). Overall risk of bias: Some concerns

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	• Oligohydramnios (amniotic fluid index < 5 cm); • Severe hypertension; • Recent antepartum haemorrhage; • Uterine scar; • Related allergy and any potential contraindication to vaginal delivery.				
Full citation Van Dorsten,J.P., Schifrin,B.S., Wallace,R.L., Randomized control trial of external cephalic version with tocolysis in late pregnancy, American Journal of Obstetrics and Gynecology, 141, 417-424, 1981 **Ref Id** 169703 **Country/ies where the study was carried out** US **Study type** Randomised controlled trial	**Sample size** N=48 ECV + terbutaline: n=25 No ECV: n=23 **Characteristics** Maternal age (years)- Mean (±SD) ECV + terbutaline: 25.6 (1.1) No ECV: 24.2 (1.3) Gravidity- Mean (±SD) ECV + terbutaline: 3.1 (0.4) No ECV: 2.5 (0.3) Parity- Mean (±SD) ECV + terbutaline: 1.5 (0.3) No ECV: 1.3 (0.3) **Inclusion criteria** • Low risk participants with breech	**Interventions** ECV+ terbutaline: 5micrograms/min terbutaline sulphate infused 10-15 minutes prior to and during version attempt. Control; No ECV	**Details** **Power analysis** No details provided. **Statistical analyses** Each of the hypotheses was tested by chi-square analysis. Continuous data were analysed by either the paired t or Student's t test. Significance was regarded as p<0.05.	**Results** **Critical outcomes** **Cephalic presentation in labour** Cephalic presentation in labour- Number ECV + terbutaline: 17/25 No ECV: 4/23 **Method of birth** Cephalic vaginal birth- Number ECV + terbutaline: 4/25 No ECV: 16/23 Breech vaginal birth- Number ECV + terbutaline: 2/25 No ECV: 2/23 Caesarean section- Number	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Some concerns. (Random number table. No details provided on allocation concealment). Deviations from intended interventions: Low risk of bias. (Blinding was not possible for this study design). Measurement of the outcome: Low risk of bias. (Outcomes objectively assessed). Missing outcome data: Low risk of bias. (High

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Aim of the study To determine the feasibility of ECV under beta-mimetic tocolysis at 37 weeks. **Study dates** October 1979 to October 1980 **Source of funding** Not mentioned	presentations at 37 to 39 weeks' gestation. **Exclusion criteria** • Congenital or acquired heart disease; • Diabetes or thyroid dysfunction; • Conditions predisposing toward uteroplacental insufficiency, such as hypertension; • Premature labour or premature rupture of the membranes; • Suspected intrauterine growth retardation (IUGR); • Previous uterine surgery; • Multiple gestation; • Third-trimester bleeding.			ECV + terbutaline: 7/25 No ECV: 17/23 **Admission to SCBU/NICU** ECV + terbutaline: 0/25 No ECV: 0/23 **Fetal death after 36+0 weeks gestation** Perinatal death- Number ECV + terbutaline: 0/25 No ECV: 0/23 **Important outcomes** **Apgar score <7 at 5 minutes** Apgar score <7 at 5 minutes- Number ECV + terbutaline: 0/25 no ECV: 0/23	retention and low reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Some concerns. (3 post-randomisation exclusions). Overall risk of bias: Some concerns
Full citation Vani,S., Lau,S.Y., Lim,B.K., Omar,S.Z., Tan,P.C., Intravenous salbutamol for external cephalic version, International Journal of	**Sample size** N=114 Intervention: n=57 Placebo: n=57 **Characteristics**	**Interventions** Intervention: 0.1mg IV salbutamol + ECV Control: ECV only *No analgesia or anaesthesia provided to participants.	**Details** **Power analysis** Sample size calculation was based on a placebo controlled study of beta-agonist tocolysis for ECV that showed a 50% versus 23% ECV success rate in favour of tocolysis. Alpha of 0.05 and power of 0.8 using the Fisher	**Results** **Critical outcomes** **Method of birth** Caesarean delivery- number (%) Intervention: 18 (31.6)	**Limitations** **Cochrane risk of bias tool V2**: Randomisation process: Low risk of bias. (Randomisation by random

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Gynaecology and Obstetrics, 104, 28-31, 2009 **Ref Id** 53076 **Country/ies where the study was carried out** Malaysia **Study type** Randomised controlled trial **Aim of the study** To evaluate the success of external cephalic version (ECV) using an adjusted bolus dose of intravenous salbutamol compared with no tocolysis. **Study dates** February 2005 to May 2006. **Source of funding** Not mentioned	Maternal age (years)- mean (±SD) Intervention: 28.2 (4.8) Control: 28.7 (4.3) p=0.59 Parity- median [IQR] Intervention: 0 [1.5] Control: 0 [1.5] p=0.64 Nulliparas- number (%) Intervention: 31 (54.4) Control: 27 (47.4) p=0.57 **Inclusion criteria** • Healthy women carrying a singleton fetus in breech presentation at 37 to 39 weeks of gestation; • Intact membranes; • No signs of labour; • A clinically estimated fetal weight of 2–4 kg. **Exclusion criteria** • AFI outside the range of 5 to 25; • Fetal hyperextended neck; • Placenta previa;		exact test indicated that 56 women were needed in each arm for a suitably powered study. **Statistical analyses** Relative risk (RR) and 95% confidence intervals (CIs) were calculated. P<0.05 was considered statistically significant and all tests used 2-sided. **Intention to treat analysis** Analysis of available data was performed based on ITT.	Control: 36 (63.2) RR (95% CI): 0.5 (0.3 to 0.8) p=0.001 Vaginal birth-number (%) Intervention: 39 (68.4) Control: 21 (36.8) p=0.007 **Admission to SCBU/NICU** Neonatal admission-number (%) Intervention: 3 (5.3) Control: 3 (5.3) RR (95% CI): 1 (0.2 to 4.7) p=1.0	number generator, blocks of 4. Allocation concealed by sealed, numbered, opaque envelopes). Deviations from intended interventions: Low risk of bias. (It was not feasible to blind participants or personnel in this type of intervention). Measurement of the outcome: Low risk of bias. (Most outcomes are objectively assessed). Missing outcome data: Low risk of bias. (High retention and low reported loss to follow-up). Selection of the reported result: Some concerns. (No trial protocol reported). Other bias: Low risk of bias. (No other biases detected). Overall risk of bias: Low risk

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
	• Gross fetal anomalies. Women were also excluded if their history included: • Hypertension; • Gestational diabetes; • Antepartum hemorrhage; • Uterine scar (from caesarean,myomectomy , or perforation); • Uterine malformation; • Allergy or contraindication to salbutamol; • Contraindication to a trial of labour even if in cephalic presentation.				
Full citation Wang, Z. H., Yang, Y., Xu, G. P., Remifentanil analgesia during external cephalic version for breech presentation in nulliparous women at term: A randomized controlled trial, MedicineMedicine (Baltimore), 96, e6256, 2017 **Ref Id**	**Sample size** N=144 Intervention: n=72 (n=69 analysed) Control: n=72 (n=68 analysed) **Characteristics** <u>Maternal age (years)- mean (±SD)</u> Intervention: 33.2 (4.6) Control: 32.9 (5.1) p=0.71 <u>Parity- 1- number (%)</u> Intervention: 41 (56.9) Control: 37 (51.4)	**Interventions** Intervention: 0.1µg/kg/min remifentanil for 3 minutes Control: saline placebo *All participants were given IV 1g paracetamol in 100mL saline before ECV.	**Details** **Power analysis** The estimated sample size was 63 patients in each group with a 50% difference in success rate, a=0.05 (2-sided) and b=0.20. Assuming a 10% dropout rate, at least 144 patients with 72 in each group should be recruited in this study. **Statistical analyses** Fisher's exact test and t tests were used to analyze the categorical and continuous data, respectively, with relative risks and 95% confidence intervals. **Intention to treat analysis**	**Results** **<u>Critical outcomes</u>** **Method of birth** <u>Delivery after successful ECV-Vaginal birth-number (%)</u> Intervention: 37/41 (90) Control: 24/28 (86) <u>Delivery after successful ECV-Caesarean birth-number (%)</u>	**Limitations** **<u>Cochrane risk of bias tool V2</u>**: Randomisation process: Low risk of bias. (Computerised number generator in the stratified block randomisation method. Allocation concealed by opaque, sequentially numbered, sealed envelopes). Deviations from intended interventions:

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
1075944 **Country/ies where the study was carried out** China **Study type** Randomised controlled trial **Aim of the study** The aim of the study was to assess the efficacy and safety of remifentanil for pain relief during external cephalic version (ECV) for breech presentation in nulliparous women at term. **Study dates** May 2013 to April 2016 **Source of funding** Not mentioned.	p=0.50 Parity- 2 or more- number (%) Intervention: 31 (43.1) Control: 35 (48.6) **Inclusion criteria** • Nulliparous women with singleton breech presentations at term (≥37^{+0} weeks). **Exclusion criteria** • Presence of fetal abnormalities; • Intrauterine fetal death; • Multiple pregnancy; • Prior uterine surgery; • Maternal cardiovascular disease; • Severe hypertension; • Fetal weight >3800g; • American Society of Anaesthesiologists class>2; • Allergy to remifentanil and its placebo; • Ruptured membranes; • Placental abruption.		All outcome data were analysed by an intention to treat (ITT) approach.	Intervention: 4/41 (9.8) Control: 4/28 (14.2) p=0.57 Delivery after failed ECV- Vaginal breech- number (%) Intervention: 0 Control: 8/44 (18.2) p=0.07 Delivery after failed ECV- Caesarean birth- number (%) Intervention: 31/31 (100) Control: 36/44 (81.8) p=0.07 **Fetal death after 36+0 weeks gestation** Intervention: 0 Control: 0	Low risk of bias. (All participants and personnel were blinded to the treatment). Measurement of the outcome: Low risk of bias. (Majority of the outcomes are objectively assessed but some outcomes are subjective). Missing outcome data: Low risk of bias. (High retention rate and low loss to follow-up). Selection of the reported result: Some concerns. (Trial protocol is not reported). Other bias: Low risk of bias. (All participants were Chinese and therefore results may not generalisable) Overall risk of bias: Low risk
Full citation	**Sample size**	**Interventions**	**Details**	**Results**	**Limitations**

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Weiniger,C.F., Ginosar,Y., Elchalal,U., Sela,H.Y., Weissman,C., Ezra,Y., Randomized controlled trial of external cephalic version in term multiparae with or without spinal analgesia, British Journal of Anaesthesia, 104, 613-618, 2010 **Ref Id** 116349 **Country/ies where the study was carried out** Israel **Study type** Randomised controlled trial **Aim of the study** To compare ECV success among multiparae with and without spinal analgesia.	N=65 Intervention: n=32 (n=31 analysed) Control: n=33 **Characteristics** <u>Maternal age (years)- mean (range)</u> Intervention: 28.5 (21-40) Control: 28.6 (20-36) <u>Parity- 1- number (%)</u> Intervention: 13 (41.9) Control: 21 (63.6) **Inclusion criteria** • ASA status I–II; • 37–40 complete weeks gestation; • No fetal abnormality (including intrauterine growth restriction); • No contraindication for vaginal delivery; • No contraindication for regional analgesia. **Exclusion criteria** • Previous Caesarean section; • Previous myomectomy with uterine cavity	Intervention: 7.5mg plain bupivacaine + ECV Control: ECV only *All participants were given 20mg oral nifedipine and 1000mL of Ringer's lactate solution before ECV.	**Power analysis** A sample size of 130 recruits was calculated for a power of 80% to detect a 20% difference in the ECV success rate with an a priori one-sided a-level of 5%. **Statistical analyses** All statistical tests were two-sided and a P-value of 5% or less was considered statistically significant. Quantitative variables were compared between the two study groups using the independent samples t-test and are presented as means and standard deviations. Categorical data were compared between the study groups using the x2 test or Fisher's exact test and are presented as percentages. **Intention to treat analysis** Results were analysed on an intention-to-treat basis.	**<u>Critical outcomes</u>** **Method of birth** <u>Vaginal delivery- number (%)</u> Intervention: 27/31 (87.1) Control: 30/33 (90.9) p=0.7039 95% CIs: -0.22 to 0.14	**<u>Cochrane risk of bias tool V2</u>:** Randomisation process: Some concerns. (No details provided for randomisation. Allocation concealment by numbered sealed envelopes). Deviations from intended interventions: High risk of bias. (Only some personnel blinded to group allocation). Measurement of the outcome: Low risk of bias. (Majority of outcomes objectively assessed). Missing outcome data: Low risk of bias. (High retention and low reported loss to follow-up). Selection of the reported result: Low risk of bias. (Trial protocol available and all outcomes reported). Other bias: Low risk of bias. (No other biases detected).

Study details	Participants	Interventions	Methods	Outcomes and Results	Comments
Study dates Not mentioned. **Source of funding** This work was supported by grants from the Chief Scientist Office of the Ministry of Health, Israel (grant no.6189), and the Hadassah-Hebrew University Medical Centre Women's Health Research Fund.	penetration or uterine anomaly; • Morbid obesity (BMI .40 kg); • Amniotic fluid index <7 cm; • Neuropathy; • Severe back pain with radicular radiation; • Patient refusal of regional analgesia; • Poor communication; • Request for elective Caesarean section (either after failed ECV at another institution or not wishing to attempt ECV).				Overall risk of bias: Some concerns **Other information** Ritodrine 50 mg i.v. was used for uterine relaxation until it became unavailable after April 2003 and was replaced by nifedipine 20 mg orally.

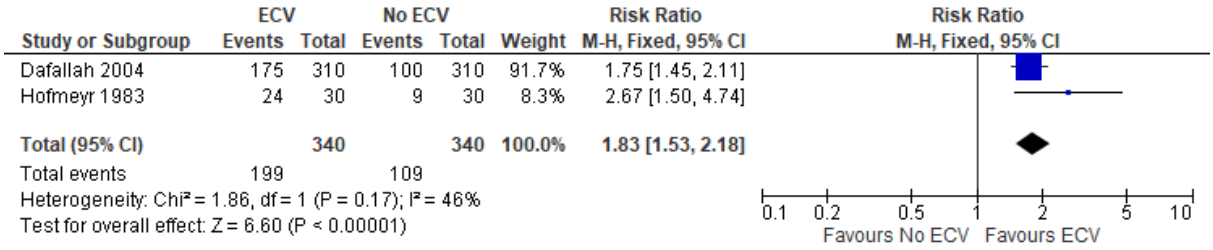
AFI: amniotic fluid index; BMI: body mass index; CI: confidence interval; ECV: external cephalic version; IV: intravenous; mg: milligrams; NICU: neonatal intensive care unit; OR: odds ratio; RR: risk ratio; SCBU: special care baby unit; SD: standard deviation

Appendix E – Forest plots

Forest plots for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

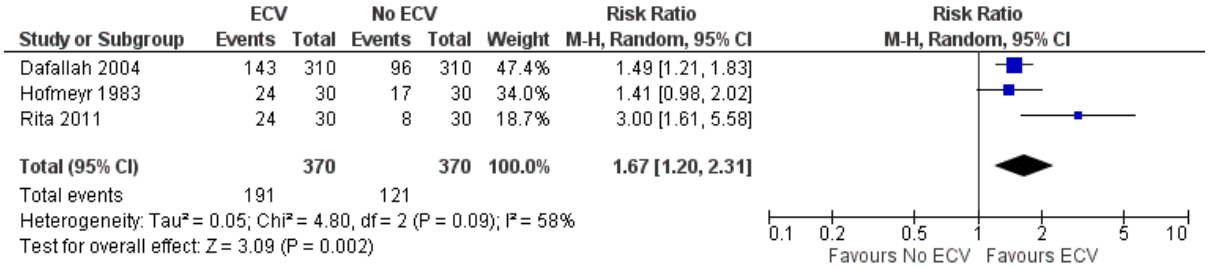
This section includes forest plots only for outcomes that are meta-analysed. Outcomes from single studies are not presented here; the quality assessment for these outcomes is provided in the GRADE profiles in appendix F.

Figure 2: ECV versus No ECV- Outcome: Cephalic presentation in labour



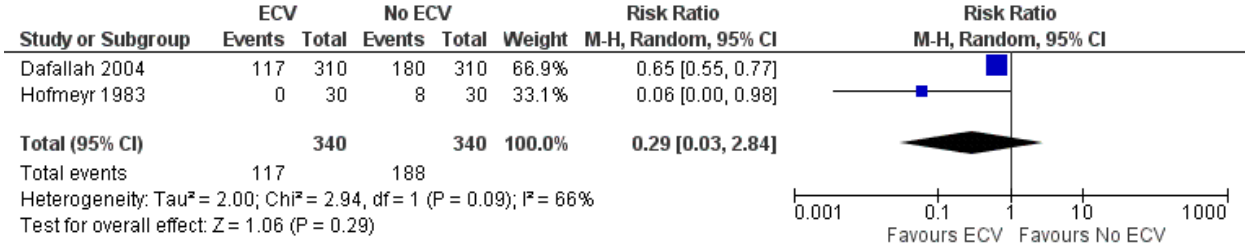
ECV: external cephalic version.

Figure 3: ECV versus No ECV- Outcome: Method of birth- Cephalic vaginal birth



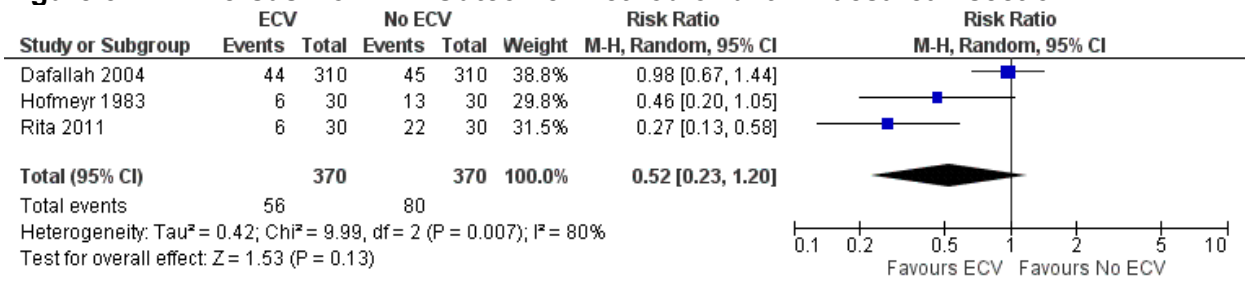
ECV: external cephalic version.

Figure 4: ECV versus No ECV- Outcome: Method of birth- Breech vaginal birth



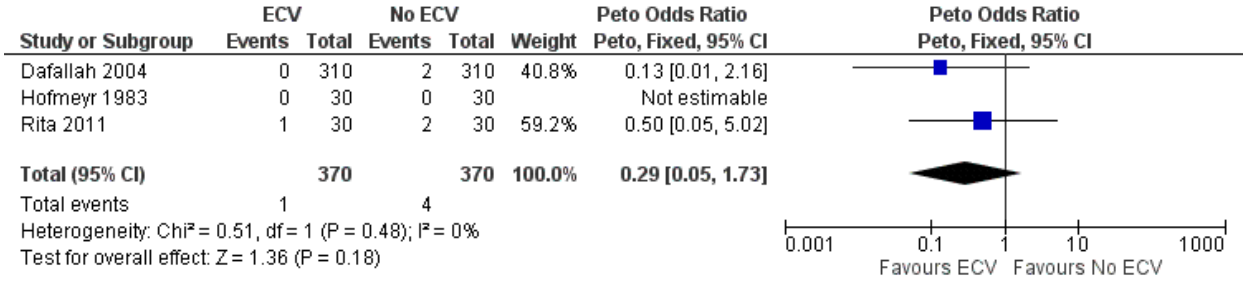
ECV: external cephalic version.

Figure 5: ECV versus No ECV- Outcome: Method of birth- Caesarean section



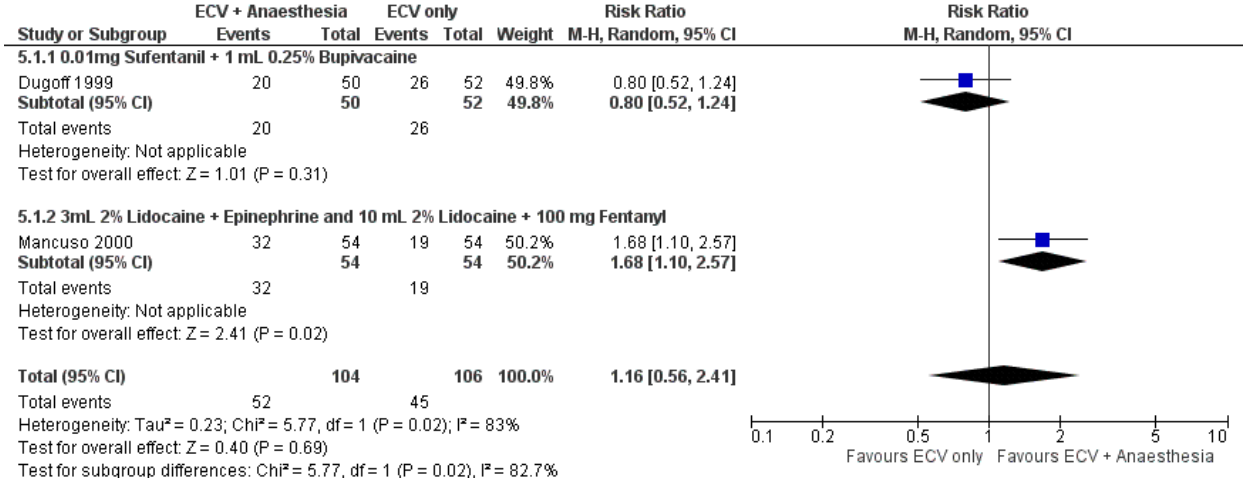
ECV: external cephalic version.

Figure 6: ECV versus No ECV- Outcome: Fetal death after 36^{+0} weeks gestation



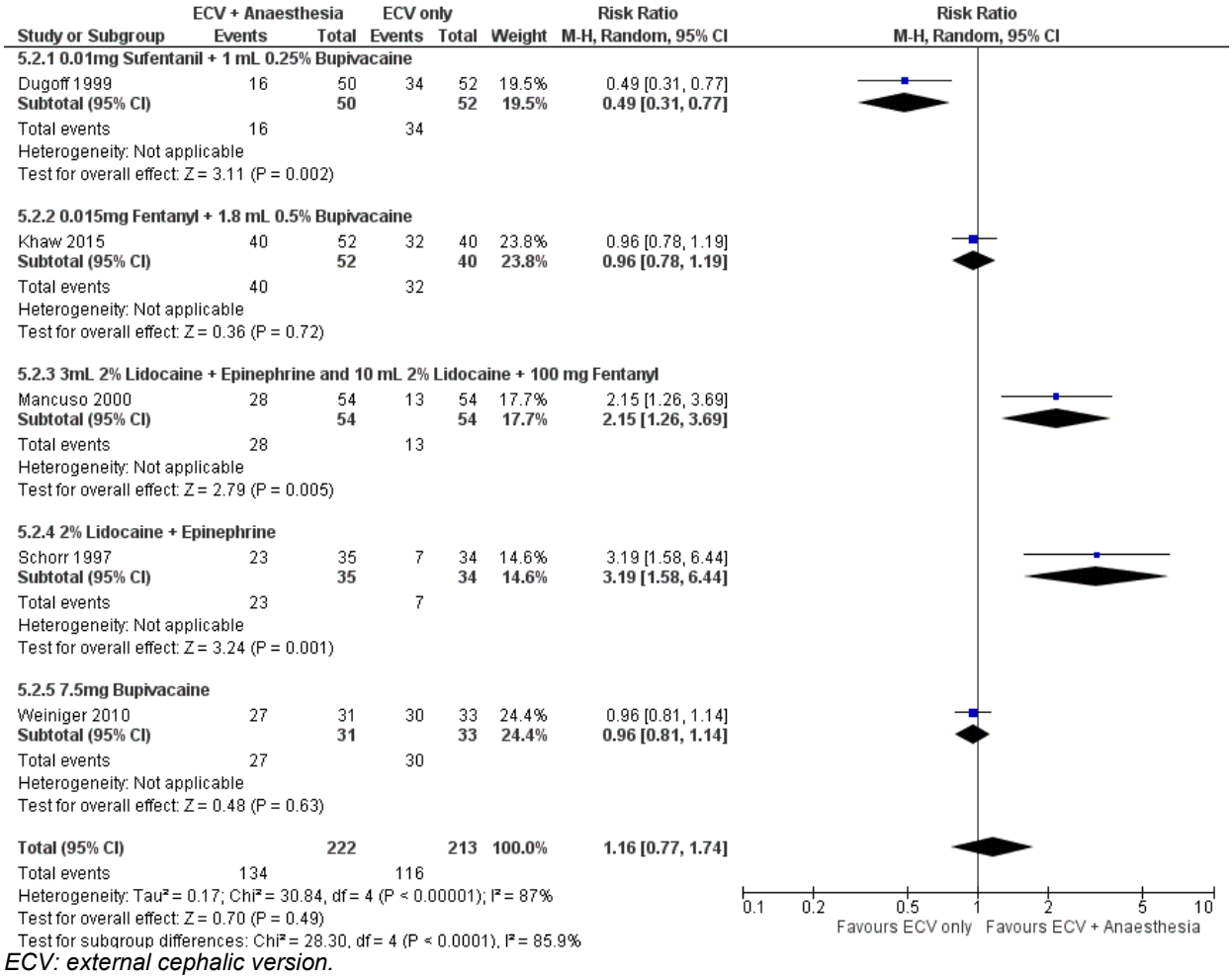
ECV: external cephalic version.

Figure 7: ECV + Anaesthesia versus ECV- Outcome: Cephalic presentation in labour



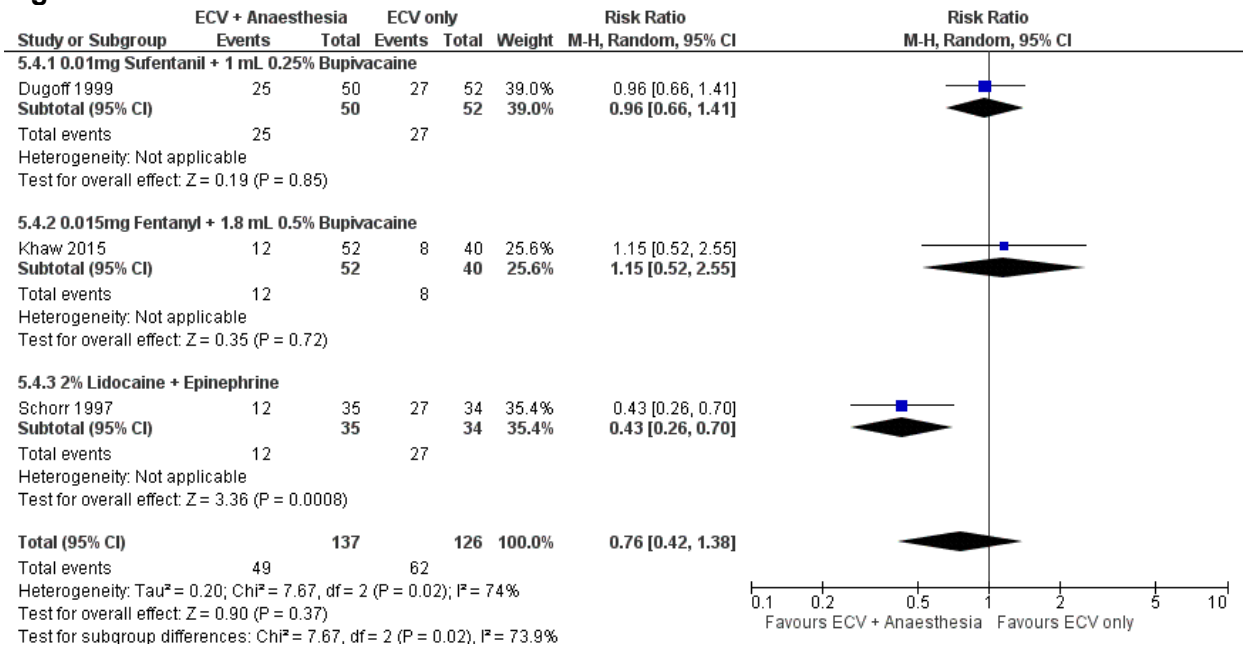
ECV: external cephalic version.

Figure 8: ECV + Anaesthesia versus ECV- Outcome: Method of birth- Cephalic vaginal birth



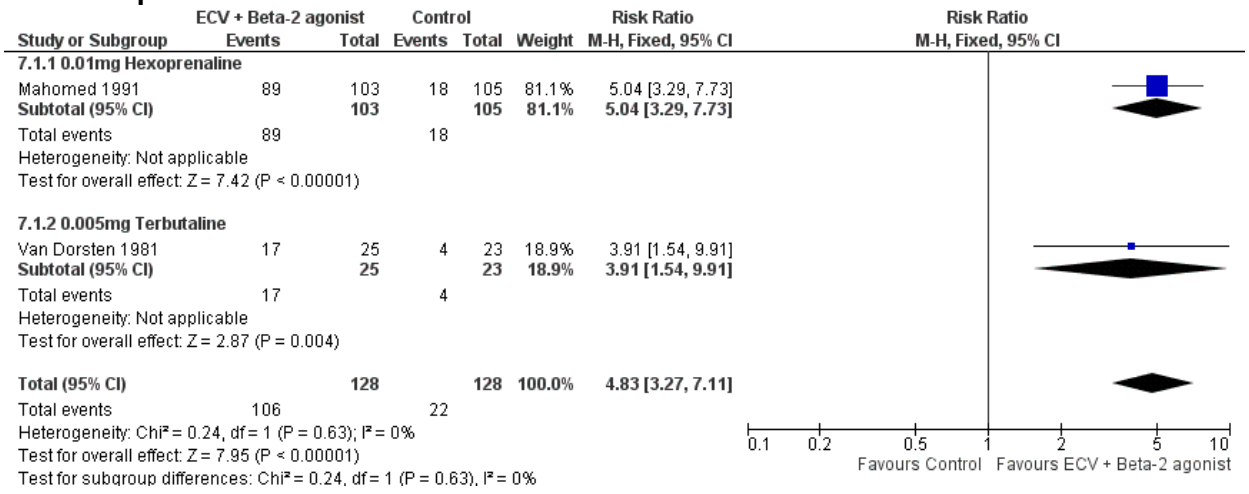
ECV: external cephalic version.

Figure 9: ECV + Anaesthesia versus ECV- Outcome: Method of birth- Caesarean section



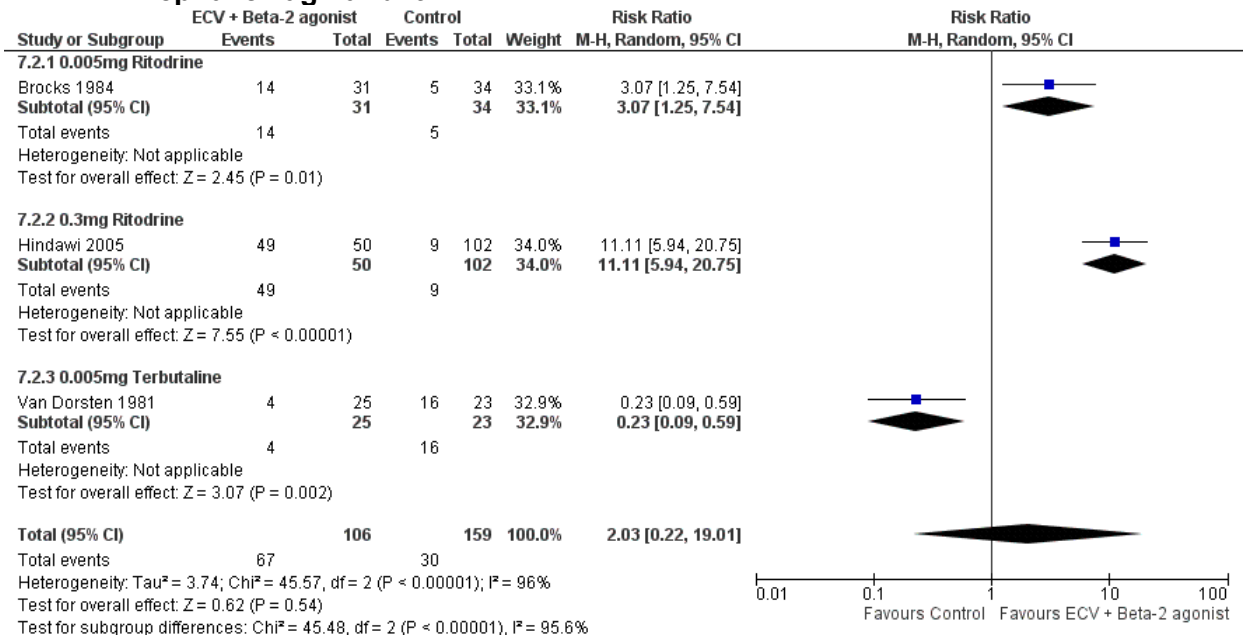
ECV: external cephalic version.

Figure 10: ECV + β2 agonist versus Control (no treatment)- Outcome: Cephalic presentation in labour



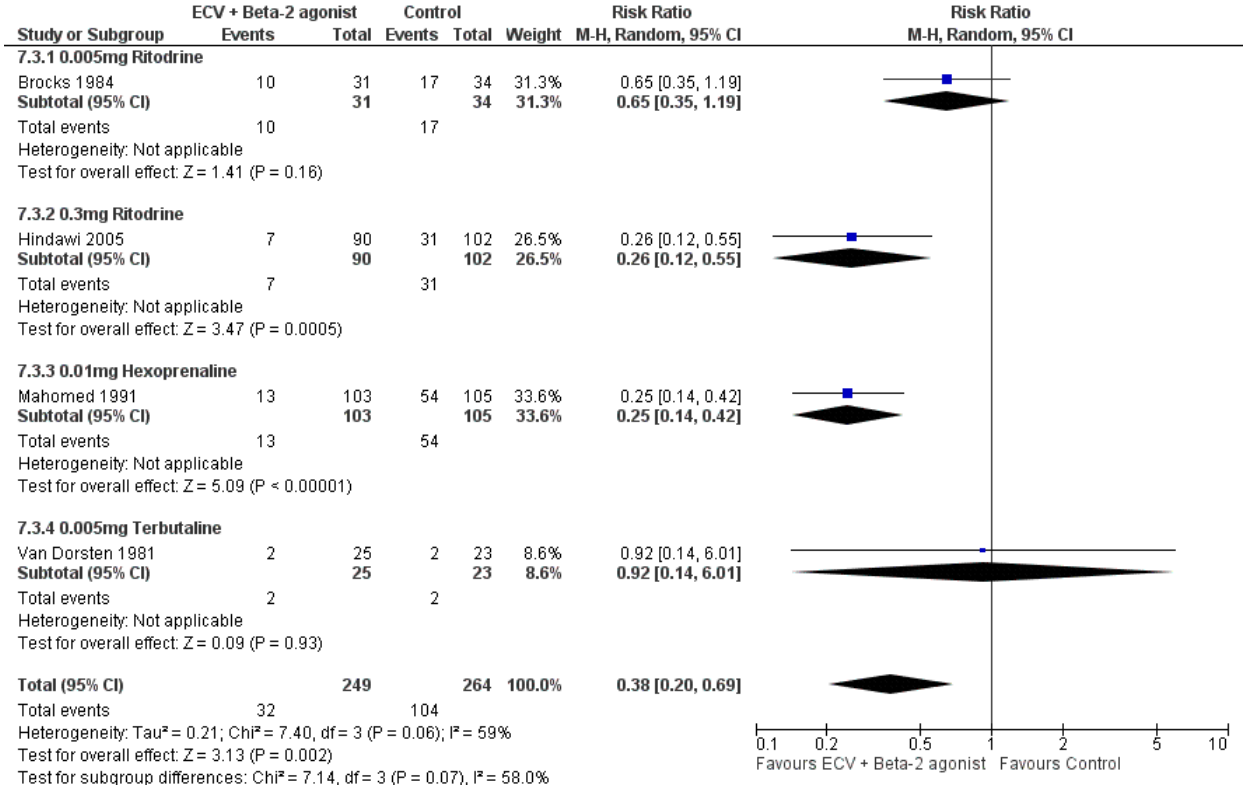
ECV: external cephalic version.

Figure 11: ECV + β2 agonist versus Control (no treatment)- Outcome: Method of birth- Cephalic vaginal birth



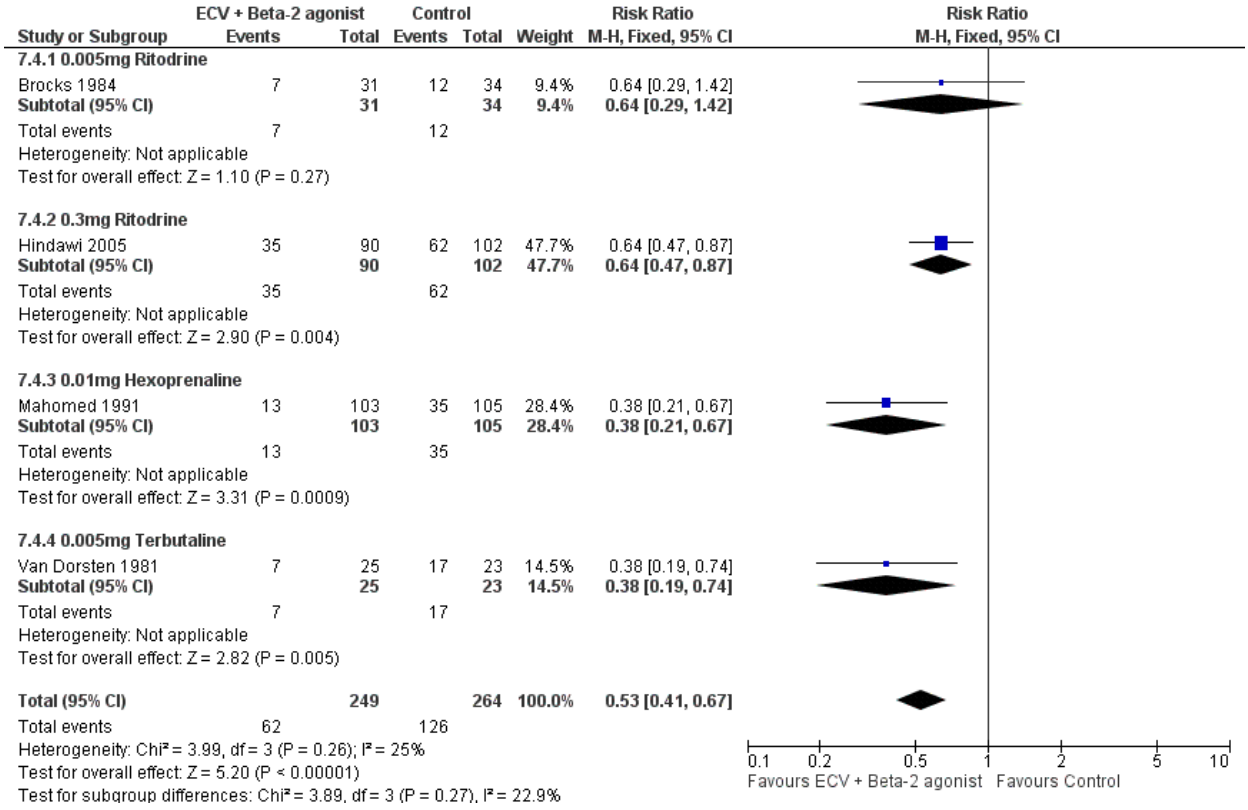
ECV: external cephalic version.

Figure 12: ECV + β2 agonist versus Control (no treatment)- Outcome: Method of birth- Breech vaginal birth



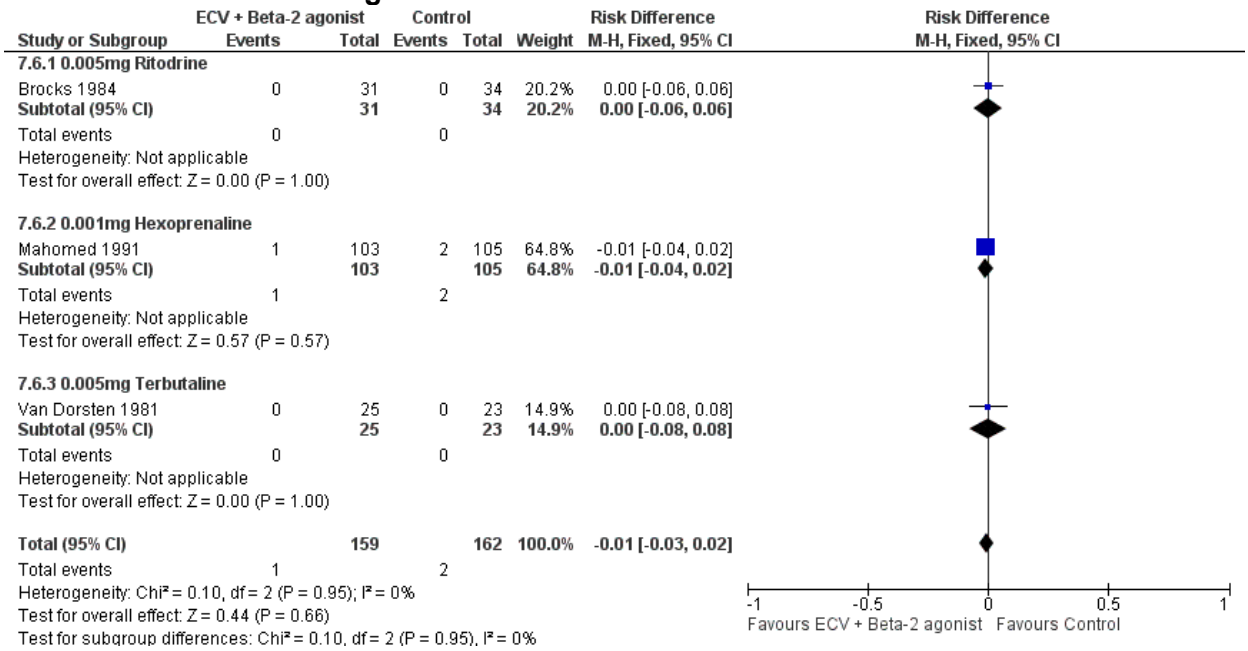
ECV: external cephalic version.

Figure 13: ECV + β2 agonist versus Control (no treatment)- Outcome: Method of birth- Caesarean section



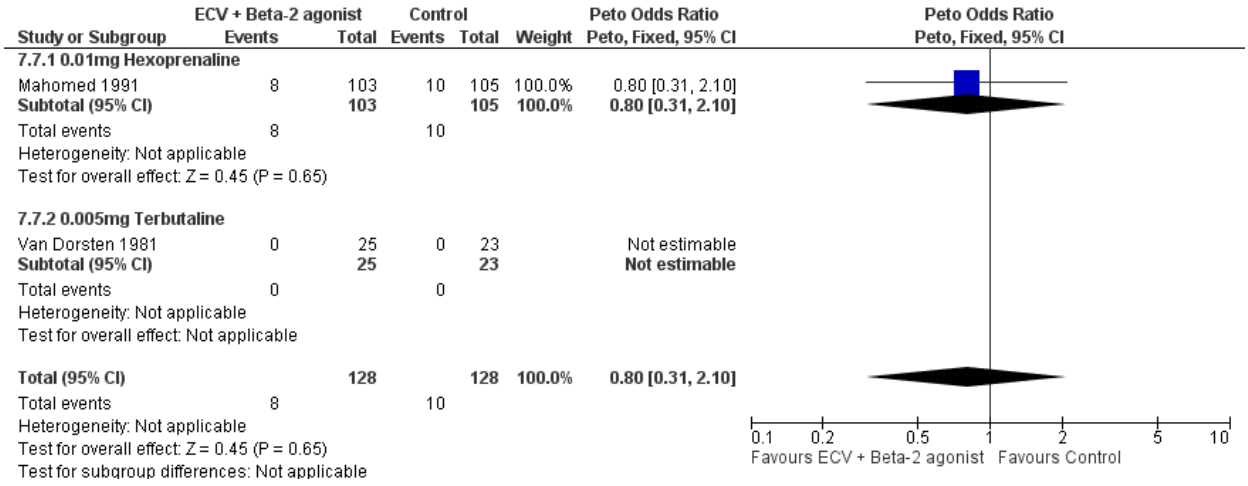
ECV: external cephalic version.

Figure 14: ECV + β2 agonist versus Control (no treatment)- Outcome: Fetal death after 36^{+0} weeks gestation



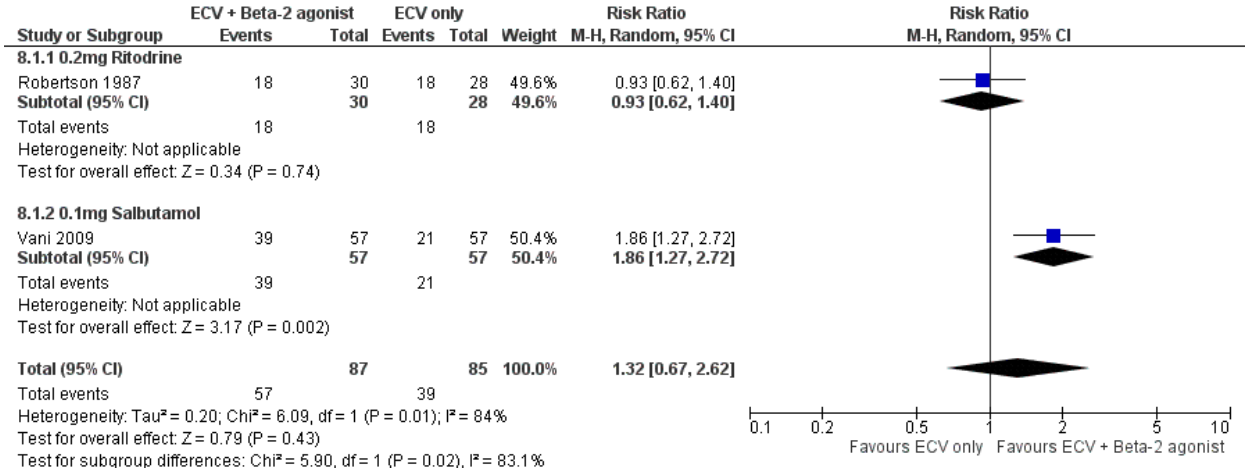
ECV: external cephalic version

Figure 15: ECV + β2 agonist versus Control (no treatment)- Outcome: Apgar score <7 at 5 minutes



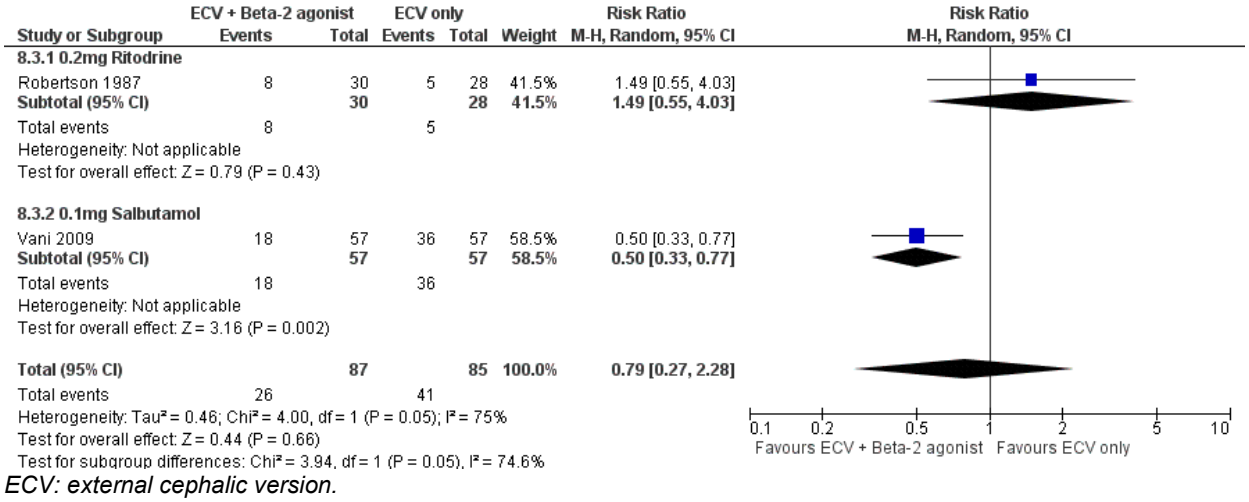
ECV: external cephalic version

Figure 16: ECV + β2 agonist versus ECV- Outcome: Method of birth- Cephalic vaginal birth



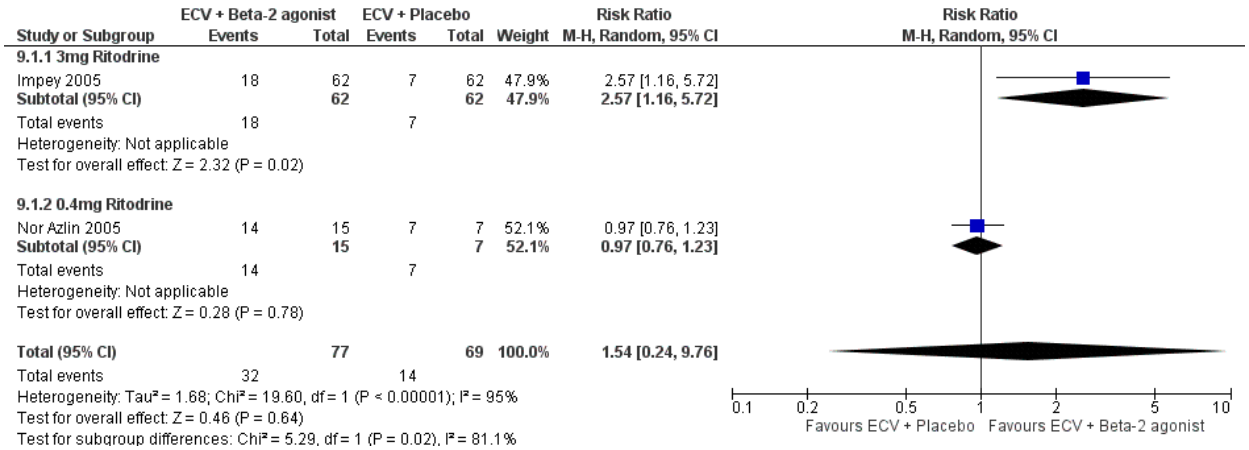
ECV: external cephalic version

Figure 17: ECV + β2 agonist versus ECV- Outcome: Method of birth- Caesarean section



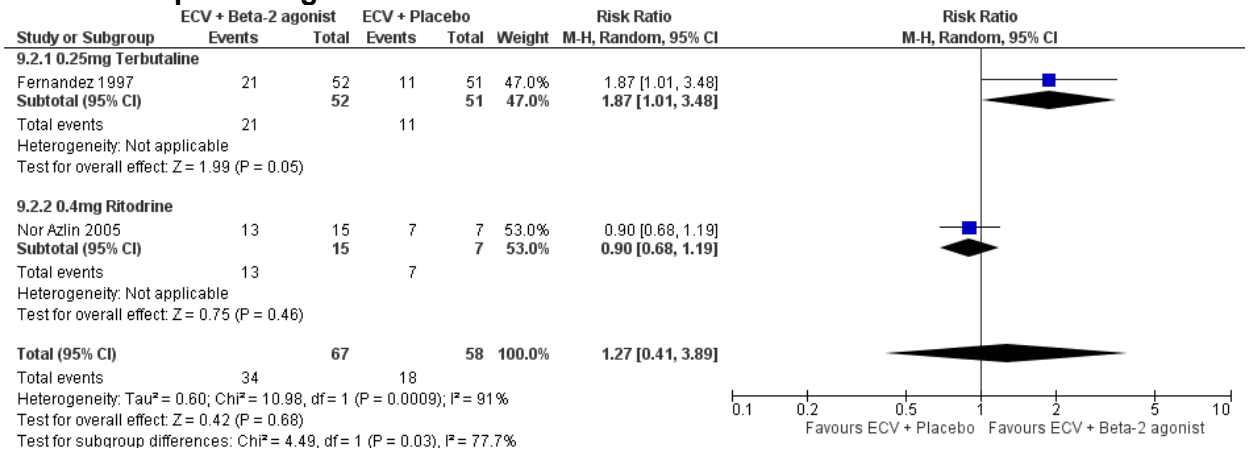
ECV: external cephalic version.

Figure 18: ECV + β2 agonist versus ECV + Placebo- Outcome: Cephalic presentation in labour



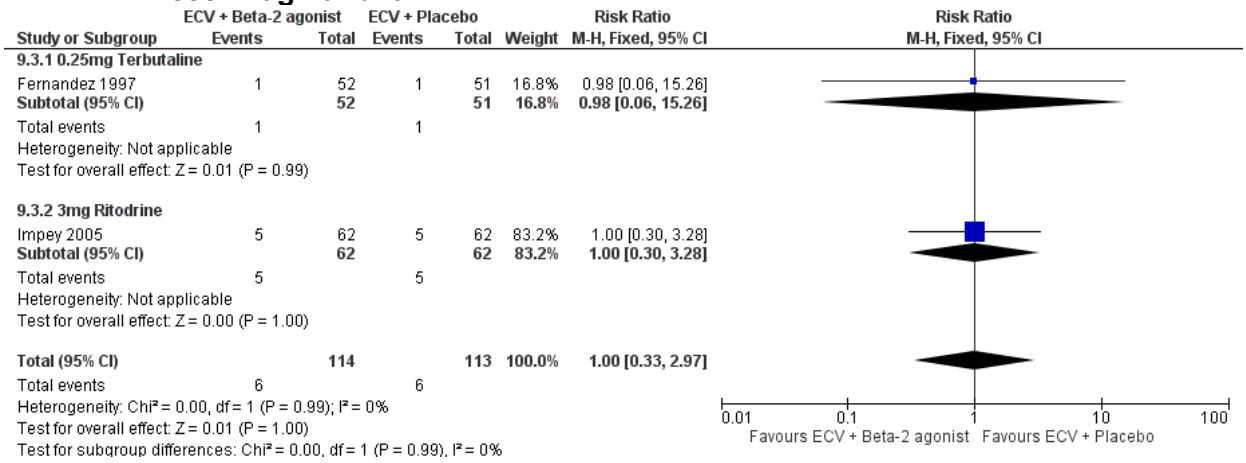
ECV: external cephalic version.

Figure 19: ECV + β2 agonist versus ECV + Placebo- Outcome: Method of birth- Cephalic vaginal birth



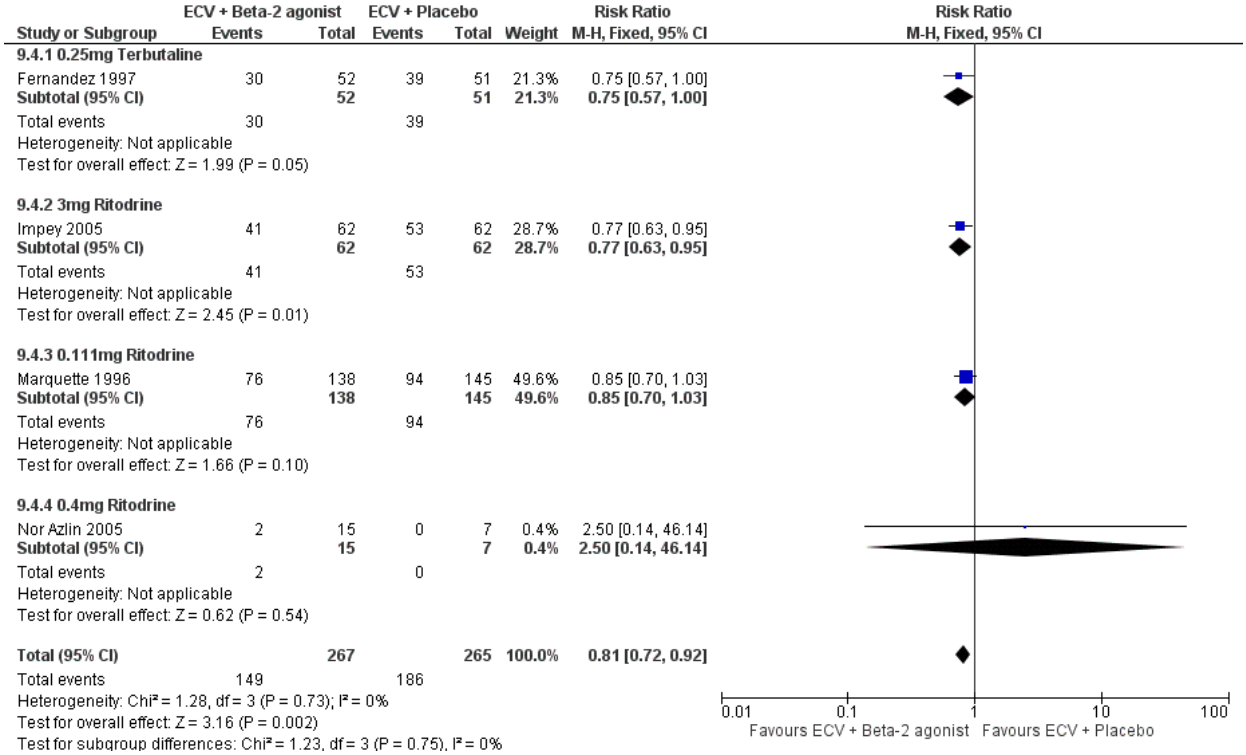
ECV: external cephalic version.

Figure 20: ECV + β2 agonist versus ECV + Placebo- Outcome: Method of birth- Breech vaginal birth



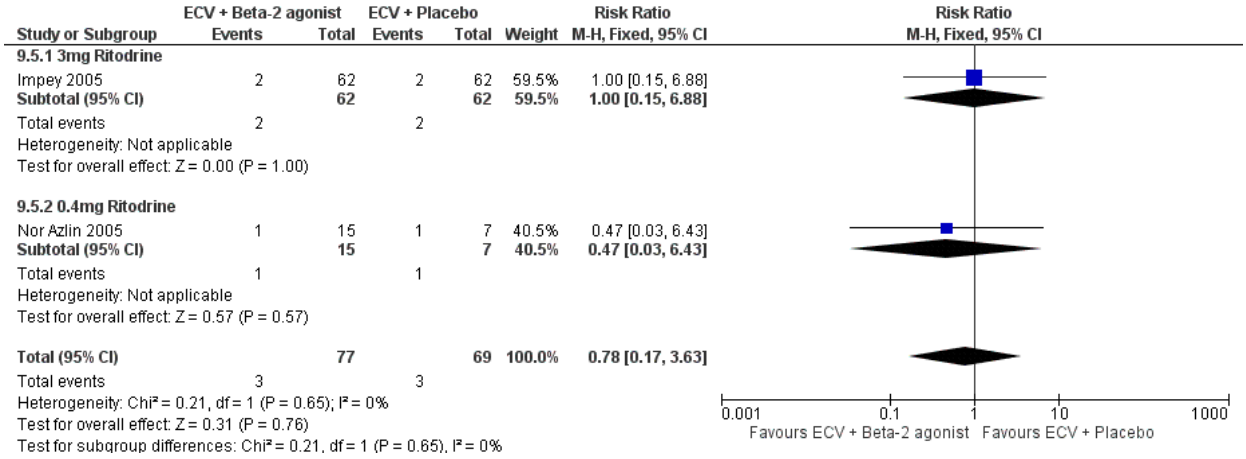
ECV: external cephalic version.

Figure 21: ECV + β2 agonist versus ECV + Placebo- Outcome: Method of birth- Caesarean section



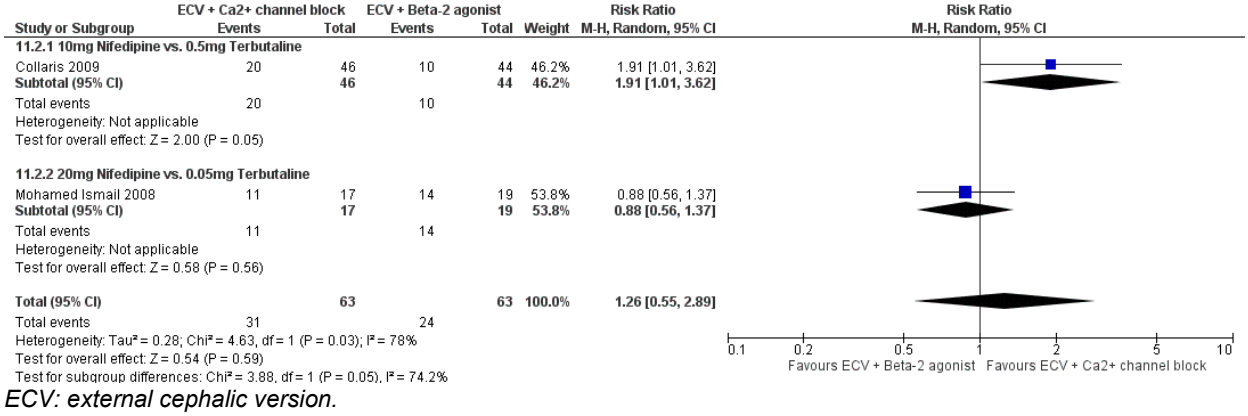
ECV: external cephalic version.

Figure 22: ECV + β2 agonist versus ECV + Placebo- Outcome: Admission to SCBU/NICU



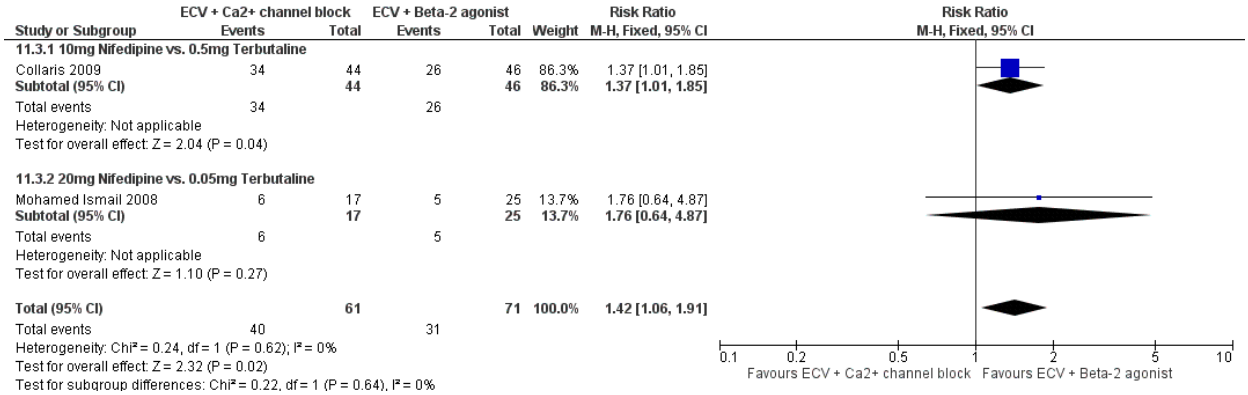
ECV: external cephalic version; NICU: neonatal intensive care unit; SCBU; special care baby unit.

Figure 23: ECV + Ca2+ channel blocker versus ECV + β2 agonist- Outcome: Method of birth- Cephalic vaginal birth



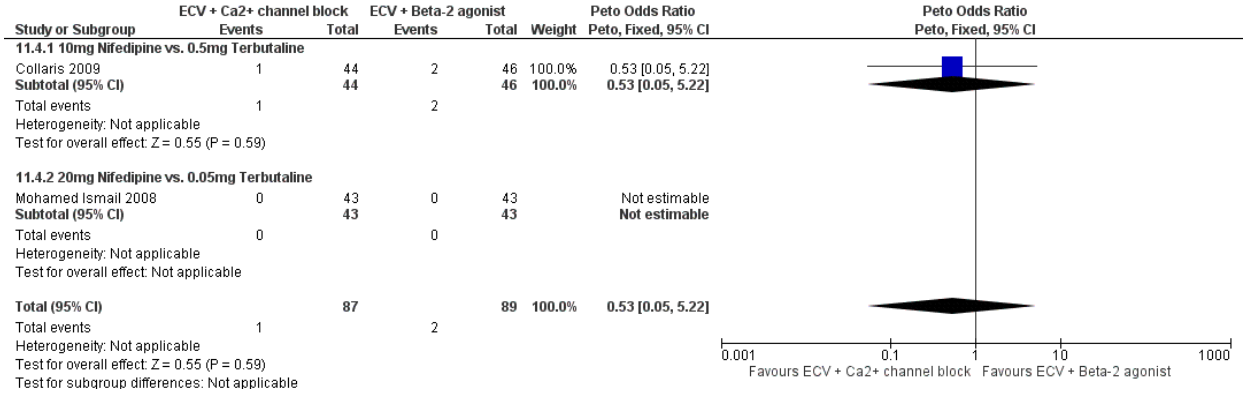
ECV: external cephalic version.

Figure 24: ECV + Ca2+ channel blocker versus ECV + β2 agonist- Outcome: Method of birth- Caesarean section



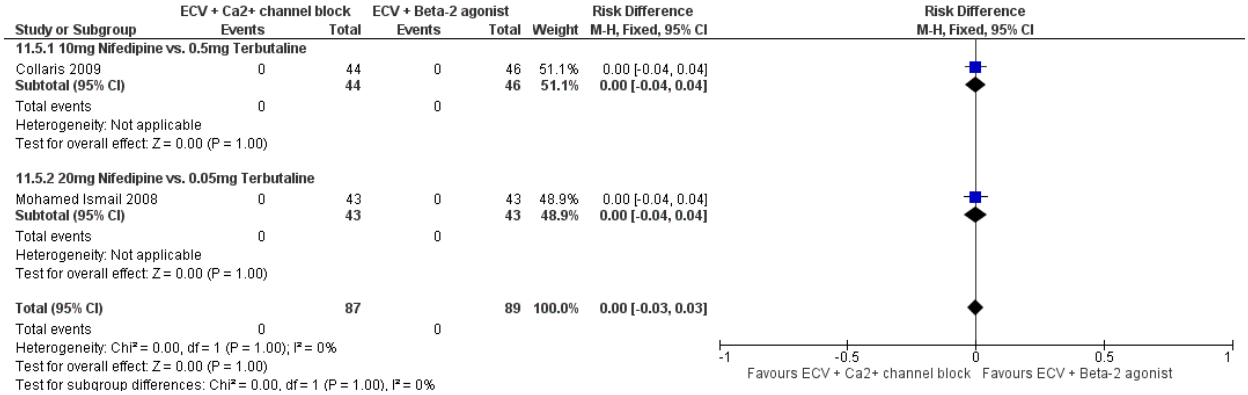
ECV: external cephalic version.

Figure 25: ECV + Ca2+ channel blocker versus ECV + β2 agonist- Outcome: Admission to SCBU/NICU



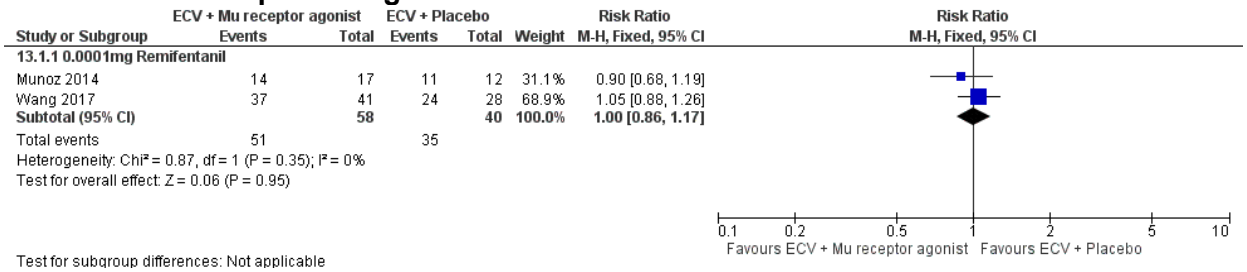
ECV: external cephalic version.

Figure 26: ECV + Ca2+ channel blocker versus ECV + β2 agonist- Outcome: Apgar score <7 at 5 minutes



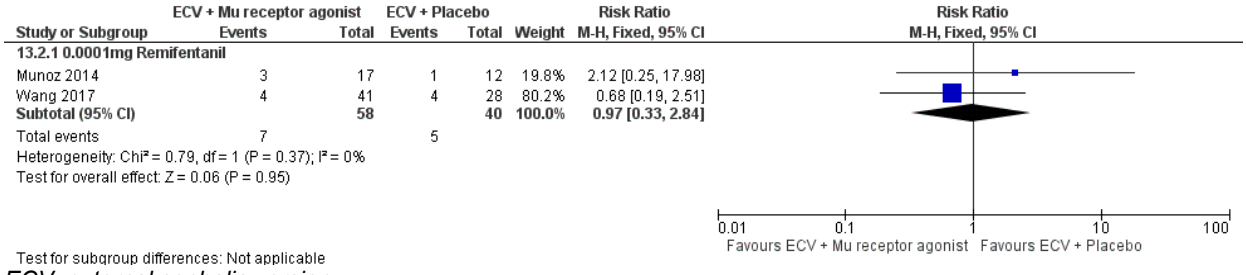
ECV: external cephalic version.

Figure 27: ECV + μ-receptor agonist versus ECV + Placebo- Outcome: Method of birth- Cephalic vaginal birth after successful ECV



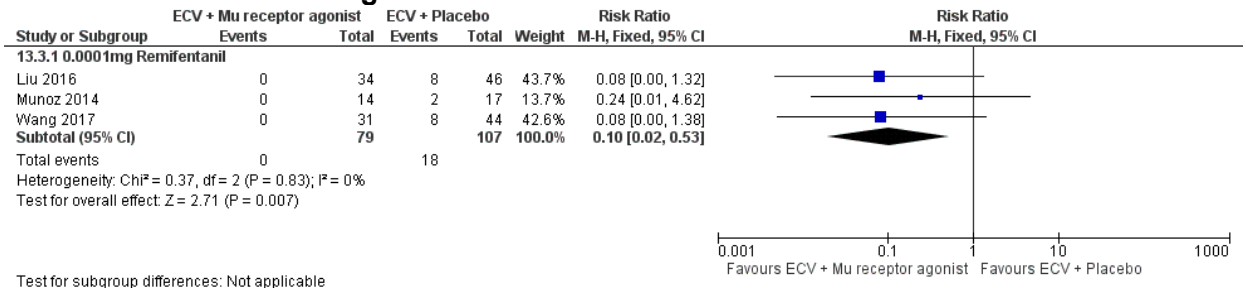
ECV: external cephalic version.

Figure 28: ECV + μ-receptor agonist versus ECV + Placebo- Outcome: Method of birth- Caesarean section after successful ECV



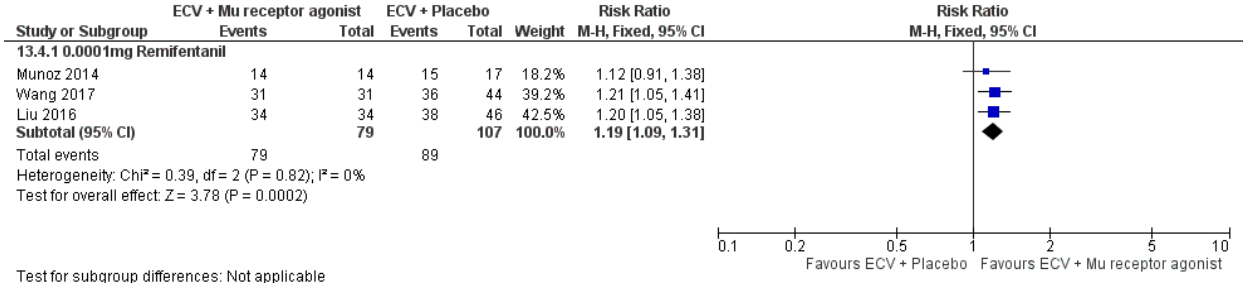
ECV: external cephalic version.

Figure 29: ECV + μ-receptor agonist versus ECV + Placebo- Outcome: Method of birth- Breech vaginal birth after unsuccessful ECV



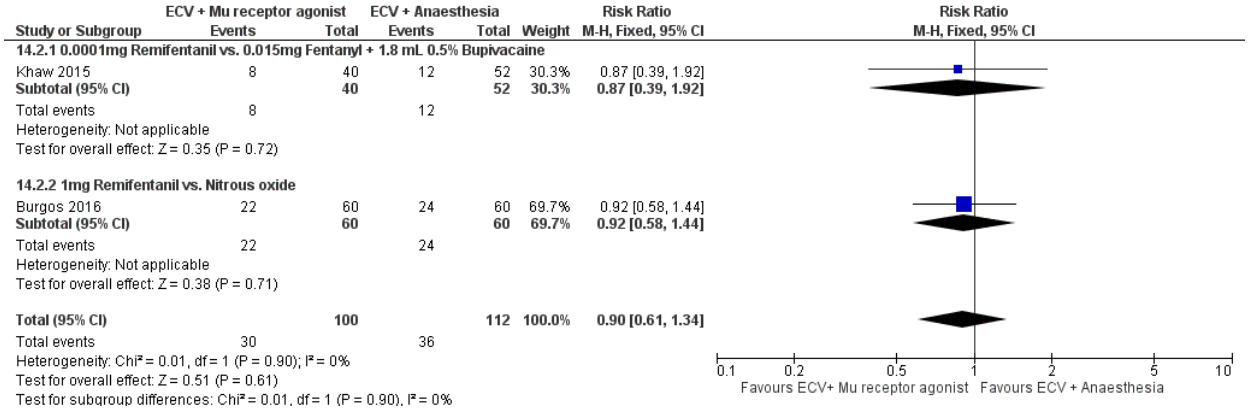
ECV: external cephalic version.

Figure 30: ECV + μ-receptor agonist versus ECV + Placebo- Outcome: Method of birth- Caesarean section birth after unsuccessful ECV



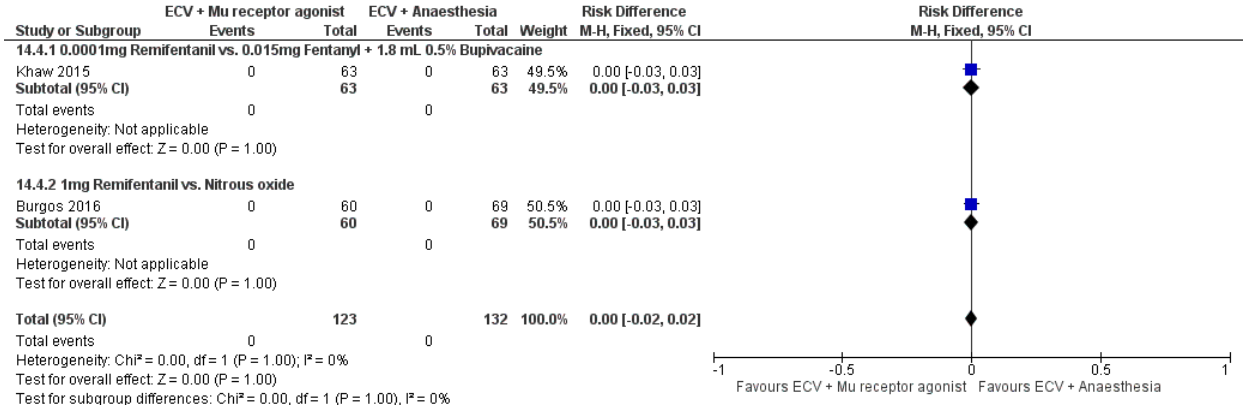
ECV: external cephalic version.

Figure 31: ECV + μ-receptor agonist versus ECV + Anaesthesia- Outcome: Method of birth- Caesarean section



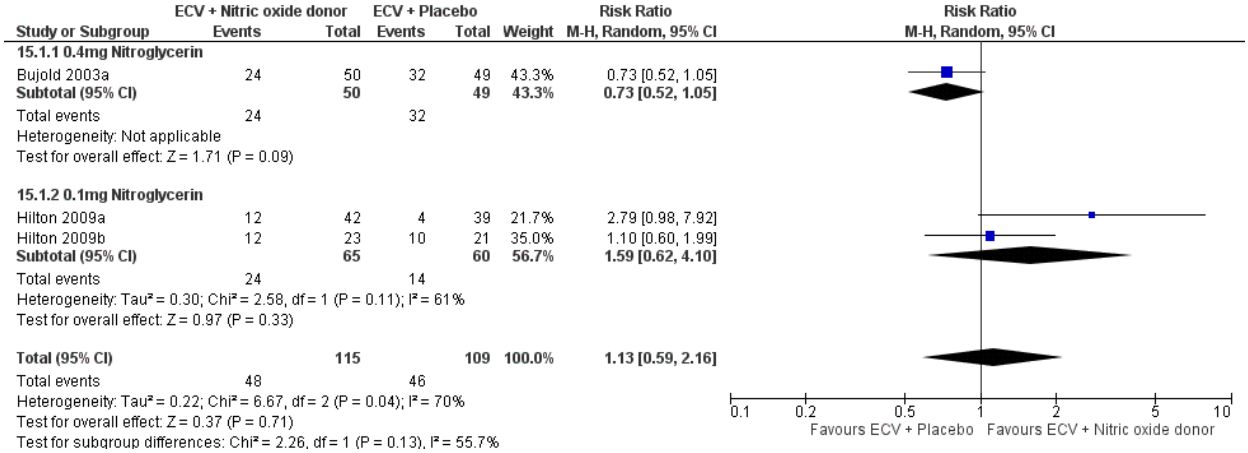
ECV: external cephalic version.

Figure 32: ECV + μ-receptor agonist versus ECV + Anaesthesia- Outcome: Apgar score <7 at 5 minutes



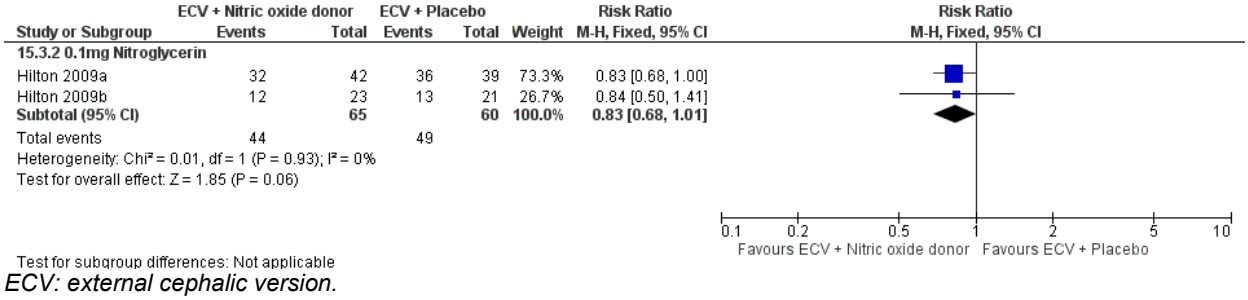
ECV: external cephalic version.

Figure 33: ECV + Nitric oxide donor versus ECV + Placebo- Outcome: Cephalic presentation in labour



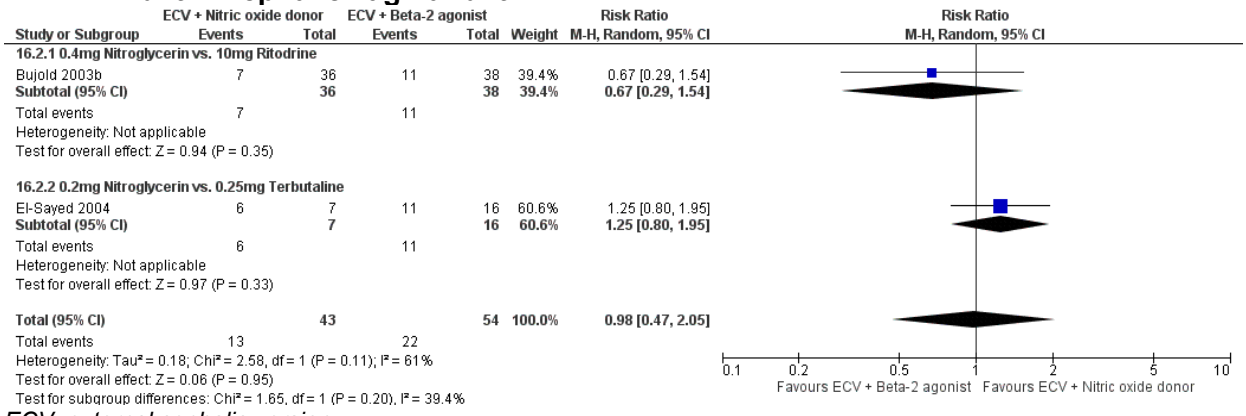
ECV: external cephalic version.

Figure 34: ECV + Nitric oxide donor versus ECV + Placebo- Outcome: Method of birth- Caesarean section



ECV: external cephalic version.

Figure 35: ECV + Nitric oxide donor versus ECV + β2 agonist- Outcome: Method of birth- Cephalic vaginal birth



ECV: external cephalic version.

Appendix F – GRADE tables

GRADE tables for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

Table 5: Clinical evidence profile for complementary therapy vs control (no treatment) for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Complementary therapy	Control	Relative (95% CI)	Absolute		
Method of birth- Caesarean section - Acupuncture vs. Control												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	13/104 (12.5%)	17/100 (17%)	RR 0.74 (0.38 to 1.43)	44 fewer per 1000 (from 105 fewer to 73 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section - Acupuncture + sweeping vs. Control												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	22/100 (22%)	17/100 (17%)	RR 1.29 (0.73 to 2.29)	49 more per 1000 (from 46 fewer to 219 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU - Acupuncture vs. Control												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	1/104 (0.96%)	5/100 (5%)	RR 0.19 (0.02 to 1.62)	41 fewer per 1000 (from 49 fewer to 31 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU - Acupuncture + sweeping vs. Control												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	2/100 (2%)	5/100 (5%)	RR 0.4 (0.08 to 2.01)	30 fewer per 1000 (from 46 fewer to 51 more)	⊕OOO VERY LOW	CRITICAL
Apgar score <7 at 5 minutes - Acupuncture vs. Control												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Complementary therapy	Control	Relative (95% CI)	Absolute		
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	0/104 (0%)	1/100 (1%)	RR 0.32 (0.01 to 7.78)	7 fewer per 1000 (from 10 fewer to 68 more)	⊕OOO VERY LOW	IMPORTANT
Apgar score <7 at 5 minutes - Acupuncture + sweeping vs. Control												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	0/100 (0%)	1/100 (1%)	RR 0.33 (0.01 to 8.09)	7 fewer per 1000 (from 10 fewer to 71 more)	⊕OOO VERY LOW	IMPORTANT

CI: confidence interval; NICU: neonatal intensive care unit; RR: risk ratio; SCBU: special care baby unit
[1] Evidence downgraded by one level due to high risk of performance bias, and unclear risk of selection, reporting and other biases.
[2] This is not applicable as there is only one study contributing to the comparison.
[3] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).

Table 6: Complementary therapy vs Other intervention for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Complementary therapy	Other	Relative (95% CI)	Absolute		
Method of birth- Caesarean section - Acupuncture vs. Sweeping												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[3]	none	13/104 (12.5%)	20/103 (19.4%)	RR 0.64 (0.34 to 1.22)	70 fewer per 1000 (from 128 fewer to 43 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Caesarean section - Acupuncture vs. Acupuncture + sweeping												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[3]	none	13/104 (12.5%)	22/100 (22%)	RR 0.57 (0.3 to 1.07)	95 fewer per 1000 (from 154 fewer to 15 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Caesarean section - Acupuncture + sweeping vs. Sweeping												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Complementary therapy	Other	Relative (95% CI)	Absolute		
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[4]	none	22/100 (22%)	20/103 (19.4%)	RR 1.13 (0.66 to 1.94)	25 more per 1000 (from 66 fewer to 183 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU - Acupuncture vs. Sweeping												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[4]	none	1/104 (0.96%)	3/103 (2.9%)	RR 0.33 (0.03 to 3.12)	20 fewer per 1000 (from 28 fewer to 62 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU - Acupuncture vs. Acupuncture + sweeping												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[4]	none	1/104 (0.96%)	2/100 (2%)	RR 0.48 (0.04 to 5.22)	10 fewer per 1000 (from 19 fewer to 84 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU - Acupuncture + sweeping vs. Sweeping												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[4]	none	2/100 (2%)	3/103 (2.9%)	RR 0.69 (0.12 to 4.02)	9 fewer per 1000 (from 26 fewer to 88 more)	⊕OOO VERY LOW	CRITICAL
Apgar score <7 at 5 minutes- Acupuncture vs. Sweeping												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[5]	none	0/104 (0%)	0/103 (0%)	RD 0 (-0.02 to 0.02)	0 fewer per 1000 (from 20 fewer to 20 more)	⊕⊕OO LOW	IMPORTANT
Apgar score <7 at 5 minutes- Acupuncture vs. Acupuncture + sweeping												
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[5]	none	0/104 (0%)	0/100 (0%)	RD 0 (-0.02 to 0.02)	0 fewer per 1000 (from 20 fewer to 20 more)	⊕⊕OO LOW	IMPORTANT
Apgar score <7 at 5 minutes- Acupuncture + sweeping vs. Sweeping												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Complementary therapy	Other	Relative (95% CI)	Absolute		
1 (Andersen 2013)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[5]	none	0/100 (0%)	0/103 (0%)	RD 0 (-0.02 to 0.02)	0 fewer per 1000 (from 20 fewer to 20 more)	⊕⊕OO LOW	IMPORTANT

CI: confidence interval; NICU: neonatal intensive care unit; RD: risk difference; RR: risk ratio; SCBU: special care baby unit
[1] Evidence downgraded by one level due to high risk of performance bias, and unclear risk of selection, reporting and other biases.
[2] This is not applicable as there is only one study contributing to the comparison.
[3] Evidence downgraded by 1 level because 95% CI crosses 1 default MIDs for dichotomous outcomes (0.8).
[4] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[5] Evidence downgraded by 1 level due to serious imprecision surrounding small sample size.

Table 7: ECV vs no ECV for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV	No ECV	Relative (95% CI)	Absolute		
Cephalic presentation in labour												
2‡	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	no serious imprecision	none	199/340 (58.5%)	109/340 (32.1%)	RR 1.83 (1.53 to 2.18)	266 more per 1000 (from 170 more to 378 more)	⊕⊕⊕O MODERATE	CRITICAL
Method of birth- Cephalic vaginal birth												
3‡	randomised trials	serious[3]	serious[4]	no serious indirectness	serious[5]	none	191/370 (51.6%)	121/370 (32.7%)	RR 1.67 (1.2 to 2.31)	219 more per 1000 (from 65 more to 428 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Breech vaginal birth												
2‡	randomised trials	serious[1]	serious[4]	no serious indirectness	very serious[6]	none	117/340 (34.4%)	188/340 (55.3%)	RR 0.29 (0.03 to 2.84)	393 fewer per 1000 (from 536 fewer to 1000 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV	No ECV	Relative (95% CI)	Absolute		
3‡	randomised trials	serious[3]	very serious[7]	no serious indirectness	serious[8]	none	56/370 (15.1%)	80/370 (21.6%)	RR 0.52 (0.23 to 1.2)	104 fewer per 1000 (from 166 fewer to 43 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU												
1 (Rita 2011)	randomised trials	serious[3]	no serious inconsistency[9]	no serious indirectness	very serious[6]	none	3/30 (10%)	6/30 (20%)	RR 0.50 (0.14 to 1.82)	100 fewer per 1000 (from 172 fewer to 164 more)	⊕OOO VERY LOW	CRITICAL
Fetal death after 36+0 weeks gestation												
3‡	randomised trials	serious[3]	no serious inconsistency[4]	no serious indirectness	very serious[6]	none	1/370 (0.27%)	4/370 (1.1%)	Peto OR 0.29 (0.05 to 1.73)	8 fewer per 1000 (from 10 fewer to 8 more)	⊕OOO VERY LOW	CRITICAL
Apgar score <7 at 5 minutes												
2‡	randomised trials	serious[10]	no serious inconsistency	no serious indirectness	very serious[6]	none	1/60 (1.7%)	4/60 (6.7%)	Peto OR 0.28 (0.04 to 1.7)	47 fewer per 1000 (from 64 fewer to 42 more)	⊕OOO VERY LOW	IMPORTANT

CI: confidence interval; ECV: external cephalic version; NICU: neonatal intensive care unit; OR: odds ratio; RR: risk ratio; SCBU: special care baby unit
[1] Evidence downgraded 1 level due to unclear risk of reporting and other biases in all studies. Unclear risk of selection bias in 1 study.
[2] Although there is some heterogeneity (i2=46%), evidence is not downgraded because results favour same side.
[3] Evidence downgraded by 1 level due to unclear risk of reporting and other biases in all studies. Unclear risk of selection bias in two studies. Unclear risk of performance bias in one study.
[4] Downgraded 1 level due to moderate heterogeneity (i2=/>50%), which is unexplained by sub-group analysis.
[5] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (1.25).
[6] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[7] Downgraded 2 levels due to very serious heterogeneity (i2=/>80%), which is unexplained by sub-group analysis.
[8] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (0.8).
[9] This is not applicable as there is only one study contributing to the comparison.
[10] Evidence downgraded by 1 level due to unclear risk of reporting and other biases in all studies. Unclear risk of selection and performance bias in one study.
‡ For references see corresponding Forest plot

Table 8: ECV + Amnioinfusion vs ECV for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Amnioinfusion	ECV only	Relative (95% CI)	Absolute		
Cephalic presentation in labour												
1 (Diguisto 2018)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	12/59 (20.3%)	7/60 (11.7%)	RR 1.74 (0.74 to 4.12)	86 more per 1000 (from 30 fewer to 364 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section												
1 (Diguisto 2018)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[4]	none	41/59 (69.5%)	44/60 (73.3%)	RR 0.95 (0.75 to 1.19)	37 fewer per 1000 (from 183 fewer to 139 more)	⊕⊕OO LOW	CRITICAL

CI: confidence interval; ECV: external cephalic version; RR: risk ratio
[1] Evidence downgraded by 1 level due to unclear risk of selection, performance, and other biases.
[2] This is not applicable as there is only one study contributing to the comparison.
[3] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[4] Evidence downgraded by 1 level because 95% CI crosses 1 default MIDs for dichotomous outcomes (0.8).

Table 9: ECV + Anaesthesia vs ECV for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Anaesthesia	ECV only	Relative (95% CI)	Absolute		
Cephalic presentation in labour												
2‡	randomised trials	serious[1]	very serious[2]	serious[3]	very serious[4]	none	52/104 (50%)	45/106 (42.5%)	RR 1.16 (0.56 to 2.41)	68 more per 1000 (from 187 fewer to 599 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Cephalic vaginal birth												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Anaesthesia	ECV only	Relative (95% CI)	Absolute		
5‡	randomised trials	serious[5]	very serious[2]	very serious[6]	very serious[4]	none	134/222 (60.4%)	116/213 (54.5%)	RR 1.16 (0.77 to 1.74)	87 more per 1000 (from 125 fewer to 403 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Breech vaginal birth - 3mL 2% Lidocaine + Epinephrine and 10 mL 2% Lidocaine + 100 mg Fentanyl												
1 (Mancuso 2000)	randomised trials	serious[7]	no serious inconsistency[8]	serious[3]	very serious[4]	none	1/54 (1.9%)	3/54 (5.6%)	RR 0.33 (0.04 to 3.1)	37 fewer per 1000 (from 53 fewer to 117 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section												
3‡	randomised trials	no serious risk of bias[9]	very serious[10]	serious[3]	very serious[4]	none	49/137 (35.8%)	62/126 (49.2%)	RR 0.76 (0.42 to 1.38)	118 fewer per 1000 (from 285 fewer to 187 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU - 2% Lidocaine + Epinephrine												
1 (Schorr 1997)	randomised trials	no serious risk of bias[9]	no serious inconsistency[8]	serious[3]	no serious imprecision[11]	none	35	34	-	MD 1.8 lower (2.53 to 1.07 lower)	⊕⊕⊕O MODERATE	CRITICAL
Apgar score <7 at 5 minutes- 0.015mg Fentanyl + 1.8 mL 0.5% Bupivacaine												
1 (Khaw 2015)	randomised trials	no serious risk of bias	no serious inconsistency[8]	no serious indirectness	very serious[12]	none	0/63 (0%)	0/63 (0%)	RD 0 (-0.03 to 0.03)	0 fewer per 1000 (from 30 fewer to 30 more)	⊕⊕OO LOW	IMPORTANT

CI: confidence interval; ECV: external cephalic version; MD: mean difference; NICU: neonatal intensive care unit; RD: risk difference; RR: risk ratio; SCBU: special care baby unit

[1] Evidence downgraded by 1 level due to all studies having an unclear risk of reporting and other biases, and one study having an unclear risk of performance bias.

[2] Downgraded by 2 levels due to very serious heterogeneity (i2=/>80%), which is unexplained by sub-group analysis.

[3] Evidence downgraded by 1 level due to some participants presenting with transverse lie in one study.

[4] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).

[5] Evidence downgraded by 1 level due to high risk of performance bias in one study; unclear risk of other biases in all studies; unclear risk of reporting bias in three studies; unclear risk of performance bias in one study; and unclear risk of selection bias is one study.

[6] Evidence downgraded by 2 levels due to some participants presenting with transverse lie in two studies; participants only multiparous in one study.

[7] Evidence downgraded by 1 level due to unclear risk of performance, reporting, and other biases in the study.

[8] This is not applicable as there is only one study contributing to the comparison.

[9] *Although there is unclear risk of reporting and other biases, the evidence overall has a low risk of bias.*
[10] *Downgraded by 2 levels due to serious heterogeneity (i2=/>70%), which is unexplained by sub-group analysis.*
[11] *MID: 0.5x control group SD, for admission to SCBU/NICU= 0.8*
[12] *Evidence downgraded by 2 levels due to very serious imprecision surrounding small sample size.*
‡ *For references see corresponding Forest plot*

Table 10: ECV + Anaesthesia vs ECV + Anaesthesia for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Anaesthesia	ECV + Anaesthesia	Relative (95% CI)	Absolute		
Method of birth- Cephalic vaginal birth- 2.5mg Bupivacaine + 0.015mg Fentanyl - 5.0mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	26/60 (43.3%)	23/60 (38.3%)	RR 1.13 (0.73 to 1.74)	50 more per 1000 (from 103 fewer to 284 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Cephalic vaginal birth- 2.5mg Bupivacaine + 0.015mg Fentanyl - 7.5mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[4]	none	23/60 (38.3%)	28/59 (47.5%)	RR 0.81 (0.53 to 1.23)	90 fewer per 1000 (from 223 fewer to 109 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Cephalic vaginal birth- 2.5mg Bupivacaine + 0.015mg Fentanyl - 10mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	23/60 (38.3%)	24/60 (40%)	RR 0.96 (0.61 to 1.5)	16 fewer per 1000 (from 156 fewer to 200 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Cephalic vaginal birth- 2.5mg Bupivacaine + 0.015mg Fentanyl - 0.05mg Fentanyl												
1 (Sullivan 2009)	randomised trials	very serious[5]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	12/48 (25%)	17/47 (36.2%)	RR 0.69 (0.37 to 1.28)	112 fewer per 1000 (from 228 fewer to 101 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Cephalic vaginal birth- 5.0mg Bupivacaine + 0.015mg Fentanyl - 7.5mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[4]	none	23/60 (38.3%)	28/59 (47.5%)	RR 0.81 (0.53 to 1.23)	90 fewer per 1000 (from 223 fewer to 109 more)	⊕⊕OO LOW	CRITICAL

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Anaesthesia	ECV + Anaesthesia	Relative (95% CI)	Absolute		
Method of birth- Cephalic vaginal birth- 5.0mg Bupivacaine + 0.015mg Fentanyl - 10mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	23/60 (38.3%)	24/60 (40%)	RR 0.96 (0.61 to 1.5)	16 fewer per 1000 (from 156 fewer to 200 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Cephalic vaginal birth- 7.5mg Bupivacaine + 0.015mg Fentanyl - 10mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	28/59 (47.5%)	24/60 (40%)	RR 1.19 (0.79 to 1.79)	76 more per 1000 (from 84 fewer to 316 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section- 2.5mg Bupivacaine + 0.015mg Fentanyl - 5.0mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[4]	none	34/60 (56.7%)	37/60 (61.7%)	RR 0.92 (0.68 to 1.24)	49 fewer per 1000 (from 197 fewer to 148 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Caesarean section- 2.5mg Bupivacaine + 0.015mg Fentanyl - 7.5mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	34/60 (56.7%)	31/59 (52.5%)	RR 1.08 (0.78 to 1.5)	42 more per 1000 (from 116 fewer to 263 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section- 2.5mg Bupivacaine + 0.015mg Fentanyl - 10mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	34/60 (56.7%)	36/60 (60%)	RR 0.94 (0.7 to 1.28)	36 fewer per 1000 (from 180 fewer to 168 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section- 5.0mg Bupivacaine + 0.015mg Fentanyl - 7.5mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[6]	none	37/60 (61.7%)	31/59 (52.5%)	RR 1.17 (0.86 to 1.61)	89 more per 1000 (from 74 fewer to 321 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Caesarean section- 5.0mg Bupivacaine + 0.015mg Fentanyl - 10mg Bupivacaine + 0.015mg Fentanyl												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Anaesthesia	ECV + Anaesthesia	Relative (95% CI)	Absolute		
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	very serious[3]	none	37/60 (61.7%)	36/60 (60%)	RR 1.03 (0.77 to 1.37)	18 more per 1000 (from 138 fewer to 222 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section- 7.5mg Bupivacaine + 0.015mg Fentanyl - 10mg Bupivacaine + 0.015mg Fentanyl												
1 (Chalifoux 2017)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[4]	none	31/59 (52.5%)	36/60 (60%)	RR 0.88 (0.64 to 1.2)	72 fewer per 1000 (from 216 fewer to 120 more)	⊕⊕OO LOW	CRITICAL

CI: confidence interval; ECV: external cephalic version; RR: risk ratio
[1] Evidence downgraded by 1 level due to serious risk of performance and attrition bias.
[2] This is not applicable as there is only one study contributing to the comparison.
[3] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[4] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (0.8).
[5] Evidence downgraded by 2 levels due to high risk of performance, detection, and other biases, and unclear risk of reporting bias.
[6] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (1.25).

Table 11: ECV + β2 agonist vs control (no treatment) for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Beta-2 agonist	Control	Relative (95% CI)	Absolute		
Cephalic presentation in labour												
2‡	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	106/128 (82.8%)	22/128 (17.2%)	RR 4.83 (3.27 to 7.11)	658 more per 1000 (from 390 more to 1000 more)	⊕⊕⊕O MODERATE	CRITICAL
Method of birth- Cephalic vaginal birth												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Beta-2 agonist	Control	Relative (95% CI)	Absolute		
3‡	randomised trials	very serious[2]	very serious[3]	no serious indirectness	no serious imprecision	none	67/106 (63.2%)	30/159 (18.9%)	RR 2.03 (0.22 to 19.01)	194 more per 1000 (from 147 lower to 1000 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Breech vaginal birth												
4‡	randomised trials	very serious[2]	serious[4]	no serious indirectness	no serious imprecision	none	32/249 (12.9%)	104/264 (39.4%)	RR 0.38 (0.2 to 0.69)	244 fewer per 1000 (from 122 fewer to 315 fewer)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section												
4‡	randomised trials	very serious[2]	no serious inconsistency[5]	no serious indirectness	no serious imprecision	none	62/249 (24.9%)	126/264 (47.7%)	RR 0.53 (0.41 to 0.67)	224 fewer per 1000 (from 157 fewer to 282 fewer)	⊕⊕OO LOW	CRITICAL
Admission to SCBU/NICU- 0.005mg Terbutaline												
1 (van Dorsten 1981)	randomised trials	serious[6]	no serious inconsistency[7]	no serious indirectness	very serious[8]	none	0/25 (0%)	0/23 (0%)	RD 0 (-0.08 to 0.08)	0 fewer per 1000 (from 80 fewer to 80 more)	⊕OOO VERY LOW	CRITICAL
Fetal death after 36+0 weeks gestation												
3‡	randomised trials	very serious[9]	no serious inconsistency	no serious indirectness	very serious[10]	none	1/159 (0.63%)	2/162 (1.2%)	RD -0.01 (-0.03 to 0.02)	12 fewer per 1000 (from 12 fewer to 13 fewer)	⊕OOO VERY LOW	CRITICAL
Apgar score <7 at 5 minutes												
2‡	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[10]	none	8/103 (7.8%)	10/105 (9.5%)	Peto OR 0.80 (0.31 to 2.1)	19 fewer per 1000 (from 66 fewer to 105 more)	⊕OOO VERY LOW	IMPORTANT

CI: confidence interval; ECV: external cephalic version; NICU: neonatal intensive care unit; OR: odds ratio; RD: risk difference; RR: risk ratio; SCBU: special care baby unit
[1] Evidence downgraded 1 level due to unclear risk of reporting and other biases in all studies and unclear risk of selection bias in one study.
[2] Evidence downgraded by 2 levels due to unclear risk of reporting bias in all studies; unclear risk of other biases in 3 studies and high risk of other bias in 1 study; unclear risk of selection bias in 2 studies; high risk of performance bias in 2 studies; unclear risk of detection bias in 2 studies; and unclear risk of attrition bias in 1 study.
[3] Downgraded 2 levels due to very serious heterogeneity (i2=/> 80%).

[4] *Downgraded 1 level due to moderate heterogeneity (i2=/>50%),*
[5] *Evidence is not downgraded because there is very little heterogeneity (i2=25%).*
[6] *Evidence downgraded 1 level due to unclear risk of selection, reporting and other biases.*
[7] *This is not applicable as there is only one study contributing to the comparison.*
[8] *Evidence downgraded by 2 levels due to very serious imprecision surrounding small sample size.*
[9] *Evidence downgraded by 2 levels due to unclear risk of reporting and other biases in all studies; unclear risk of selection bias in 2 studies; unclear risk of detection bias in one study; and high risk of performance bias in 1 study.*
[10] *Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).*
‡ *For references see corresponding Forest plot*

Table 12: ECV + β2 agonist vs ECV only for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Beta-2 agonist	ECV only	Relative (95% CI)	Absolute		
Method of birth - Cephalic vaginal birth												
2‡	randomised trials	very serious[1]	very serious[2]	no serious indirectness	very serious[3]	none	57/87 (65.5%)	39/85 (45.9%)	RR 1.32 (0.67 to 2.62)	147 more per 1000 (from 151 fewer to 743 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Breech vaginal birth - 0.2mg Ritodrine												
1 (Robertson 1987)	randomised trials	serious[4]	no serious inconsistency[5]	no serious indirectness	very serious[3]	none	4/30 (13.3%)	5/28 (17.9%)	RR 0.75 (0.22 to 2.5)	45 fewer per 1000 (from 139 fewer to 268 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section												
2‡	randomised trials	very serious[1]	very serious[6]	no serious indirectness	very serious[3]	none	26/87 (29.9%)	41/85 (48.2%)	RR 0.79 (0.27 to 2.28)	101 fewer per 1000 (from 352 fewer to 617 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU - 0.1mg Salbutamol												
1 (Vani 2009)	randomised trials	serious[7]	no serious inconsistency[5]	no serious indirectness	very serious[3]	none	3/57 (5.3%)	3/57 (5.3%)	RR 1 (0.21 to 4.75)	0 fewer per 1000 (from 42 fewer to 197 more)	⊕OOO VERY LOW	CRITICAL

CI: confidence interval; ECV: external cephalic version; NICU: neonatal intensive care unit; RR: risk ratio; SCBU: special care baby unit

[1] Evidence downgraded by 2 levels due to high risk of selection bias in one study and unclear risk of performance, reporting, and other biases in all studies; unclear risk of selection bias in one study.
[2] Downgraded by 2 levels due to very serious heterogeneity (i2=/>80%), which is unexplained by sub-group analysis.
[3] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[4] Evidence downgraded by 1 level due to high risk of selection bias, and unclear risk of selection, performance, reporting, and other biases in the study.
[5] This is not applicable as there is only one study contributing to the comparison.
[6] Downgraded by 2 levels due to serious heterogeneity (i2=/>70%), which is unexplained by sub-group analysis.
[7] Evidence downgraded by 1 level due to unclear risk of performance, reporting, and other biases in the study.
‡ For references see corresponding Forest plot

Table 13: ECV + β2 agonist vs ECV + placebo for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Beta-2 agonist	ECV + Placebo	Relative (95% CI)	Absolute		
Cephalic presentation in labour												
2‡	randomised trials	no serious risk of bias[1]	very serious[2]	serious[3]	very serious[4]	none	32/77 (41.6%)	14/69 (20.3%)	RR 1.54 (0.24 to 9.76)	110 more per 1000 (from 154 fewer to 1000 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Cephalic vaginal birth												
2‡	randomised trials	no serious risk of bias[1]	very serious[2]	no serious indirectness	very serious[4]	none	34/67 (50.7%)	18/58 (31%)	RR 1.27 (0.41 to 3.89)	84 more per 1000 (from 183 fewer to 897 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Breech vaginal birth												
2‡	randomised trials	no serious risk of bias[1]	no serious inconsistency	serious[3]	very serious[4]	none	6/114 (5.3%)	6/113 (5.3%)	RR 1 (0.33 to 2.97)	0 fewer per 1000 (from 36 fewer to 105 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section												
4‡	randomised trials	no serious risk of bias[1]	no serious inconsistency	serious[3]	serious[5]	none	149/267 (55.8%)	186/265 (70.2%)	RR 0.81 (0.72 to 0.92)	133 fewer per 1000 (from 56 fewer to 197 fewer)	⊕⊕OO LOW	CRITICAL
Admission to SCBU/NICU												

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Beta-2 agonist	ECV + Placebo	Relative (95% CI)	Absolute		
2‡	randomised trials	no serious risk of bias[1]	no serious inconsistency	serious[3]	very serious[4]	none	3/77 (3.9%)	3/69 (4.3%)	RR 0.78 (0.17 to 3.63)	10 fewer per 1000 (from 36 fewer to 114 more)	⊕OOO VERY LOW	CRITICAL
Apgar score <7 at 5 minutes- 3mg Ritodrine												
1 (Impey 2005)	randomised trials	no serious risk of bias[1]	no serious inconsistency[6]	serious[3]	very serious[7]	none	0/62 (0%)	0/62 (0%)	RD 0 (-0.03 to 0.03)	0 fewer per 1000 (from 30 fewer to 30 more)	⊕OOO VERY LOW	IMPORTANT

CI: confidence interval; ECV: external cephalic version; NICU: neonatal intensive care unit; RD: risk difference; RR: risk ratio; SCBU: special care baby unit
[1] Although there is unclear risk of reporting and other biases, the evidence overall has a low risk of bias.
[2] Downgraded by 2 levels due to very serious heterogeneity (i2=/>80%), which is unexplained by sub-group analysis.
[3] Evidence downgraded by 1 level because researchers selected participants with a previous unsuccessful ECV attempt with no additional component only.
[4] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[5] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (0.8).
[6] This is not applicable as there is only one study contributing to the comparison.
[7] Evidence downgraded by 2 levels due to very serious imprecision surrounding small sample size.
‡ For references see corresponding Forest plot

Table 14: ECV + Ca^{2+} channel blocker vs ECV + placebo only for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Ca2+ channel blocker	ECV + Placebo	Relative (95% CI)	Absolute		
Cephalic presentation in labour - 10mg Nifedipine												
1 (Kok 2008)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	serious[2]	none	67/154 (43.5%)	60/156 (38.5%)	RR 1.13 (0.87 to 1.48)	50 more per 1000 (from 50 fewer to 185 more)	⊕⊕⊕O MODERATE	CRITICAL

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Ca2+ channel blocker	ECV + Placebo	Relative (95% CI)	Absolute		
Method of birth- Cephalic vaginal delivery - 10mg Nifedipine												
1 (Kok 2008)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	serious[3]	none	75/154 (48.7%)	84/156 (53.8%)	RR 0.9 (0.73 to 1.12)	54 fewer per 1000 (from 145 fewer to 65 more)	⊕⊕⊕O MODERATE	CRITICAL
Method of birth- Caesarean section - 10mg Nifedipine												
1 (Kok 2008)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	serious[2]	none	79/154 (51.3%)	72/156 (46.2%)	RR 1.11 (0.88 to 1.4)	51 more per 1000 (from 55 fewer to 185 more)	⊕⊕⊕O MODERATE	CRITICAL
Admission to SCBU/NICU - 10mg Nifedipine												
1 (Kok 2008)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	no serious imprecision[4]	none	154	156	-	MD 0.2 lower (0.7 lower to 0.3 higher)	⊕⊕⊕⊕ HIGH	CRITICAL
Fetal death after 36+0 weeks gestation- 10mg Nifedipine												
1 (Kok 2008)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	serious[5]	none	0/154 (0%)	0/156 (0%)	RD 0 (-0.10 to 0.10)	0 fewer per 1000 (from 10 fewer to 10 more)	⊕⊕⊕O MODERATE	CRITICAL
Apgar score <7 at 5 minutes - 10mg Nifedipine												
1 (Kok 2008)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[6]	none	1/154 (0.65%)	2/156 (1.3%)	Peto OR 0.52 (0.05 to 5.02)	6 fewer per 1000 (from 12 fewer to 48 more)	⊕⊕OO LOW	IMPORTANT

Ca: calcium; CI: confidence interval; ECV: external cephalic version; MD: mean difference; NICU: neonatal intensive care unit; OR: odds ratio; RD: risk difference; RR: risk ratio; SCBU: special care baby unit

[1] This is not applicable as there is only one study contributing to the comparison.

[2] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (1.25).

[3] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (0.8).

[4] MID: 0.5x control group SD, for admission to SCBU/NICU= 1.15

[5] *Evidence downgraded by 1 level due to serious imprecision surrounding small sample size.*
[6] *Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).*

Table 15: ECV + Ca^{2+} channel blocker vs ECV + β2 agonist for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Ca2+ channel blocker	ECV + Beta-2 agonist	Relative (95% CI)	Absolute		
Cephalic presentation in labour - 10mg Nifedipine vs. 0.5mg Terbutaline												
1 (Collaris 2009)	randomised trials	no serious risk of bias	no serious inconsistency[1]	serious[2]	serious[3]	none	16/44 (36.4%)	27/46 (58.7%)	RR 0.62 (0.39 to 0.98)	223 fewer per 1000 (from 12 fewer to 358 fewer)	⊕⊕OO LOW	CRITICAL
Method of birth- Cephalic vaginal birth												
2‡	randomised trials	serious[4]	very serious[5]	serious[2]	serious[6]	none	31/63 (49.2%)	24/63 (38.1%)	RR 1.26 (0.55 to 2.89)	99 more per 1000 (from 171 fewer to 720 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean section												
2‡	randomised trials	serious[4]	no serious inconsistency	serious[2]	serious[6]	none	40/61 (65.6%)	31/71 (43.7%)	RR 1.42 (1.06 to 1.91)	183 more per 1000 (from 26 more to 397 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU												
2‡	randomised trials	serious[4]	no serious inconsistency	serious[2]	very serious[7]	none	1/87 (1.1%)	2/89 (2.2%)	Peto OR 0.53 (0.05 to 5.22)	10 fewer per 1000 (from 21 fewer to 85 more)	⊕OOO VERY LOW	CRITICAL
Apgar score <7 at 5 minutes												
2‡	randomised trials	serious[4]	no serious inconsistency	serious[2]	very serious[8]	none	0/87 (0%)	0/89 (0%)	RD 0 (-0.03 to 0.03)	0 fewer per 1000 (from 30 fewer to 30 more)	⊕OOO VERY LOW	IMPORTANT

Ca: calcium; CI: confidence interval; ECV: external cephalic version; NICU: neonatal intensive care unit; OR: odds ratio; RD: risk difference; RR: risk ratio; SCBU: special care baby unit
[1] This is not applicable as there is only one study contributing to the comparison.
[2] Evidence downgraded by 1 level due to some participants presenting with transverse lie in one study.
[3] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (0.8).
[4] Evidence downgraded by 1 level due to high risk of performance bias in one study; unclear risk of reporting bias in all studies; and unclear risk of other biases in one study.
[5] Downgraded by 2 levels due to serious heterogeneity (i2=/>70%), which is unexplained by sub-group analysis.
[6] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (1.25).
[7] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[8] Evidence downgraded by 2 levels due to very serious imprecision surrounding small sample size.
[‡] For references see corresponding Forest plot

Table 16: ECV + μ-receptor agonist vs ECV only for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Mu receptor agonist	ECV only	Relative (95% CI)	Absolute		
Method of birth- Cephalic vaginal birth - 0.0001mg Remifentanil												
1 (Khaw 2015)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	no serious imprecision	none	32/40 (80%)	32/40 (80%)	RR 1 (0.8 to 1.24)	0 fewer per 1000 (from 160 fewer to 192 more)	⊕⊕⊕⊕ HIGH	CRITICAL
Method of birth- Caesarean section - 0.0001mg Remifentanil												
1 (Khaw 2015)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	8/40 (20%)	8/40 (20%)	RR 1 (0.42 to 2.4)	0 fewer per 1000 (from 116 fewer to 280 more)	⊕⊕OO LOW	CRITICAL
Apgar score <7 at 5 minutes- 0.0001mg Remifentanil												
1 (Khaw 2015)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[3]	none	0/63 (0%)	0/63 (0%)	RD 0 (-0.03 to 0.03)	0 fewer per 1000 (from 30 fewer to 30 more)	⊕⊕OO LOW	IMPORTANT

CI: confidence interval; ECV: external cephalic version; RD: risk difference; RR: risk ratio
[1] This is not applicable as there is only one study contributing to the comparison.
[2] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[3] Evidence downgraded by 2 levels due to very serious imprecision surrounding small sample size.

Table 17: ECV + μ-receptor agonist vs ECV + placebo only for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Mu receptor agonist	ECV + Placebo	Relative (95% CI)	Absolute		
Method of birth- Cephalic vaginal birth after successful ECV - 0.0001mg Remifentanil												
2‡	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	51/58 (87.9%)	35/40 (87.5%)	RR 1.00 (0.86 to 1.17)	0 fewer per 1000 (from 122 fewer to 149 more)	⊕⊕⊕⊕ HIGH	CRITICAL
Method of birth- Caesarean section after successful ECV - 0.0001mg Remifentanil												
2‡	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[1]	none	7/58 (12.1%)	5/40 (12.5%)	RR 0.97 (0.33 to 2.84)	4 fewer per 1000 (from 84 fewer to 230 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Breech vaginal birth after unsuccessful ECV - 0.0001mg Remifentanil												
3‡	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	0/79 (0%)	18/107 (16.8%)	RR 0.1 (0.02 to 0.53)	151 fewer per 1000 (from 79 fewer to 165 fewer)	⊕⊕⊕⊕ HIGH	CRITICAL
Method of birth- Caesarean section after unsuccessful ECV - 0.0001mg Remifentanil												
3‡	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[2]	none	79/79 (100%)	89/107 (83.2%)	RR 1.19 (1.09 to 1.31)	158 more per 1000 (from 75 more to 258 more)	⊕⊕⊕O MODERATE	CRITICAL
Fetal death after 36+0 weeks gestation- 0.0001mg Remifentanil												
1 (Wang 2017)	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[3]	none	0/69 (0%)	0/68 (0%)	RD 0 (-0.03 to 0.03)	0 fewer per 1000 (from 30 fewer to 30 more)	⊕⊕OO LOW	CRITICAL

CI: confidence interval; ECV: external cephalic version; RD: risk difference; RR: risk ratio
[1] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[2] Evidence downgraded by 1 level because 95% CI crosses 1 MID for dichotomous outcomes (1.25).
[3] Evidence downgraded by 2 levels due to very serious imprecision surrounding small sample size.
‡ For references see corresponding Forest plot

Table 18: ECV + μ-receptor agonist vs ECV + anaesthesia for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Mu receptor agonist	ECV + Anaesthesia	Relative (95% CI)	Absolute		
Method of birth- Cephalic vaginal birth - 0.0001mg Remifentanil vs. 0.015mg Fentanyl + 1.8 mL 0.5% Bupivacaine												
1 (Khaw 2015)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	serious[2]	none	32/40 (80%)	40/52 (76.9%)	RR 1.04 (0.84 to 1.29)	31 more per 1000 (from 123 fewer to 223 more)	⊕⊕⊕O MODERATE	CRITICAL
Method of birth- Caesarean section												
2‡	randomised trials	serious[3]	no serious inconsistency	serious[4]	very serious[5]	none	30/100 (30%)	36/112 (32.1%)	RR 0.9 (0.61 to 1.34)	32 fewer per 1000 (from 125 fewer to 109 more)	⊕OOO VERY LOW	CRITICAL
Admission to SCBU/NICU - 1mg Remifentanil vs. Nitrous oxide												
1 (Burgos 2016)	randomised trials	serious[6]	no serious inconsistency[1]	serious[4]	very serious[5]	none	2/60 (3.3%)	1/69 (1.4%)	RR 2.3 (0.21 to 24.74)	19 more per 1000 (from 11 fewer to 344 more)	⊕OOO VERY LOW	CRITICAL
Apgar score <7 at 5 minutes												
2‡	randomised trials	serious[3]	no serious inconsistency	serious[4]	serious[7]	none	0/123 (0%)	0/132 (0%)	RD 0 (-0.02 to 0.02)	0 fewer per 1000 (from 20 fewer to 20 more)	⊕⊕OO LOW	IMPORTANT

CI: confidence interval; ECV: external cephalic version; NICU: neonatal intensive care unit; RD: risk difference; RR: risk ratio; SCBU: special care baby unit
[1] *This is not applicable as there is only one study contributing to the comparison.*
[2] *Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (1.25).*
[3] *Evidence downgraded by 1 level due to unclear risk of other biases in all studies; unclear risk of performance and detection bias in one study.*
[4] *Evidence downgraded by 1 level due to some participants presenting with transverse lie in one study.*
[5] *Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).*
[6] *Evidence downgraded by 1 level due to unclear risk of performance, detection, and other biases.*
[7] *Evidence downgraded by 1 level due to serious imprecision surrounding small sample size.*
‡ *For references see corresponding Forest plot*

Table 19: ECV + nitric oxide donor vs ECV + placebo only for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Nitric oxide donor	ECV + Placebo	Relative (95% CI)	Absolute		
Cephalic presentation in labour												
3‡	randomised trials	serious[1]	very serious[2]	serious[3]	very serious[4]	none	48/115 (41.7%)	46/109 (42.2%)	RR 1.13 (0.59 to 2.16)	55 more per 1000 (from 173 fewer to 490 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Cephalic vaginal delivery - 0.4mg Nitroglycerin												
1 (Bujold 2003a)	randomised trials	serious[5]	no serious inconsistency[6]	no serious indirectness	serious[7]	none	19/50 (38%)	24/49 (49%)	RR 0.78 (0.49 to 1.22)	108 fewer per 1000 (from 250 fewer to 108 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Caesarean section - 0.1mg Nitroglycerin												
2‡	randomised trials	no serious risk of bias	no serious inconsistency	serious[3]	serious[7]	none	44/65 (67.7%)	49/60 (81.7%)	RR 0.83 (0.68 to 1.01)	139 fewer per 1000 (from 261 fewer to 8 more)	⊕⊕OO LOW	CRITICAL

CI: confidence interval; ECV: external cephalic version; RR: risk ratio

[1] Evidence downgraded 1 level due to unclear risk of other biases in all studies; unclear risk of detection bias in two studies; and unclear risk of selection bias in one study.

[2] Downgraded by 2 levels due to serious heterogeneity (i2=/>70%), which is unexplained by sub-group analysis.

[3] Evidence downgraded 1 level because of two studies analysing either only nulliparous women or multiparous women.

[4] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).

[5] Evidence downgraded 1 level due to unclear risk of selection, reporting, and other biases.

[6] This is not applicable as there is only one study contributing to the comparison.

[7] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (0.80).

‡ For references see corresponding Forest plot

Table 20: ECV + nitric oxide donor vs ECV + β2 agonist for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Nitric oxide donor	ECV + Beta-2 agonist	Relative (95% CI)	Absolute		
Cephalic presentation in labour - 0.4mg Nitroglycerin vs. 10mg Ritodrine												
1 (Bujold 2003b)	randomised trials	serious[1]	no serious inconsistency[2]	no serious indirectness	serious[3]	none	9/36 (25%)	17/38 (44.7%)	RR 0.56 (0.29 to 1.09)	197 fewer per 1000 (from 318 fewer to 40 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Cephalic vaginal delivery												
2‡	randomised trials	serious[4]	serious[5]	no serious indirectness	very serious[6]	none	13/43 (30.2%)	22/54 (40.7%)	RR 0.98 (0.47 to 2.05)	8 fewer per 1000 (from 216 fewer to 428 more)	⊕OOO VERY LOW	CRITICAL
Method of birth- Caesarean birth - 0.2mg Nitroglycerin vs. 0.25mg Terbutaline												
1 (El-Sayed 2004)	randomised trials	serious[7]	no serious inconsistency[2]	no serious indirectness	very serious[6]	none	20/30 (66.7%)	18/29 (62.1%)	RR 1.07 (0.73 to 1.57)	43 more per 1000 (from 168 fewer to 354 more)	⊕OOO VERY LOW	CRITICAL

CI: confidence interval; ECV: external cephalic version; RR: risk ratio
[1] Evidence downgraded by 1 level due to serious risk of detection bias; and unclear risk of selection, reporting, and other biases.
[2] This is not applicable as there is only one study contributing to the comparison.
[3] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (0.8).
[4] Evidence downgraded by 1 level due to serious risk of detection bias in one study; and unclear risk of selection, reporting and other biases in all studies.
[5] Downgraded by 1 level due to moderate heterogeneity (i2=/>50%).
[6] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).
[7] Evidence downgraded by 1 level due to unclear risk of selection, reporting, and other biases.
‡ For references see corresponding Forest plot

Table 21: ECV + talcum powder vs ECV + gel for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	ECV + Talcum powder	ECV + Gel	Relative (95% CI)	Absolute		
Cephalic presentation in labour												
1 (Vallikkannu 2014)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	24/48 (50%)	23/47 (48.9%)	RR 1.02 (0.68 to 1.53)	10 more per 1000 (from 157 fewer to 259 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Cephalic vaginal delivery												
1 (Vallikkannu 2014)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	21/48 (43.8%)	19/47 (40.4%)	RR 1.08 (0.67 to 1.74)	32 more per 1000 (from 133 fewer to 299 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Caesarean section												
1 (Vallikkannu 2014)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	27/48 (56.3%)	28/47 (59.6%)	RR 0.94 (0.67 to 1.33)	36 fewer per 1000 (from 197 fewer to 197 more)	⊕⊕OO LOW	CRITICAL
Admission to SCBU/NICU												
1 (Vallikkannu 2014)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	4/48 (8.3%)	2/47 (4.3%)	RR 1.96 (0.38 to 10.19)	41 more per 1000 (from 26 fewer to 391 more)	⊕⊕OO LOW	CRITICAL

CI: confidence interval; ECV: external cephalic version; NICU: neonatal intensive care unit; RR: risk ratio; SCBU: special care baby unit

[1] This is not applicable as there is only one study contributing to the comparison.

[2] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).

Table 22: Postural management vs no postural management for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Postural management	No postural management	Relative (95% CI)	Absolute		
Cephalic presentation in labour												
1 (Chenia 1987)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	16/39 (41%)	12/37 (32.4%)	RR 1.26 (0.7 to 2.3)	84 more per 1000 (from 97 fewer to 422 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Cephalic vaginal delivery												
1 (Chenia 1987)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	14/39 (35.9%)	12/37 (32.4%)	RR 1.11 (0.59 to 2.07)	36 more per 1000 (from 133 fewer to 347 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Breech vaginal delivery												
1 (Chenia 1987)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	17/39 (43.6%)	14/37 (37.8%)	RR 1.15 (0.67 to 1.99)	57 more per 1000 (from 125 fewer to 375 more)	⊕⊕OO LOW	CRITICAL
Method of birth- Caesarean delivery												
1 (Chenia 1987)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	8/39 (20.5%)	11/37 (29.7%)	RR 0.69 (0.31 to 1.52)	92 fewer per 1000 (from 205 fewer to 155 more)	⊕⊕OO LOW	CRITICAL
Apgar score <7 at 5 minutes												
1 (Chenia 1987)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[2]	none	1/39 (2.6%)	4/37 (10.8%)	RR 0.24 (0.03 to 2.03)	82 fewer per 1000 (from 105 fewer to 111 more)	⊕⊕OO LOW	IMPORTANT

CI: confidence interval; ECV: external cephalic version; RR: risk ratio
[1] This is not applicable as there is only one study contributing to the comparison.
[2] Evidence downgraded by 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).

Table 23: Postural management + ECV vs ECV only for malpresentation (breech) management

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Postural management + ECV	ECV only	Relative (95% CI)	Absolute		
Method of birth- Caesarean section												
1 (Smith 1999)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	serious[2]	none	35/51 (68.6%)	32/49 (65.3%)	RR 1.05 (0.8 to 1.38)	33 more per 1000 (from 131 fewer to 248 more)	⊕⊕⊕O MODERATE	CRITICAL
Apgar score <7 at 5 minutes												
1 (Smith 1999)	randomised trials	no serious risk of bias	no serious inconsistency[1]	no serious indirectness	very serious[3]	none	0/51 (0%)	1/49 (2%)	Peto OR 0.13 (0 to 6.55)	18 fewer per 1000 (from 20 fewer to 100 more)	⊕⊕OO LOW	IMPORTANT

CI: confidence interval; ECV: external cephalic version; OR: odds ratio; RR: risk ratio
[1] This is not applicable as there is only one study contributing to the comparison.
[2] Evidence downgraded by 1 level because 95% CI crosses 1 default MID for dichotomous outcomes (1.25).
[3] Evidence downgraded 2 levels because 95% CI crosses 2 default MIDs for dichotomous outcomes (0.8 and 1.25).

Appendix G – Economic evidence study selection

Economic evidence study selection for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

No economic evidence was identified which was applicable to this review question.

Appendix H – Economic evidence tables

Economic evidence tables for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

No economic evidence was identified which was applicable to this review question.

Appendix I – Economic evidence profiles

Economic evidence profiles for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

No economic evidence was identified which was applicable to this review question.

Appendix J – Economic analysis

Economic evidence analysis for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

No economic analysis was conducted for this review question.

Appendix K – Excluded studies

Excluded clinical and economic studies for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

Clinical studies

Table 24: Excluded studies

Study	Reason for exclusion
Ahmed, R. J., Gafni, A., Hutton, E. K., Early, E. C. V. Trial Collaborative Group, The Cost Implications in Ontario, Alberta, and British Columbia of Early Versus Delayed External Cephalic Version in the Early External Cephalic Version 2 (EECV2) Trial, Journal of Obstetrics & Gynaecology Canada: JOGCJ Obstet Gynaecol Can, 38, 235-245.e3, 2016	HE analysis.
Akhtar,N., Early versus late external cephalic version, Journal of Postgraduate Medical Institute, 27, 164-169, 2013	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36 0 weeks.
Albaladejo, M. I., Esquius, N. P., Trabado, C. R., Sabate, G. S., Marmol, R. U., Ventura, C. V., Brito, M. Z., Torres, M. D., Evaluation of the effectiveness of the moxibustion in non-cephalic presentations in pregnant women assisted in Primary Care, Matronas profesion, 18, 27â□□33, 2017	This study is not available in English.
American College of, Obstetricians, Gynecologists' Committee on Practice, Bulletins-Obstetrics, Practice Bulletin No. 161 Summary: External Cephalic Version, Obstetrics & GynecologyObstet Gynecol, 127, 412-3, 2016	Duplicate.
Annapoorna,V., Arulkumaran,S., Anandakumar,C., Chua,S., Montan,S., Ratnam,S.S., External cephalic version at term with tocolysis and vibroacoustic stimulation, International Journal of Gynaecology and Obstetrics, 59, 13-18, 1997	Study design is a non-randomised trial.
Bolaji, I., Alabi-Isama, L., Central neuraxial blockade-assisted external cephalic version in reducing caesarean section rate: systematic review and meta-analysis, Obstetrics & Gynecology International, 2009, 718981, 2009	Systematic review for ECV anaesthesia. Relevant references examined and included if appropriate.
Bue, L., Lauszus, F. F., Moxibustion did not have an effect in a randomised clinical trial for version of breech position, Danish Medical JournalDan Med J, 63, 2016	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.
Cardini F, Weixin, H, Moxibustion for correction of breech presentation: a randomized controlled trial, JAMA, 280, 1580â□“4, 1998	Duplicate.
Cardini, F., Lombardo, P., Regalia, A. L., Regaldo, G., Zanini, A., Negri, M. G., Panepuccia, L., Todros, T., A randomised controlled trial of moxibustion for breech presentation, BJOG, 112, 743â□□747, 2005	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.

Study	Reason for exclusion
Cardini, F., Weixin, H., Moxibustion for correction of breech presentation: a randomized controlled trial, JamaJama, 280, 1580-4, 1998	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.
Carvalho, B., Tan, J. M., MacArio, A., El-Sayed, Y. Y., Sultan, P., A cost analysis of neuraxial anesthesia to facilitate external cephalic version for breech fetal presentation, Anesthesia and Analgesia, 117, 155-159, 2013	HE analysis.
Chi, Ctr Trc, External cephalic version for breech presentation: a randomised controlled trial of anaesthetic interventions, Http://www.who.int/trialsearch/trial2.aspx?Trialid=chictr-trc-12002644, 2012	No full text available.
Chung, T., Neale, E., Lau, T. K., Rogers, M., A randomized, double blind, controlled trial of tocolysis to assist external cephalic version in late pregnancy, Acta Obstet Gynecol ScandActa obstetricia et gynecologica Scandinavica, 75, 720-4, 1996	The study does not report any outcomes that match our protocol.
Couceiro Naveira, E., Lopez Ramon, Y. Cajal C., Atosiban versus ritodrine as tocolytics in external cephalic version, Journal of Maternal-Fetal & Neonatal MedicineJ Matern Fetal Neonatal Med, 1-6, 2020	Study design is a non-randomised trial.
Coulon, C., Poleszczuk, M., Paty-Montaigne, M. H., Gascard, C., Gay, C., Houfflin-Debarge, V., Subtil, D., Version of breech fetuses by moxibustion with acupuncture: A randomized controlled trial, Obstetrics and Gynecology, 124, 32-39, 2014	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.
Coyle,M.E., Smith,C.A., Peat,B., Cephalic version by moxibustion for breech presentation, Cochrane database of systematic reviews (Online), 5, CD003928-, 2012	Systematic review for moxibustion. Relevant references examined and included if appropriate.
Delisle, Marie-France, Kamani, Allaudin, Douglas, Joanne, Bebbington, Michael, 124 Antepartum external cephalic version under spinal anesthesia: A randomized controlled trial, American Journal of Obstetrics & Gynecology, 185, S115, 2001	No full text article available.
Do, C. K., Smith, C. A., Dahlen, H., Bisits, A., Schmied, V., Moxibustion for cephalic version: A feasibility randomised controlled trial, BMC Complementary and Alternative Medicine, 11, 81, 2011	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.
Do, C., Smith, C., Dahlen, H., Bissets, A., Schmeid, V., Moxibustion for cephalic version: A feasibility study, Journal of Paediatrics and Child Health, 47, 37, 2011	Duplicate.
Dochez, V., Esbelin, J., Volteau, C., Winer, N., Efficiency of nitrous oxide in external cephalic version on success rate: A randomised controlled trial, BJOG: An International Journal of Obstetrics and Gynaecology, 124 (Supplement 1), 111, 2017	No full text available.
Founds, S. A., Clinical implications from an exploratory study of postural management of breech	Population did not include women with a longitudinal lie fetal malpresentation

Study	Reason for exclusion
presentation, Journal of midwifery & women's health, 51, 292â□□296, 2006	(breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.
Garcia-Mochon, L., Martin, J. J., Aranda-Regules, J. M., Rivas-Ruiz, F., Vas, J., Cost effectiveness of using moxibustion to correct non-vertex presentation, Acupuncture in Medicine, 33, 136-41, 2015	HE analysis.
Guittier,M.J., Klein,T.J., Dong,H., Andreoli,N., Irion,O., Boulvain,M., Side-effects of moxibustion for cephalic version of breech presentation, Journal of Alternative and Complementary Medicine, 14, 1231-1233, 2008	This article reports on an unfinished trial.
Guittier,M.J., Pichon,M., Dong,H., Irion,O., Boulvain,M., Moxibustion for breech version: a randomized controlled trial, Obstetrics and Gynecology, 114, 1034-1040, 2009	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.
Hofmeyr, G. J., Kulier, R., Cephalic version by postural management for breech presentation, Cochrane Database of Systematic Reviews, 10, CD000051, 2012	Cochrane review on postural management. Relevant references examined and included if appropriate.
Hofmeyr, G. J., Kulier, R., West, H. M., External cephalic version for breech presentation at term, Cochrane Database of Systematic Reviews, 2016, CD000083, 2015	Cochrane review on ECV. Relevant references examined and included if appropriate.
Hofmeyr, GJ, External cephalic version facilitation for breech presentation at term, Cochrane Database of Systematic Reviews, 2, 2001	Relevant references extracted and added to review.
Hofmeyr, GJ, External cephalic version for breech presentation before term, Cochrane Database of Systematic Reviews, 2, 2001	Relevant references extracted and included in review.
Hofmeyr, GJ, Interventions to help external cephalic version for breech presentation at term, Cochrane Database of Systematic Reviews, 4, 2002	Relevant references extracted and included in review.
Hofmeyr, GJ, Kulier, R, Cephalic version by postural management for breech presentation, Cochrane Database of Systematic Reviews, 1, 2003	Relevant references extracted and included in review.
Hunter, S., Hofmeyr, G. J., Kulier, R., Hands and knees posture in late pregnancy or labour for fetal malposition (lateral or posterior), Cochrane Database of Systematic Reviews, CD001063, 2007	Cochrane review for postural management. Relevant references examined and included if appropriate.
Hutton, E. K., Hannah, M. E., Ross, S. J., Delisle, M. F., Carson, G. D., Windrim, R., Ohlsson, A., Willan, A. R., Gafni, A., Sylvestre, G., Natale, R., Barrett, Y., Pollard, J. K., Dunn, M. S., Turtle, P., Early, E. C. V. Trial Collaborative Group, The Early External Cephalic Version (ECV) 2 Trial: an international multicentre randomised controlled trial of timing of ECV for breech pregnancies, BJOG: An International Journal of Obstetrics & GynaecologyBjog, 118, 564-77, 2011	Duplicate.
Hutton, E. K., Hannah, M. E., Ross, S. J., Delisle, M. F., Carson, G. D., Windrim, R., Ohlsson, A., Willan, A. R., Gafni, A., Sylvestre, G., Natale, R., Barrett, Y., Pollard, J. K., Dunn, M. S., Turtle, P., The early external cephalic version 2 trial: An international multicenter randomized controlled trial of timing of	No full text available.

Study	Reason for exclusion
external cephalic version for breech pregnancies, Obstetrical and Gynecological Survey, 66, 469-470, 2011	
Hutton, E. K., Hofmeyr, G. J., Dowswell, T., External cephalic version for breech presentation before term, Cochrane Database of Systematic Reviews, 2015	Cochrane review on ECV. Relevant references examined and included if appropriate.
Johnson,R.L., Elliott,J.P., Fetal acoustic stimulation, an adjunct to external cephalic version: a blinded, randomized crossover study, American Journal of Obstetrics and Gynecology, 173, 1369-1372, 1995	This study does not focus on breech presentation and instead focuses on fetal mid-line spine position.
Jorge, V., Manuel, A. R. J., Manuela, M., Mercedes, B., Nicolas, B. P., Francisco, R. R., Moxibustion applied at home for non-vertex presentation: A multicentre randomised controlled clinical trial, European Journal of Integrative Medicine, 4, 47, 2012	No full text available.
Jprn, Umin, Utility of acupuncture and moxibustion for repositioning breech presentation. -Randomized Controlled Trial, Http://www.who.int/trialsearch/trial2.aspx?Trialid=jprn-umin000011757, 2013	No full text available.
Kim, S. Y., Chae, Y., Lee, S. M., Lee, H., Park, H. J., The effectiveness of moxibustion: an overview during 10 years, Evidence-Based Complementary & Alternative Medicine: eCAMEvid Based Complement Alternat Med, 2011, 306515, 2011	Systematic review on moxibustion. Relevant references examined and included if appropriate.
Langer, B. P., Roth, G. E., Aissi, G., Meyer, N., Bigler, A., Bouschbacher, J. M., Hemlinger, C., Viville, B., Guilpain, M., Gaudineau, A., Akladios, C., Nisand, I., Vayssiere, C., Favre, R., Sananes, N., Acupuncture version of breech presentation: A randomized placebo-controlled single-blinded trial, American Journal of Obstetrics and Gynecology, 214, S65, 2016	No full text available.
Lee, M. S., Are acupuncture-type interventions beneficial for correcting breech presentation?, Complementary Therapies in Medicine, 16, 238-9, 2008	The study does not use RCT study design.
Lee, M. S., Kang, J. W., Ernst, E., Does moxibustion work? An overview of systematic reviews, BMC Research NotesBMC Res Notes, 3, 284, 2010	Systematic review on moxibustion. Relevant references examined and included if appropriate.
Li, Q, Clinical observation on correcting malposition of fetus by electro-acupuncture, Journal of Traditional Chinese Medicine, 16, 260â□“2, 1996	Duplicate.
Li, Q., Wang, L., Clinical observation on correcting malposition of fetus by electro-acupuncture, J Tradit Chin MedJournal of traditional Chinese medicine = Chung i tsa chih ying wen pan, 16, 260-2, 1996	Included in CG62 but is not a RCT-observational study of women with malpresentation at 28 gestational weeks and more.
Li, X., Hu, J., Wang, X., Zhang, H., Liu, J., Moxibustion and other acupuncture point stimulation methods to treat breech presentation: A systematic review of clinical trials, Chinese Medicine, 4 (no pagination), 2009	Systematic review on moxibustion. Relevant references examined and included if appropriate.
Liu, M. L., Lan, L., Tang, Y., Liang, F. R., Acupuncture and moxibustion for breech	This study is not available in English.

Study	Reason for exclusion
presentation: a systematic review, Chinese journal of evidence-based medicine, 9, 840-843, 2009	
Magro-Malosso, E. R., Saccone, G., Di Tommaso, M., Mele, M., Berghella, V., Neuraxial analgesia to increase the success rate of external cephalic version: a systematic review and meta-analysis of randomized controlled trials, American Journal of Obstetrics & Gynecology, 215, 276-86, 2016	Systematic review for ECV anaesthesia. Relevant references examined and included if appropriate.
Massalha, M., Garmi, G., Zafran, N., Carmeli, J., Gimburg, G., Salim, R., Clinical outcomes after external cephalic version with spinal anesthesia after failure of a first attempt without anesthesia, International Journal of Gynecology and Obstetrics, 139, 324-328, 2017	The study does not use RCT study design.
Millereau, M., Branger, B., Darcel, F., Fetal version by acupuncture (moxibustion) versus control group, Journal de Gynecologie, Obstetrique et Biologie de la Reproduction, 38, 481â□□487, 2009	Study is not written in English.
Morris, S., Geraghty, S., Sundin, D., Moxibustion: An alternative option for breech presentation, British Journal of Midwifery, 26, 440-445, 2018	The study does not use RCT study design.
Muslim, I., Tan, I., Rodriguez, P., Tan, T. L., Cost effectiveness of external cephalic version, BJOG: An International Journal of Obstetrics and Gynaecology, 119, 121, 2012	HE analysis.
Neri, I., De Pace, V., Venturini, P., Facchinetti, F., Effects of three different stimulations (acupuncture, moxibustion, acupuncture plus moxibustion) of BL.67 acupoint at small toe on fetal behavior of breech presentation, American Journal of Chinese Medicine, 35, 27-33, 2007	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.
Nor Azlin MI, Maryasalwati I, Norzilalwati MN, Zaleha AM, Mohammad AJ, Zainul RMR, Nifedipine versusterbutaline for tocolysis in external cephalic version, International Journal of Gynecology & Obstetrics, 102, 263-266, 2008	Duplicate.
Nor Azlin,, M. I., Ibrahim, M., Mohd Naim, N., Mahdy, Z. A., Jamil, M. A., Mohd Razi, Z. R., Nifedipine versus terbutaline for tocolysis in external cephalic version, Int J Gynaecol ObstetInternational journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics, 102, 263-6, 2008	Duplicate.
O'Brien, J. A., Adashi, E. Y., Coming out ahead: the cost effectiveness of external cephalic version using spinal anesthesia, Israel Journal of Health Policy ResearchIsr J Health Policy Res, 3, 6, 2014	HE analysis.
Paraiso Torras, B., Rodriguez Martin, N., Lazaro Carrasco Delgado, C., Jimenez Fournier, M. C., Canete Palomo, M. L., Economic impact of the introduction of the cephalic external version in a tertiary Hospital, Journal of Perinatal Medicine, 43, 2015	HE analysis.
Predanic,M., External cephalic version for breech presentation with or without spinal analgesia in	The study does not use RCT study design.

Study	Reason for exclusion
nulliparous women at term: a randomized controlled trial, Obstetrics and Gynecology, 111, 776-777, 2008	
Preston, R., Jee, R., Anesthesia-facilitated external cephalic version: pennywise or pound-foolish?, Canadian Journal of AnaesthesiaCan J Anaesth, 60, 6-13, 2013	Systematic review for ECV anaesthesia. Relevant references examined and included if appropriate.
Reinhard, J., Peiffer, S., Reichenbach, L., Tottel, E., Reitter, A., Sinanovic, B., Yuan, J., Louwen, F., The effects of clinical hypnosis versus Neuro-Linguistic Programming (NLP) before External Cephalic Version (ECV)-A prospective off-centre randomised double blind controlled trial, Archives of Gynecology and Obstetrics, 1), S213-S214, 2012	No full text available.
Reinhard, J., Peiffer, S., Sanger, N., Herrmann, E., Yuan, J., Louwen, F., The Effects of Clinical Hypnosis versus Neurolinguistic Programming (NLP) before External Cephalic Version (ECV): A Prospective Off-Centre Randomised, Double-Blind, Controlled Trial, Evidence-Based Complementary & Alternative Medicine: eCAMEvid Based Complement Alternat Med, 2012, 626740, 2012	Duplicate.
Rosim, R. P., Carmo, E. V., Cost-effectiveness of breech version by moxibustion associated with acupuncture for women at 33 weeks gestation: A modeling approach by the brazilian public health care system perspective, Value in Health, 20, A924, 2017	HE analysis.
Rosman, Ageeth, Vlemmix, Floortje, Fleuren, Margot, Rijnders, Marlies, Beuckens, Antje, Opmeer, Brent, Hardeman, Rob, Kok, Olga, Mol, Ben Willem, Kok, Marjolein, Implementation of external cephalic version: A multicentre cluster randomised controlled trial, Women & Birth, 26, S16-S16, 2013	No full text available.
Sananes, N., Roth, G. E., Aissi, G. A., Meyer, N., Bigler, A., Bouschbacher, J. M., Helmlinger, C., Viville, B., Guilpain, M., Gaudineau, A., Akladios, C. Y., Nisand, I., Langer, B., Vayssiere, C., Favre, R., Acupuncture version of breech presentation: a randomized sham-controlled single-blinded trial, European Journal of Obstetrics, Gynecology, & Reproductive BiologyEur J Obstet Gynecol Reprod Biol, 204, 24-30, 2016	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.
Sloos, J. H., [The value of external version in at-term breech presentation], Ned Tijdschr GeneeskdNederlands tijdschrift voor geneeskunde, 135, 241-2, 1991	Not available in English.
Smith, C. A., Cochrane, S., Does acupuncture have a place as an adjunct treatment during pregnancy? A review of randomized controlled trials and systematic reviews, Birth, 36, 246-253, 2009	Systematic review on acupuncture. Relevant references examined and included if appropriate.
Sonia, B., Alessandro, B., Sylvie, B., Enrica, B., Filippa, T., Antonella, T., Federica, S., Catia, V., Valeria, M. M., Breech presentation of the foetus and traditional Chinese medicine, European Journal of Integrative Medicine, 4, 56, 2012	No full text available.

Study	Reason for exclusion
Stock, A., Chung, T., Rogers, M., Ming, W. W., Randomized, double blind, placebo controlled comparison of ritodrine and hexoprenaline for tocolysis prior to external cephalic version at term, Aust N Z J Obstet GynaecolThe Australian & New Zealand journal of obstetrics & gynaecology, 33, 265-8, 1993	The study does not report any outcomes that match our protocol.
Sullivan, J. T., Scavone, B. M., Patel, R., Robles, C., McCarthy, R. J., Wong, C. A., A randomized controlled trial of the impact of combined spinal-epidural analgesia on the success of external cephalic version for breech presentation, Anesthesiology, 104, 10, 2006	Duplicate.
Sultan, P., Carvalho, B., Neuraxial blockade for external cephalic version: a systematic review, International Journal of Obstetric Anesthesia, 20, 299-306, 2011	Systematic review for ECV anaesthesia. Relevant references examined and included if appropriate.
Tan,J.M., Macario,A., Carvalho,B., Druzin,M.L., El-Sayed,Y.Y., Cost-effectiveness of external cephalic version for term breech presentation, BMC Pregnancy and Childbirth, 10, 3-, 2010	HE analysis.
van den Berg, I., Bosch, J. L., Jacobs, B., Bouman, I., Duvekot, J. J., Hunink, M. G., Effectiveness of acupuncture-type interventions versus expectant management to correct breech presentation: a systematic review, Complementary Therapies in Medicine, 16, 92-100, 2008	Systematic review on acupuncture. Relevant references examined and included if appropriate.
van den Berg, I., Kaandorp, G. C., Bosch, J. L., Duvekot, J. J., Arends, L. R., Hunink, M. G., Cost-effectiveness of breech version by acupuncture-type interventions on BL 67, including moxibustion, for women with a breech foetus at 33 weeks gestation: a modelling approach, Complementary Therapies in Medicine, 18, 67-77, 2010	HE analysis.
van den Berg, I., Kaandorp, G., Bosch, J. L., Duvekot, J. J., Hunink, M. G. M., The effectiveness and cost-effectiveness of Breech Version Acumoxa compared to standard care to correct breech presentation...13th Annual Symposium on Complementary Health Care, 12th-14th December, 2006, University of Exeter, UK, Focus on Alternative & Complementary Therapies, 11, 5-5, 2006	HE analysis.
van Loon, AJ, Mantingh, A, Serlier, EK, Kroon, G, Mooyaart, EL, Huisjes, HJ, Randomised controlled trial of magnetic-resonance pelvimetry in breech presentation at term, Lancet, 350, 1799â□“804, 1997	This study does not focus on interventions for breech management but rather on breech identification.
Vas, J., Aranda-Regules, J. M., Modesto, M., Ramos-Monserrat, M., Baron, M., Aguilar, I., Benitez-Parejo, N., Ramirez-Carmona, C., Rivas-Ruiz, F., Using moxibustion in primary healthcare to correct non-vertex presentation: a multicentre randomised controlled trial, Acupuncture in Medicine, 31, 31-8, 2013	Population did not include women with a longitudinal lie fetal malpresentation (breech presentation) confirmed by ultrasound scan at ≥36+0 weeks.
Vas, J., Aranda-Regules, J. M., Modesto, M., Ramos-Monserrat, M., Baron, M., Aguilar, I., Benitez-Parejo, N., Ramirez-Carmona, C., Rivas-Ruiz, F., Using	Duplicate.

Study	Reason for exclusion
moxibustion in primary healthcare to correct non-vertex presentation: a multicentre randomised controlled trial, Revista Internacional de Acupuntura, 8, 41â□□49, 2014	
Vas, J., Aranda-Regules, J. M., Modesto, M., Ramos-Monserrat, M., Barón, M., Aguilar, I., Benítez-Parejo, N., Ramírez-Carmona, C., Rivas-Ruiz, F., Using moxibustion in primary healthcare to correct non-vertex presentation: a multicentre randomised controlled trial, Acupuncture in Medicine, 31, 31â□□38, 2013	Duplicate.
Vas,J., Aranda,J.M., Nishishinya,B., Mendez,C., Martin,M.A., Pons,J., Liu,J.P., Wang,C.Y., Perea-Milla,E., Correction of nonvertex presentation with moxibustion: a systematic review and metaanalysis, American Journal of Obstetrics and Gynecology, #201, 241-259, 2009	Systematic review on moxibustion. Relevant references examined and included if appropriate.
Velzel, J., Vlemmix, F., Opmeer, B. C., Mol, B. W., Kok, M., Atosiban versus fenoterol as a uterine relaxant for external cephalic version: A randomized controlled trial, Journal of Paediatrics and Child Health, 51, 53, 2015	No full text available.
Velzel, J., Vlemmix, F., Opmeer, B. C., Molkenboer, J. F., Verhoeven, C. J., van Pampus, M. G., Papatsonis, D. N., Bais, J. M., Vollebregt, K. C., van der Esch, L., Van der Post, J. A., Mol, B. W., Kok, M., Atosiban versus fenoterol as a uterine relaxant for external cephalic version: randomised controlled trial, BMJ, 356, i6773, 2017	Duplicate.
Vlemmix, F., Rosman, A., Fleuren, M., Rijnders, M., Beuckens, A., Opmeer, B., Hardeman, R., Dirken, J., De Vaan, M., Kok, O., Bazairi, M., Cikot, R., Renes, C., Mol, B., Kok, M., Implementation of external cephalic version; A multicentre cluster randomised controlled trial, American Journal of Obstetrics and Gynecology, 208, S320, 2013	No full text available.
Weiniger, C. F., Ginosaur, Y., Elchalal, U., Einav, S., Nucrietin, M., Guage, P., Ezra, Y., Prospective randomised study of external cephalic version for breech presentation at term in nulliparous women: spinal analgesia versus no analgesia, International Journal of Obstetric Anesthesia, 16, S21, 2007	Duplicate.
Weiniger,C.F., Ginosar,Y., Elchalal,U., Sharon,E., Nokrian,M., Ezra,Y., External cephalic version for breech presentation with or without spinal analgesia in nulliparous women at term: a randomized controlled trial, Obstetrics and Gynecology, 110, 1343-1350, 2007	The study does not report any outcomes that match our protocol.
Weomoger, C. F., Ginosar, Y., Elchalal, U., Sharon, E., Nokrian, M., Ezra, Y., External cephalix version for breech presentation with or without spinal analgesia in nulliparous women at term: a randomized controlled trial, Obstetrics & GynecologyObstet Gynecol, 110, 1343-1350, 2007	Duplicate.

Study	Reason for exclusion
Wilcox, C. B., Nassar, N., Roberts, C. L., Effectiveness of nifedipine tocolysis to facilitate external cephalic version: A systematic review, BJOG: An International Journal of Obstetrics and Gynaecology, 118, 423-428, 2011	Systematic review on ECV pharmaceutical component. Relevant references examined and included if appropriate.
Y. K. Yang, M. Mao, Y. P. Hu et al, Effect of moxibustion at zhiyin (BL67) to correct the fetus malposition: multi-center randomized controlled clinical study, Journal of Traditional Chinese Medicine, 48, 1097-1110, 2007	Not available in English.
Yamasato, K., Kaneshiro, B., Salcedo, J., Neuraxial blockade for external cephalic version: Cost analysis, Journal of Obstetrics & Gynaecology Research, 41, 1023-31, 2015	HE analysis.
Yang YK, Mao M, Hu YP, et al., Effect of moxibustion at zhiyin (BL67) to correct the fetus malposition: multi-center randomized controlled clinical study, Journal of traditional Chinese medicine, 48, 1097-1110, 2007	Duplicate.
Yang, F., Comparison of knee-chest plus moxibustion on Zhiyin with knee-chest position for breech position, Journal of sichuan traditional chinese medicine, 24, 106â□□107, 2006	Not written in English.
Zhang,Q.H., Yue,J.H., Liu,M., Sun,Z.R., Sun,Q., Han,C., Wang,D., Moxibustion for the correction of nonvertex presentation: A systematic review and meta-analysis of randomized controlled trials, Evidence-based Complementary and Alternative Medicine, 2013 , 2013. Article Number, -, 2013	Systematic review on moxibustion. Relevant references examined and included if appropriate.

Economic studies

No economic evidence was identified for this review.

Appendix L – Research recommendations

Research recommendations for review question: What is the most effective way of managing a longitudinal lie fetal malpresentation (breech presentation) in late pregnancy?

No research recommendations were made for this review question.