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External Cephalic Version and Reducing the Incidence of Term Breech Presentation

Green-top Guideline No. 20a

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External Cephalic Version and Reducing the Incidence of Term Breech Presentation

This is the second edition of this guideline originally published in 2006.

Executive summary of recommendations

External cephalic version (ECV)

How effective is ECV in preventing noncephalic birth?

Women should be informed that the success rate of ECV is approximately 50%.

A

Women should be informed that after an unsuccessful ECV attempt at 36⁺ weeks of gestation or later, only a few babies presenting by the breech will spontaneously turn to cephalic presentation. [New 2017]

B

Women should be informed that few babies revert to breech after successful ECV. [New 2017]

B

Women should be informed that a successful ECV reduces the chance of caesarean section.

A

Does ECV affect the outcome of labour?

Women should be informed that labour after ECV is associated with a slightly increased rate of caesarean section and instrumental delivery when compared with spontaneous cephalic presentation.

B

Can the success of an ECV attempt be predicted?

ECV success can be predicted to some extent, but the use of models to predict success should not be used routinely to determine whether ECV can be attempted. [New 2017]

B

What methods can be used to improve the success rate of ECV?

Use of tocolysis with betamimetics improves the success rates of ECV.

A

Routine use of regional analgesia or neuraxial blockade is not recommended, but may be considered for a repeat attempt or for women unable to tolerate ECV without analgesia. [New 2017]

B

When should ECV be offered?

ECV should be offered at term from 37⁺⁰ weeks of gestation.

B

In nulliparous women, ECV may be offered from 36⁺⁰ weeks of gestation.

✓

What are the contraindications to ECV?

There is no general consensus on the eligibility for, or contraindications to, ECV.

C

Women should be informed that ECV after one caesarean delivery appears to have no greater risk than with an unscarred uterus. [New 2017]

C

What are the risks of ECV?

Women should be counselled that with appropriate precautions, ECV has a very low complication rate.

B

What measures are appropriate to ensure fetal safety?

ECV should be performed where facilities for monitoring and surgical delivery are available.

✓

The standard preoperative preparations for caesarean section are not recommended for women undergoing ECV.

✓

Following ECV, EFM is recommended.

✓

Women undergoing ECV who are D negative should undergo testing for fetomaternal haemorrhage and be offered anti-D. [New 2017]

D

Who should perform ECV?

ECV should only be performed by a trained practitioner or by a trainee working under direct supervision. [New 2017]

✓

How acceptable is ECV to women?

Although most women tolerate ECV, they should be informed that ECV can be a painful procedure.

C

How could the uptake of ECV be increased?

The uptake of ECV is best increased by timely identification of the baby presenting by the breech and provision of evidence-based information.

C

How can an ECV service be developed and audited?

There is no evidence to support any particular service model although larger institutions may consider a dedicated ECV clinic. [New 2017]



What is the role of non-ECV methods?

Women may wish to consider the use of moxibustion for breech presentation at 33–35 weeks of gestation, under the guidance of a trained practitioner. [New 2017]



Women should be advised that there is no evidence that postural management alone promotes spontaneous version to cephalic presentation.



1. Purpose and scope

External cephalic version (ECV) is the manipulation of the fetus, through the maternal abdomen, to a cephalic presentation. The purpose of this guideline is to describe and summarise the best evidence concerning methods to prevent noncephalic presentation at delivery and therefore, caesarean section and its sequelae. The evidence concerning mode and technique of the delivery of breech presentation is summarised in the Royal College of Obstetricians and Gynaecologists (RCOG) Green-top Guideline No. 20b *Management of Breech Presentation*.¹

2. Introduction and background epidemiology

Breech presentation complicates 3–4% of term deliveries and is more common in nulliparous women and in preterm deliveries. Following the publication of the Term Breech Trial,² there was a significant decrease in the number of women undergoing vaginal breech birth.³ In many countries, including the UK, planned vaginal breech birth remains rare and attempts to prevent breech presentation at delivery remain important.

3. Identification and assessment of evidence

This guideline was developed using standard methodology for developing RCOG Green-top Guidelines. The Cochrane Library (including the Cochrane Database of Systematic Reviews, the Database of Abstracts of Reviews of Effects [DARE] and the Cochrane Central Register of Controlled Trials [CENTRAL]), EMBASE, MEDLINE and Trip were searched for relevant papers. The search was inclusive of all relevant articles published between August 2005 and April 2016. The databases were searched using the relevant Medical Subject Headings (MeSH) terms, including all subheadings and synonyms, and this was combined with a keyword search. Search terms included 'breech', 'breech near presentation', 'breech presentation', 'breech near delivery', 'breech delivery', 'breech presentation and delivery', 'breech near extraction', 'breech extraction', 'Mauriceau-Smellie-Veit', 'Burns-Marshall', 'after-coming head' and 'external cephalic version'. The search was limited to studies on humans and papers in the English language. Relevant guidelines were also searched for using the same criteria in the National Guideline Clearinghouse and the National Institute for Health and Care Excellence (NICE) Evidence Search.

Where possible, recommendations are based on available evidence. Areas lacking evidence are highlighted and annotated as 'good practice points'. Further information about the assessment of evidence and the grading of recommendations may be found in Appendix I.

4. External cephalic version (ECV)

4.1 *How effective is ECV in preventing noncephalic birth?*

Women should be informed that the success rate of ECV is approximately 50%.

A

Women should be informed that after an unsuccessful ECV attempt at 36⁺⁰ weeks of gestation or later, only a few babies presenting by the breech will spontaneously turn to cephalic presentation.

B

Women should be informed that few babies revert to breech after successful ECV.

B

Women should be informed that a successful ECV reduces the chance of caesarean section.

A

A systematic review of eight trials including 1308 women demonstrated that ECV at term reduces noncephalic presentation at delivery (RR 0.42, 95% CI 0.29–0.61).⁴

Evidence
level I++

Success rates of ECV vary, but in a large series, 47% of women following an ECV attempt had a cephalic presentation at birth.⁵ Overall success levels are greater for multiparous women (60%) than for nulliparous women (40%).⁶

Spontaneous version from breech to cephalic is unusual at term⁷ and occurs in only 8% of primigravid women after 36 weeks of gestation.⁸ Where ECV at term has been unsuccessful, two large series^{9,10} demonstrated that only 3–7% of babies will spontaneously turn to cephalic presentation. Spontaneous reversion to breech after a successful ECV is rare, occurring in only 3% in the largest of the series that assessed this.¹⁰

Evidence
level 2+

A systematic review demonstrated that attempting ECV at term reduces the chance of caesarean section (RR 0.57, 95% CI 0.40–0.82).⁴

Evidence
level I++

4.2 *Does ECV affect the outcome of labour?*

Women should be informed that labour after ECV is associated with a slightly increased rate of caesarean section and instrumental delivery when compared with spontaneous cephalic presentation.

B

In a systematic review of three cohort and eight case-control studies, de Hundt et al.¹¹ concluded that even after successful ECV, women remained at increased risk of caesarean delivery (when compared with babies that have been cephalic) for both obstructed labour (OR 2.2, 95% CI 1.6–3.0) and fetal distress (OR 2.2, 95% CI 1.6–2.9). There is also an increased risk of instrumental vaginal delivery (OR 1.4, 95% CI 1.1–1.7). The risk of caesarean delivery may be greater with a shorter ECV to labour interval.¹²

Evidence
level 2++

4.3 *Can the success of an ECV attempt be predicted?*

ECV success can be predicted to some extent, but the use of models to predict success should not be used routinely to determine whether ECV can be attempted.

B

Success rates depend on multiple variables. It is likely that case selection considerably affects success rates.

In a meta-analysis, Kok et al.¹³ showed that multiparity (OR 2.5, 95% CI 2.3–2.8), nonengagement of the breech (OR 9.4, 95% CI 6.3–14), use of tocolysis (OR 18, 95% CI 12–29), a palpable fetal head (OR 6.3, 95% CI 4.3–9.2) and a maternal weight of less than 65 kg (OR 1.8, 95% CI 1.2–2.6) were predictors for successful ECV. Other factors, such as posterior placental location (OR 1.9, 95% CI 1.5–2.4), complete breech position (OR 2.3, 95% CI 1.9–2.8) and an amniotic fluid index greater than 10 (OR 1.8, 95% CI 1.5–2.1), are also predictors for successful ECV.¹⁴ There are limited data to suggest that estimated fetal weight affects success rates.

Evidence
level 2++

Models have been developed^{15,16} to predict ECV success; different strategies are summarised by Leung and Lau.¹⁷ These models are of insufficient predictive value to alter practice and, given the benefits and safety of ECV, a low probability of success should not prevent an attempt.

Evidence
level 2+

4.4 *What methods can be used to improve the success rate of ECV?*

Use of tocolysis with betamimetics improves the success rates of ECV.

A

Routine use of regional analgesia or neuraxial blockade is not recommended, but may be considered for a repeat attempt or for women unable to tolerate ECV without analgesia.

B

A 2015 Cochrane review¹⁸ concluded that betamimetics are the best evaluated of all tocolytics, and increased cephalic presentation in labour (RR 1.68, 95% CI 1.14–2.48) and reduced the number of caesarean sections (RR 0.77, 95% CI 0.67–0.88). The effect applied to both multiparous and nulliparous women.

Evidence
level 1–

There is inadequate information comparing different betamimetic drugs on the success rates of ECV. Wilcox et al.,¹⁹ in a systematic review of three studies (n = 176), found no evidence to support the use of nifedipine as a tocolytic. There are insufficient data to support the use of nifedipine or atosiban compared with betamimetics.¹⁸ In a randomised controlled trial of 59 women, intravenous glyceryl trinitrate was inferior to subcutaneous terbutaline for tocolysis.²⁰

Betamimetic drugs may be administered routinely, reserved for where the uterus is tense or for where a previous attempt without tocolysis has been unsuccessful. A significant reduction in the incidence of caesarean (RR 0.33, 95% CI 0.14–0.80) has been demonstrated with the administration of betamimetic drugs where a previous attempt without tocolysis has been unsuccessful.²¹

Evidence
level 1+

A pragmatic regimen consists of 250 micrograms of salbutamol in 25 ml of normal saline (10 micrograms/ml) by slow intravenous injection, or 250 micrograms of terbutaline subcutaneously.

Betamimetics should not be used in women with significant cardiac disease or hypertension, and will not be effective in those taking beta-blockers. Maternal palpitations,²⁰ tachycardia, flushing, tremor and occasional nausea may be experienced.

Evidence
level 3

Regional anaesthesia requires less force²² and may reduce failure rates,^{23–25} particularly in conjunction with tocolysis (RR 0.61, 95% CI 0.43–0.86).¹⁸ The effect of regional anaesthesia on caesarean section rates, however, is less clear.²⁶ Nevertheless, previous studies of neuraxial block report wide variations in technique and sensory block targets;²⁷ anaesthetic doses might be more effective than analgesic doses. There is no evidence that complication rates of ECV are higher when regional anaesthesia has been used.²⁵ Regional blockade for ECV should not be used routinely, but may be considered for women unable to tolerate the procedure. Some women might be helped by the use of clinical hypnosis prior to ECV.²⁸

Evidence
level 2+

4.5 *When should ECV be offered?*

ECV should be offered at term from 37⁺⁰ weeks of gestation.

B

In nulliparous women, ECV may be offered from 36⁺⁰ weeks of gestation.



Gestation (at term) does not appear to affect success rates.¹³ There is no upper gestation limit for when ECV can be offered, but contraindications may be more common.

Evidence
level 2+

Hutton et al.,²⁹ using ECV at 34–35⁺⁶ weeks of gestation compared with 37 weeks of gestation or after, found a reduced rate of noncephalic presentation at birth (RR 0.81, 95% CI 0.74–0.90), but no significant effect on caesarean section rates (RR 0.92, 95% CI 0.85–1.00). A systematic review, however, confirmed a significant increase in preterm births (RR 1.51, 95% CI 1.03–2.21).³⁰ There is no clear benefit to ECV prior to 36 weeks of gestation.

Evidence
level 1+

In nulliparous women who have a low chance of spontaneous version, ECV from 36⁺⁰ weeks of gestation seems pragmatic; spontaneous version in multiparous women is more common.⁷

Evidence
level 2+

There is a paucity of data on intrapartum ECV, but success has been reported.^{31,32} Intrapartum ECV may be considered if informed consent is possible, providing the membranes are intact and no contraindications exist (see section 4.6).

Evidence
level 3

With an unstable lie, ECV is reasonable in the course of a stabilising induction. There are limited data on this procedure, but potential risks include cord prolapse, transverse lie in labour and fetal heart rate abnormalities. ECV should only be performed if there is a valid indication for induction.

4.6 *What are the contraindications to ECV?*

There is no general consensus on the eligibility for, or contraindications to, ECV.

C

Women should be informed that ECV after one caesarean delivery appears to have no greater risk than with an unscarred uterus.

C

There is limited evidence concerning contraindications for ECV. Only placental abruption, severe pre-eclampsia, and abnormal fetal Doppler or cardiotocography (CTG) are supported by any evidence.³³

ECV is contraindicated where an absolute reason for caesarean section already exists (e.g. placenta praevia major). It is generally considered to be contraindicated in a multiple pregnancy (except after delivery of a first twin), where there is rhesus isoimmunisation, current or recent (less than 1 week) vaginal bleeding, abnormal electronic fetal monitoring (EFM), rupture of the membranes, or where the mother declines or is unable to give informed consent. ECV should be performed with additional caution where there is oligohydramnios or hypertension.³³

Evidence
level 4

The role of ECV with a previous caesarean section has been controversial. The largest analysis compared 70 ECVs performed in women with previous caesarean section with 387 ECVs performed in other multiparous women³⁴ and concluded that ECV is safe and successful in women with one previous caesarean delivery as with other multiparous women. In this series, and in another prospective series, no complications and no cases of uterine rupture were reported in the previous caesarean section cohort.¹⁰ There are insufficient numbers to determine the low risk of uterine rupture.

Evidence
level 2+

4.7 *What are the risks of ECV?*

Women should be counselled that with appropriate precautions, ECV has a very low complication rate.

B

Although case reports of placental abruption and large fetomaternal haemorrhage exist, complications associated with ECV are very rare. In a 2015 Cochrane systematic review, Hofmeyr et al.⁴ reported no significant differences in Apgar scores of less than 7 at 1 minute and 5 minutes, or in low umbilical vein pH levels, neonatal admission or perinatal death according to whether ECV had been performed. A number of large consecutive series^{5,6,9,10,35} have reported no fetal deaths attributable to the procedure. Meta-analyses and systematic reviews^{36–38} although subject to reporting bias, also show complications to be rare.

Evidence
level 2++

The reported risk of emergency caesarean section within 24 hours is approximately 0.5%, with the indication in over 90% being vaginal bleeding or an abnormal CTG following the procedure.^{6,10}

However, a population-based cohort study³⁹ comparing breech births where there had been unsuccessful ECV with those where ECV had not been attempted showed a small increase in short-term adverse outcomes (adjusted OR for neonatal unit admission 1.48, 95% CI 1.20–1.82) after an unsuccessful attempt at ECV. This was irrespective of whether labour was attempted. Longer term outcomes were not analysed and comparison with successful ECVs was not performed.

Evidence
level 2+

Boucher et al.⁴⁰ performed Kleihauer testing shortly after an ECV attempt. In 1244 women with a negative Kleihauer test prior to ECV, fetomaternal haemorrhage was detected in 2.4% of women, a third of which had more than 1 ml. In one woman, the estimated fetomaternal haemorrhage was more than 30 ml.

4.8 *What measures are appropriate to ensure fetal safety?*

ECV should be performed where facilities for monitoring and surgical delivery are available.



The standard preoperative preparations for caesarean section are not recommended for women undergoing ECV.



Following ECV, EFM is recommended.



Women undergoing ECV who are D negative should undergo testing for fetomaternal haemorrhage and be offered anti-D.



There is limited evidence to guide practice. No more than four attempts are advised, for a suggested maximum of 10 minutes overall.¹⁰ EFM prior to the attempt is advised. ECV should be performed where facilities for ultrasound, EFM and surgical delivery are available. However, fasting, administration of anaesthetic premedication or insertion of intravenous access (unless for tocolysis) are not recommended as the need for caesarean delivery is less likely¹⁰ than for women in normal labour.

Evidence level 3

Ultrasound should be used during and after the ECV to confirm a normal fetal heart rate. A transient (less than 3 minutes) fetal bradycardia after ECV is common,¹⁰ but should instigate continuous monitoring in a left lateral position, and if persistent and not improving after 6 minutes, should prompt preparation for category I caesarean section.

Urgent delivery should also be advised following the procedure if there is vaginal bleeding or unexplained abdominal pain, or if an abnormal CTG persists.

Anti-D immunoglobulin is recommended for women undergoing ECV who are D negative unless the baby is known to be D negative also. A minimum of 500 iu is recommended within 72 hours. Routine screening for fetomaternal haemorrhage is recommended by the British Committee for Standards in Haematology⁴¹ to assess which D-negative women might benefit from additional anti-D. A strongly positive (e.g. more than 30 ml) Kleihauer should prompt immediate fetal review.

Evidence level 4

4.9 *Who should perform ECV?*

ECV should only be performed by a trained practitioner or by a trainee working under direct supervision.



Beuckens et al.⁵ trained midwives in the theory and practice of ECV and reported low complication rates among 2546 attempts. The RCOG Advanced Training Skills Module in Advanced Labour Ward Practice Curriculum requires ECV competence among trainees. Training models may help⁴² but are not widely available.

Evidence level 4

4.10 *How acceptable is ECV to women?*

Although most women tolerate ECV, they should be informed that ECV can be a painful procedure.



ECV is not universally acceptable to women. Hemelaar et al.⁴³ reported that 9% of women declined ECV. Barriers include fear of pain and vaginal birth, and accounts of others' experiences.^{44,45}

Maternal experience of ECV varies enormously. Rijnders et al.⁴⁶ reported that one-third of women experienced significant pain, while Bogner et al.⁴⁷ reported general satisfaction if the ECV was successful. Fok et al.⁴⁸ reported median pain scores of 5.7. In one trial,²¹ three-quarters of women described the procedure as uncomfortable or worse, and 5% of women reported high pain scores.

Evidence
level 2–

4.11 *How could the uptake of ECV be increased?*

The uptake of ECV is best increased by timely identification of the baby presenting by the breech and provision of evidence-based information.

C

ECV is not practised in many parts of the world.⁴⁹ In the UK, the views of obstetricians on ECV are generally positive, but there are some negative perceptions among women.⁴⁴ Patient acceptance could improve if accurate information on the benefits and risks are given.⁴³

The greatest impediment to the use of ECV is the nonidentification of breech presentation. The proportion of undetected breech presentation at term has been reported in as high as 20.0–32.5% of all breech presentations^{43,50} and these have worse outcomes.⁵¹ The possibility of breech presentation should always be considered at clinical examination although abdominal palpation has a sensitivity of only 70%.⁵² In the absence of routine third trimester ultrasound, particular care should be taken with high-risk groups, e.g. where a previous baby has been breech. Recurrence rate after one breech presentation is 9.9% (RR adjusted 3.2, 95% CI 2.8–3.6).⁵³ Access to a presentation scan after 36⁺⁰ weeks of gestation is essential.

Evidence
level 2+

4.12 *How can an ECV service be developed and audited?*

There is no evidence to support any particular service model although larger institutions may consider a dedicated ECV clinic.

✓

There is minimal evidence concerning how an ECV service is best delivered. This service should be staffed by appropriately trained practitioners. Comprehensive local data collection, including success rates and outcomes, should be gathered in order for women to make an informed choice.

4.13 *What is the role of non-ECV methods?*

Women may wish to consider the use of moxibustion for breech presentation at 33–35 weeks of gestation, under the guidance of a trained practitioner.

C

Women should be advised that there is no evidence that postural management alone promotes spontaneous version to cephalic presentation.

B

Moxibustion, a traditional Chinese medicine therapy using moxa made from dried mugwort, has been used from 32 weeks of gestation to promote spontaneous version. It is unclear how moxibustion might promote version, but it is thought to promote fetal activity. The quality of data is poor and the effectiveness of moxibustion should be considered in light of the number of breech presentations that exist at 32 weeks of gestation, reported as 43% by Westgren et al.⁸ Coyle et al.,⁵⁴ in a systematic review, concluded that although moxibustion did not reduce the number of noncephalic births when compared with no treatment, it may do so when combined with postural management techniques. In addition, moxibustion, when combined with acupuncture, may result in fewer births by caesarean section.

Evidence
level I –

Subsequently, Vas et al.⁵⁵ randomised 406 women with a proven breech presentation at 33–35 weeks of gestation to 2 weeks of daily moxibustion, ‘sham’ moxibustion or usual care. A significant increase in cephalic presentation at delivery was noted in the moxibustion group when compared with the sham or usual care (moxibustion versus usual care; RR 1.29, 95% CI 1.02–1.64) groups, with no significant change in caesarean delivery rates (moxibustion versus usual care; RR 0.85, 95% CI 0.67–1.07). No data on ECV rates in the groups were presented.

There is insufficient evidence to support the use of postural management for breech presentation.⁵⁶

5. Recommendations for future research

- Methods to improve the antenatal detection of breech presentation, applicable in a low resource setting.
- Methods to improve the uptake of ECV.
- Methods to improve the success rate of ECV.

6. Auditable topics

- Antenatal detection of breech presentation.
- Proportion of women with a breech presentation offered ECV in the absence of contraindications (100%).
- Success rates of ECV (50%).
- Complications of/after ECV.
- Maternal perceptions/experience of ECV.

7. Useful links and support groups

- NHS Choices. *Baby positions in the womb*. [<http://www.nhs.uk/conditions/pregnancy-and-baby/pages/breech-birth.aspx>].
- Royal College of Midwives. *Vaginal or caesarean delivery? How research has turned breech birth around*. [<https://www.rcm.org.uk/learning-and-career/learning-and-research/ebm-articles/vaginal-or-caesarean-delivery-how-research/>].
- Newcastle University. *Breech decisions*. [<http://research.ncl.ac.uk/breech-decisions/>].
- NHS choices. *Breech births: your choices*. [<http://www.nhs.uk/Video/Pages/breech-births.aspx>].
- Royal College of Obstetricians and Gynaecologists. *Breech baby at the end of pregnancy. Information for you*. London: RCOG; 2008 [<https://www.rcog.org.uk/en/patients/patient-leaflets/breech-baby-at-the-end-of-pregnancy/>].
- Royal College of Obstetricians and Gynaecologists. *Turning a breech baby in the womb (external cephalic version). Information for you*. [<https://www.rcog.org.uk/en/patients/patient-leaflets/turning-a-breech-baby-in-the-womb/>].

References

- Royal College of Obstetricians and Gynaecologists. *Management of Breech Presentation*. Green-top Guideline No. 20b. London: RCOG; 2017.
- Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. Term Breech Trial Collaborative Group. *Lancet* 2000;356:1375–83.
- Rietberg CC, Elferink-Stinkens PM, Visser GH. The effect of the Term Breech Trial on medical intervention behaviour and neonatal outcome in The Netherlands: an analysis of 35,453 term breech infants. *BJOG* 2005;112:205–9.
- Hofmeyr GJ, Kulier R, West HM. External cephalic version for breech presentation at term. *Cochrane Database Syst Rev* 2015;(4):CD000083.
- Beuckens A, Rijnders M, Verburt-Doeleman GH, Rijninks-van Driel GC, Thorpe J, Hutton EK. An observational study of the success and complications of 2546 external cephalic versions in low-risk pregnant women performed by trained midwives. *BJOG* 2015;123:415–23.
- Tong Leung VK, Suen SS, Singh Sahota D, Lau TK, Yeung Leung T. External cephalic version does not increase the risk of intra-uterine death: a 17-year experience and literature review. *J Matern Fetal Neonatal Med* 2012;25:1774–8.
- Ferreira JC, Borowski D, Czuba B, Cnota W, Wloch A, Sadowski K, et al. The evolution of fetal presentation during pregnancy: a retrospective, descriptive cross-sectional study. *Acta Obstet Gynecol Scand* 2015;94:660–3.
- Westgren M, Edvall H, Nordström L, Svalenius E, Ranstam J. Spontaneous cephalic version of breech presentation in the last trimester. *Br J Obstet Gynaecol* 1985;92:19–22.
- Ben-Meir A, Elram T, Tsafir A, Elchalal U, Ezra Y. The incidence of spontaneous version after failed external cephalic version. *Am J Obstet Gynecol* 2007;196:157.e1–3.
- Collins S, Ellaway P, Harrington D, Pandit M, Impey LW. The complications of external cephalic version: results from 805 consecutive attempts. *BJOG* 2007;114:636–8.
- de Hundt M, Velzel J, de Groot CJ, Mol BW, Kok M. Mode of delivery after successful external cephalic version: a systematic review and meta-analysis. *Obstet Gynecol* 2014;123:1327–34.
- Kabiri D, Elram T, Aboo-Dia M, Elami-Suzin M, Elchalal U, Ezra Y. Timing of delivery after external cephalic version and the risk for cesarean delivery. *Obstet Gynecol* 2011;118:209–13.
- Kok M, Cnossen J, Gravendeel L, van der Post J, Opmeer B, Mol BW. Clinical factors to predict the outcome of external cephalic version: a meta-analysis. *Am J Obstet Gynecol* 2008;199:630.e1–7; discussion e1–5.
- Kok M, Cnossen J, Gravendeel L, Van Der Post JA, Mol BW. Ultrasound factors to predict the outcome of external cephalic version: a meta-analysis. *Ultrasound Obstet Gynecol* 2009;33:76–84.
- Kok M, van der Steeg JW, van der Post JA, Mol BW. Prediction of success of external cephalic version after 36 weeks. *Am J Perinatol* 2011;28:103–10.
- Velzel J, de Hundt M, Mulder FM, Molkenboer JF, Van der Post JA, Mol BW, et al. Prediction models for successful external cephalic version: a systematic review. *Eur J Obstet Gynecol Reprod Biol* 2015;195:160–7.
- Leung TY, Lau TK. Prediction of outcome of external cephalic version for breech presentation at term. *Fetal Matern Med Rev* 2005;16:245–62.
- Cluver C, Gyte GM, Sinclair M, Dowswell T, Hofmeyr GJ. Interventions for helping to turn term breech babies to head first presentation when using external cephalic version. *Cochrane Database Syst Rev* 2015;(2):CD000184.
- Wilcox CB, Nassar N, Roberts CL. Effectiveness of nifedipine tocolysis to facilitate external cephalic version: a systematic review. *BJOG* 2011;118:423–8.
- El-Sayed YY, Pullen K, Riley ET, Lyell D, Druzin ML, Cohen SE, et al. Randomized comparison of intravenous nitroglycerin and subcutaneous terbutaline for external cephalic version under tocolysis. *Am J Obstet Gynecol* 2004;191:2051–5.
- Impey L, Pandit M. Tocolysis for repeat external cephalic version in breech presentation at term: a randomised, double-blinded, placebo-controlled trial. *BJOG* 2005;112:627–31.
- Suen SS, Khaw KS, Law LW, Sahota DS, Lee SW, Lau TK, et al. The force applied to successfully turn a foetus during reattempts of external cephalic version is substantially reduced when performed under spinal analgesia. *J Matern Fetal Neonatal Med* 2012;25:719–22.
- Weiniger CF, Ginosar Y, Elchalal U, Sela HY, Weissman C, Ezra Y. Randomized controlled trial of external cephalic version in term multiparae with or without spinal analgesia. *Br J Anaesth* 2010;104:613–8.
- Khaw KS, Lee SW, Ngan Kee WD, Law LW, Lau TK, Ng FF, et al. Randomized trial of anaesthetic interventions in external cephalic version for breech presentation. *Br J Anaesth* 2015;114:944–50.
- Sultan P, Carvalho B. Neuraxial blockade for external cephalic version: a systematic review. *Int J Obstet Anesth* 2011;20:299–306.
- Goetzinger KR, Harper LM, Tuuli MG, Macones GA, Colditz GA. Effect of regional anesthesia on the success rate of external cephalic version: a systematic review and meta-analysis. *Obstet Gynecol* 2011;118:1137–44.
- Lavoie A, Guay J. Anesthetic dose neuraxial blockade increases the success rate of external fetal version: a meta-analysis. *Can J Anaesth* 2010;57:408–14.
- Reinhard J, Heinrich TM, Reitter A, Herrmann E, Smart W, Louwen F. Clinical hypnosis before external cephalic version. *Am J Clin Hypn* 2012;55:184–92.
- Hutton EK, Hannah ME, Ross SJ, Delisle MF, Carson GD, Windrim R, et al.; Early ECV2 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* 2011;118:564–77.
- Hutton EK, Hofmeyr GJ, Dowswell T. External cephalic version for breech presentation before term. *Cochrane Database Syst Rev* 2015;(7):CD000084.
- Ferguson JE 2nd, Dyson DC. Intrapartum external cephalic version. *Am J Obstet Gynecol* 1985;152:297–8.
- Kaneti H, Rosen D, Markov S, Beyth Y, Feigin MD. Intrapartum external cephalic version of footling-breech presentation. *Acta Obstet Gynecol Scand* 2000;79:1083–5.
- Rosman AN, Guijt A, Vlemmix F, Rijnders M, Mol BW, Kok M. Contraindications for external cephalic version in breech position at term: a systematic review. *Acta Obstet Gynecol Scand* 2013;92:137–42.
- Burgos J, Cobos P, Rodríguez L, Osuna C, Centeno MM, Martínez-Astorquiza T, et al. Is external cephalic version at term contraindicated in previous caesarean section? A prospective comparative cohort study *BJOG* 2014;121:230–5; discussion 235.

35. Rijnders M, Herschderfer K, Prins M, van Baaren R, van Veelen AJ, Schönbeck Y, et al. A retrospective study of the success, safety and effectiveness of external cephalic version without tocolysis in a specialised midwifery centre in the Netherlands. *Midwifery* 2008;24:38–45.
36. Grootsholten K, Kok M, Oei SG, Mol BW, van der Post JA. External cephalic version-related risks: a meta-analysis. *Obstet Gynecol* 2008;112:1143–51.
37. Nassar N, Roberts CL, Barratt A, Bell JC, Olive EC, Peat B. Systematic review of adverse outcomes of external cephalic version and persisting breech presentation at term. *Paediatr Perinat Epidemiol* 2006;20:163–71.
38. Collaris RJ, Oei SG. External cephalic version: a safe procedure? A systematic review of version-related risks. *Acta Obstet Gynecol Scand* 2004;83:511–8.
39. Balayla J, Dahdouh EM, Villeneuve S, Boucher M, Gauthier RJ, Audibert F, et al. Obstetrical and neonatal outcomes following unsuccessful external cephalic version: a stratified analysis amongst failures, successes, and controls. *J Matern Fetal Neonatal Med* 2015;28:605–10.
40. Boucher M, Marquette GP, Varin J, Champagne J, Bujold E. Fetomaternal hemorrhage during external cephalic version. *Obstet Gynecol* 2008;112:79–84.
41. Qureshi H, Massey E, Kirwan D, Davies T, Robson S, White J, et al.; British Society for Haematology. BCSH guideline for the use of anti-D immunoglobulin for the prevention of haemolytic disease of the fetus and newborn. *Transfus Med* 2014;24:8–20.
42. Burr R, Helyer P, Robson SC. A training model for external cephalic version. *Eur J Obstet Gynecol Reprod Biol* 2001;99:199–200.
43. Hemelaar J, Lim LN, Impey LW. The impact of an ECV service is limited by antenatal breech detection: a retrospective cohort study. *Birth* 2015;42:165–72.
44. Say R, Thomson R, Robson S, Exley C. A qualitative interview study exploring pregnant women's and health professionals' attitudes to external cephalic version. *BMC Pregnancy Childbirth* 2013;13:4.
45. Rosman AN, Vlemmix F, Fleuren MA, Rijnders ME, Beuckens A, Opmeer BC, et al. Patients' and professionals' barriers and facilitators to external cephalic version for breech presentation at term, a qualitative analysis in the Netherlands. *Midwifery* 2014;30:324–30.
46. Rijnders M, Offerhaus P, van Dommelen P, Wiegers T, Buitendijk S. Prevalence, outcome, and women's experiences of external cephalic version in a low-risk population. *Birth* 2010;37:124–33.
47. Bogner G, Hammer BE, Schausberger C, Fischer T, Reisenberger K, Jacobs V. Patient satisfaction with childbirth after external cephalic version. *Arch Gynecol Obstet* 2014;289:523–31.
48. Fok WY, Chan LW, Leung TY, Lau TK. Maternal experience of pain during external cephalic version at term. *Acta Obstet Gynecol Scand* 2005;84:748–51.
49. Mukaindo AM, Wanyonyi SZ, Stones WR. External cephalic version in East, Central, and Southern Africa. *Int J Gynaecol Obstet* 2012;116:228–31.
50. Nassar N, Roberts CL, Cameron CA, Peat B. Outcomes of external cephalic version and breech presentation at term, an audit of deliveries at a Sydney tertiary obstetric hospital, 1997–2004. *Acta Obstet Gynecol Scand* 2006;85:1231–8.
51. Su M, McLeod L, Ross S, Willan A, Hannah WJ, Hutton E, et al.; Term Breech Trial Collaborative Group. Factors associated with adverse perinatal outcome in the Term Breech Trial. *Am J Obstet Gynecol* 2003;189:740–5.
52. Nassar N, Roberts CL, Cameron CA, Olive EC. Diagnostic accuracy of clinical examination for detection of non-cephalic presentation in late pregnancy: cross sectional analytic study. *BMJ* 2006;333:578–80.
53. Ford JB, Roberts CL, Nassar N, Giles W, Morris JM. Recurrence of breech presentation in consecutive pregnancies. *BJOG* 2010;117:830–6.
54. Coyle ME, Smith CA, Peat B. Cephalic version by moxibustion for breech presentation. *Cochrane Database Syst Rev* 2012;(5):CD003928.
55. Vas J, Aranda-Regules JM, Modesto M, Ramos-Monserrat M, Barón M, Aguilar I, et al. Using moxibustion in primary healthcare to correct non-vertex presentation: a multicentre randomised controlled trial. *Acupunct Med* 2013;31:31–8.
56. Hofmeyr GJ, Kulier R. Cephalic version by postural management for breech presentation. *Cochrane Database Syst Rev* 2012;(10):CD000051.

Appendix I: Explanation of guidelines and evidence levels

Clinical guidelines are: 'systematically developed statements which assist clinicians and patients in making decisions about appropriate treatment for specific conditions'. Each guideline is systematically developed using a standardised methodology. Exact details of this process can be found in Clinical Governance Advice No.1 *Development of RCOG Green-top Guidelines* (available on the RCOG website at <http://www.rcog.org.uk/green-top-development>). These recommendations are not intended to dictate an exclusive course of management or treatment. They must be evaluated with reference to individual patient needs, resources and limitations unique to the institution and variations in local populations. It is hoped that this process of local ownership will help to incorporate these guidelines into routine practice. Attention is drawn to areas of clinical uncertainty where further research may be indicated.

The evidence used in this guideline was graded using the scheme below and the recommendations formulated in a similar fashion with a standardised grading scheme.

Classification of evidence levels	Grades of recommendations
I++ High-quality meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a very low risk of bias	A At least one meta-analysis, systematic reviews or RCT rated as I++, and directly applicable to the target population; or A systematic review of RCTs or a body of evidence consisting principally of studies rated as I+, directly applicable to the target population and demonstrating overall consistency of results
I+ Well-conducted meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a low risk of bias	B A body of evidence including studies rated as 2++ directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as I++ or I+
I– Meta-analyses, systematic reviews of randomised controlled trials or randomised controlled trials with a high risk of bias	C A body of evidence including studies rated as 2+ directly applicable to the target population, and demonstrating overall consistency of results; or Extrapolated evidence from studies rated as 2++
2++ High-quality systematic reviews of case-control or cohort studies or high-quality case-control or cohort studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal	D Evidence level 3 or 4; or Extrapolated evidence from studies rated as 2+
2+ Well-conducted case-control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal	Good practice point
2– Case-control or cohort studies with a high risk of confounding, bias or chance and a significant risk that the relationship is not causal	 Recommended best practice based on the clinical experience of the guideline development group
3 Non-analytical studies, e.g. case reports, case series	
4 Expert opinion	

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All RCOG guidance developers are asked to declare any conflicts of interest. A statement summarising any conflicts of interest for this guideline is available from: <https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg20a/>

The final version is the responsibility of the Guidelines Committee of the RCOG.

The review process will commence in 2020, unless otherwise indicated.

DISCLAIMER

The Royal College of Obstetricians and Gynaecologists produces guidelines as an educational aid to good clinical practice. They present recognised methods and techniques of clinical practice, based on published evidence, for consideration by obstetricians and gynaecologists and other relevant health professionals. The ultimate judgement regarding a particular clinical procedure or treatment plan must be made by the doctor or other attendant in the light of clinical data presented by the patient and the diagnostic and treatment options available.

This means that RCOG Guidelines are unlike protocols or guidelines issued by employers, as they are not intended to be prescriptive directions defining a single course of management. Departure from the local prescriptive protocols or guidelines should be fully documented in the patient's case notes at the time the relevant decision is taken.