Royal College of Obstetricians and Gynaecologists

Setting standards to improve women's health

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THE MANAGEMENT OF BREECH PRESENTATION

This is the third edition of the guideline originally published in 1999 and revised in 2001 under the same title.

1. Purpose and scope

The aim of this guideline is to provide up-to-date information on methods of delivery for women with breech presentation. The scope is confined to decision making regarding the route of delivery and choice of various techniques used during delivery. It does not include antenatal or postnatal care. External cephalic version is the topic of a separate RCOG Green-top Guideline No. 20a: *ECV and Reducing the Incidence of Breech Presentation*.

2. Background

The incidence of breech presentation decreases from about 20% at 28 weeks of gestation to 3–4% at term, as most babies turn spontaneously to the cephalic presentation. This appears to be an active process whereby a normally formed and active baby adopts the position of 'best fit' in a normal intrauterine space. Persistent breech presentation may be associated with abnormalities of the baby, the amniotic fluid volume, the placental localisation or the uterus. It may be due to an otherwise insignificant factor such as cornual placental position or it may apparently be due to chance. There is higher perinatal mortality and morbidity with breech than cephalic presentation, due principally to prematurity, congenital malformations and birth asphyxia or trauma.[1,2] Caesarean section for breech presentation has been suggested as a way of reducing the associated perinatal problems[2,3] and in many countries in Northern Europe and North America caesarean section has become the normal mode of breech delivery. However, breech presentation, whatever the mode of delivery, is associated with increased risk of subsequent handicap.[4] This suggests that failure to adopt the cephalic presentation may in some cases be a marker for fetal impairment.

3. Identification and assessment of evidence

Evidence-based medicine reviews, including the Cochrane Register of Controlled Trials, were searched, together with the TRIP database, for relevant randomised controlled trials, systematic reviews and meta-analyses. A search of Medline and PubMed (electronic databases) from 1966 to 2005 was also carried out. Search words included 'breech', 'external cephalic version', 'fetal', 'tocolysis' and 'tocolytic agents' and the search was limited to humans and English language. The search was updated in May 2006 by searching PubMed for the term 'breech and delivery'. The author of the previous version of this guideline also liaised with the MIDIRS midwifery database and used the results of their search (November 1999).

4. What information should be given to women with breech presentation regarding mode of delivery?

Women should be informed of the benefits and risks, both for the current and for future pregnancies, of planned caesarean section versus planned vaginal delivery for breech presentation at term. **A**

*4.1 What information **about the baby** should be given to women with breech presentation regarding mode of delivery?*

Women should be informed that planned caesarean section carries a reduced perinatal mortality and early neonatal morbidity for babies with a breech presentation at term compared with planned vaginal birth. **A**

Women should be informed that there is no evidence that the long term health of babies with a breech presentation delivered at term is influenced by how the baby is born. **A**

A systematic review of randomised trials comparing a policy of intended caesarean section with a policy of intended vaginal birth, included three trials with 2396 participants.[5] Caesarean delivery occurred in 1060/1169 (91%) of those women allocated to planned caesarean section and 550/1227 (45%) of those allocated to a vaginal delivery protocol. Perinatal or neonatal death (excluding fatal anomalies) or short-term neonatal morbidity was reduced with a policy of planned caesarean section (RR 0.33, 95% CI 0.19–0.56) and perinatal or neonatal death alone (excluding fatal anomalies) was reduced with a policy of planned caesarean section (RR 0.29, 95% CI 0.10–0.86). Most of the data for the review were contributed by the Term Breech Trial.[6]

Evidence level Ia

After excluding the following cases: deliveries that occurred after a prolonged labour, labours that were induced or augmented with oxytocin or prostaglandins, cases where there was a footling or uncertain type of breech presentation at delivery and those cases for whom there was no skilled or experienced clinician present at the birth, the risk of the combined outcome of perinatal mortality, neonatal mortality or serious neonatal morbidity with planned caesarean section compared with planned vaginal birth was 16/1006 (1.6%) compared with 23/704 (3.3%) (RR 0.49; CI 0.26–0.91); $P = 0.02$). In a further subanalysis, the findings suggested that the benefits of delivery by caesarean section were more significant in countries with a low perinatal mortality rate.[7]

In another subgroup analysis, planned caesarean was associated with a lower risk of adverse outcome due to complications of both labour (RR 0.14, 95% CI 0.04–0.45, $P < 0.001$) and delivery (RR 0.37, 95% CI 0.16–0.87, $P = 0.03$), compared with planned vaginal birth.[8]

Evidence level Ib

In a secondary analysis of the data from the Term Breech Trial (not according to group allocation), adverse perinatal outcome was lowest with prelabour caesarean section and increased with caesarean section in early labour (latent phase), in active labour and vaginal birth. For women experiencing labour, adverse perinatal outcome was also associated with labour augmentation, birth weight less than 2.8 kg, longer time between pushing and delivery and no experienced clinician at delivery.[9]

The publication of the Term Breech Trial was followed within 2 months by an increased use of caesarean section for breech presentation in the Netherlands (50–80%) and improved neonatal outcome.[10]

Evidence level III

A number of questions were raised following publication of the Term Breech Trial,[11] largely about selection criteria and the conduct of labour. At that time there was evidence available to indicate that different strategies would eliminate the benefits of planned caesarean section for the baby.

Inconsistencies in the care of women in the Term Breech Trial have also been criticised.[12] However, multiple subgroup analyses failed to identify any group for which the benefit of planned caesarean section was eliminated.

It has been suggested that the Term Breech trial, by reflecting conventional 'expert' views, sanctioned the conventional dorsal lithotomy position for delivery and thereby missed an opportunity to evaluate labour and delivery in upright positions (considered by some to be physiologically and anatomically more sound).[13] This view has not been substantiated with clinical evidence.

Evidence level III

More recently, an observational prospective study with an intent-to-treat analysis conclude that, in units where planned vaginal delivery is a common practice and when strict criteria are met before and during labour, planned vaginal delivery of singleton fetuses in breech presentation at term remains a safe option that can be offered to women.[14] In the latter study, of the 2526 women with planned vaginal deliveries, 1796 delivered vaginally (71%). The rate of neonatal morbidity or death was considerably lower than the 5% in the Term Breech Trial (1.60%; 95% CI 1.14–2.17), and not significantly different from the planned caesarean section group.

A 2-year follow-up was conducted at the Term Breech Trial centres which expected to be able to achieve follow-up rates of about 80%.[15] The primary outcome, death or neurodevelopmental delay at age 2 years, was similar between the two groups (RR 1.09, 95% CI 0.52–2.30). The smaller number of perinatal deaths with planned caesarean section was balanced by a greater number of babies with neurodevelopmental delay. This was unexpected, as there had been fewer babies in the planned caesarean section group with severe perinatal morbidity. Mothers in the planned caesarean section group expressed less worry about their babies' health.[16] Planned caesarean section was found to be less costly than planned vaginal birth (excluding possible future costs related to complications of a scarred uterus).[17]

Evidence level I

*4.2 What information should women having breech births be given **about their own** immediate and future health?*

Women should be advised that planned caesarean section for breech presentation carries a small increase in serious immediate complications for them compared with planned vaginal birth. **A**

Women should be advised that planned caesarean section for breech presentation does not carry any additional risk to long-term health outside pregnancy. **A**

Women should be advised that the long-term effects of planned caesarean section for term breech presentation on future pregnancy outcomes for them and their babies is uncertain. **C**

In the three trials reviewed, planned caesarean section compared with planned vaginal birth was associated with a small, statistically significant increase in short-term serious maternal morbidity (RR 1.29, 95% CI 1.03–1.61). Follow-up for women at centres participating in the 3-month follow up of the Term Breech Trial was greater than 82%.[18] Women allocated to the planned caesarean section group reported less urinary incontinence (RR 0.62, 95% CI 0.41–0.93); more abdominal pain (RR 1.89, 95% CI 1.29–2.79); and less perineal pain (RR 0.32, 95% CI 0.18–0.58). There were no statistically significant differences in other outcomes.

Evidence level Ib

The 2-year follow-up of women enrolled in the Term Breech Trial measured a wide range of outcomes relating to the women's health. No differences were detected, except for more constipation in the planned caesarean section group (RR 1.35, 95% CI 1.06–1.70). The planned mode of delivery was found to influence aspects of women's evaluations of their childbirth

experiences but did not affect evaluations of the quality of intrapartum care, support from care providers or the amount of involvement in decision-making.[16]

Evidence level Ib

The long-term risks of caesarean section for the mother, such as scar dehiscence in a subsequent pregnancy, increased risk of repeat caesarean section (44% in a UK study [19]) and placenta accreta, need to be taken into account when considering the risks and benefits of planned caesarean section. However, no data from randomised trials are available to quantify these risks accurately.

It has been estimated that for every infant potentially saved by a caesarean section, one woman will experience a uterine rupture during a subsequent pregnancy (in a setting in which vaginal birth after caesarean is practised).[20] A study from the Netherlands estimated that, in the 4 years following publication of the Term Breech Trial, the increase of approximately 8500 elective caesarean sections probably prevented 19 perinatal deaths. However, it also resulted in four maternal deaths that may have been avoidable. It is estimated that, in future pregnancies, nine perinatal deaths can be expected as a result of the uterine scar and 140 women will have potentially life-threatening complications from the uterine scar.[21]

Evidence level III

5. What factors affect the safety of vaginal breech delivery?

Women should be assessed carefully before selection for vaginal breech birth. C

Women with unfavourable clinical features should be specifically advised of the increased risk to them and their babies of attempting vaginal breech birth. ✓

Routine radiological pelvimetry is not necessary. B

Diagnosis of breech presentation for the first time during labour should not be a contraindication for vaginal breech birth. C

Factors regarded as unfavourable for vaginal breech birth include the following:

- other contraindications to vaginal birth (e.g. placenta praevia, compromised fetal condition)
- clinically inadequate pelvis
- footling or kneeling breech presentation
- large baby (usually defined as larger than 3800 g)
- growth-restricted baby (usually defined as smaller than 2000 g)
- Hyperextended fetal neck in labour (diagnosed with ultrasound or X-ray where ultrasound is not available)
- lack of presence of a clinician trained in vaginal breech delivery
- previous caesarean section.

Evidence level IV

Some women with breech presentation choose to deliver vaginally[22] and some women for whom a caesarean section is planned labour too quickly for the operation to be undertaken (nearly 10% of women assigned to deliver by caesarean section in the Term Breech Trial delivered vaginally).

It remains important that clinicians and hospitals are prepared for vaginal breech delivery.

A recent French study found that the rate of neonatal complications among the babies of women with planned vaginal delivery was lower for those giving birth in units where previously agreed consensus guidelines were applied than for those in units where such guidelines were not applied.[23] The Term Breech Trial analyses suggested that the absence of an experienced practitioner at the birth increased the risk of adverse outcomes.

Evidence level III

A trial of vaginal breech delivery is more likely to be successful if both the mother's pelvis and the baby are of average proportions.[24,25] In an intention-to-treat observational analysis, there were no overall differences in neurodevelopmental outcome at 2 years between planned vaginal delivery and planned caesarean section but there was significantly higher risk of neurodevelopmental delay in children with birth weight greater than 3500 g with planned vaginal birth.[26]

The presentation should be either frank (hips flexed, knees extended) or complete (hips flexed, knees flexed but feet not below the fetal buttocks). If the baby's trunk and thighs pass easily through the pelvis simultaneously, cephalopelvic disproportion is unlikely. A recent observational study of non-frank breech presentations found a high rate of cord prolapse (5.6%) but no increase in abnormal labour nor impaired perinatal outcome.[27] There should be no evidence of hyperextension of the fetal head.[28,29] A trial of labour should be precluded in the presence of medical or obstetric complications which are likely to be associated with mechanical difficulties at delivery.27 There should be no evidence of fetopelvic disproportion. Although much emphasis is placed on adequate case selection prior to labour, assessment of the previously undiagnosed breech in labour by experienced medical staff can also allow safe vaginal delivery.[30]

Evidence level III

Ophir *et al.*[31] undertook a trial of labour in 66% of women with a previous caesarean section, of whom 79% delivered their breech infants vaginally. However, previous caesarean section is generally considered to be an unfavourable factor for vaginal breech birth.

Clinical judgement has previously been considered adequate for routine pelvic assessment.[29] Previous studies of X-ray pelvimetry were not able to confirm the value of this examination in selecting those women who were more likely to succeed in a trial of labour or to have any effect on perinatal outcome.[27] In a subanalysis of the Term Breech Trial, the use of radiological pelvimetry was not linked to improved outcome.

In a randomised trial, magnetic resonance pelvimetry reduced the number of emergency caesarean sections. No difference was shown in the overall number of caesarean sections or in the perinatal outcome. The numbers studied were too small to detect modest differences in these outcomes.[32]

A recent retrospective study suggested improved perinatal outcome for vaginal breech delivery in women with computed tomography-confirmed adequate pelvimetry.[33]

6. Intrapartum management

6.1 Where should vaginal breech birth take place?

Vaginal breech birth should take place in a hospital with facilities for emergency caesarean section. ✓

Ready access to caesarean section is considered important, particularly in the event of poor progress in the second stage of labour. No systematic evidence exists on the complications of breech birth outside the hospital setting.

Evidence level Ib

6.2 What is the place of labour induction, labour augmentation and epidural analgesia in breech labour?

Labour induction for breech presentation may be considered if individual circumstances are favourable. ✓

Labour augmentation is not recommended. C

Epidural analgesia should not be routinely advised; women should have a choice of analgesia during breech labour and birth. ✓

There is no evidence that epidural analgesia is essential and, in selected cases, induction or augmentation may be justified. However, augmentation of established labour is controversial as poor progress in established labour may be a sign of fetopelvic disproportion. In the Term Breech Trial cohort (both groups), labour augmentation was associated with adverse perinatal outcome.

Evidence level IV

6.3 What is the place of fetal monitoring during breech labour?

Continous electronic fetal heart rate monitoring should be offered to women with a breech presentation in labour.

C

Fetal blood sampling from the buttocks during labour is not advised.

✓

In the seventh Annual Report of the Confidential Enquiry into Stillbirth and Deaths in Infancy,[34] the most avoidable factor in causing breech stillbirths and death among breech babies was suboptimal care in labour, particularly with respect to assessment of fetal wellbeing (see section 8 below). In the Canadian consensus of breech management at term,[25] guidelines on intrapartum management were drawn up. Careful monitoring of fetal wellbeing and progress of labour were emphasised. In the Term Breech Trial, the most common reasons for emergency caesarean section were 'failure to progress' (50%) and 'fetal distress' (29%).

Evidence level III

One small study of fetal blood sampling from the buttocks showed that acid base values were accurately obtained from this site.[35] However, given the concerns above and the small sample size of the study, the use of fetal blood sampling during labour may be ill-advised.

6.4 How should delayed second stage of labour with breech presentation be managed?

Caesarean section should be considered if there is delay in the descent of the breech at any stage in the second stage of labour.

C

Failure of the presenting part to descend may be a sign of relative fetopelvic disproportion. Caesarean section should be considered.

Evidence level IV

6.5 What maternal position should be used for breech delivery?

Women should be advised that, as most experience with vaginal breech birth is in the dorsal or lithotomy position, that this position is advised.

C

The available data reviewed for breech outcomes are from studies where the woman is in the dorsal or lithotomy position. Several authors have recommended use of upright postures to improve outcomes of vaginal breech birth. However, no studies documenting the effectiveness of this strategy have been found, to justify departure from conventional postures with which most practitioners are familiar.

Evidence level IV

6.6 Should routine episiotomy be performed?

Episiotomy should be performed when indicated to facilitate delivery.

C

For cephalic presentation, there is clear evidence that selective episiotomy is preferable to routine episiotomy. There is no evidence as to whether advice for breech delivery should differ from that for cephalic delivery.

Evidence level IV

6.7 Should breech extraction be performed routinely?

Breech extraction should not be used routinely.

C

Conventional teaching in the UK is that spontaneous delivery of the trunk and limbs is preferable, because breech extraction causes extension of the arms and head. There is insufficient evidence to support or refute the policy of routinely expediting vaginal breech delivery by extraction of the baby within a single uterine contraction.[36] In other areas, other techniques for breech birth are practised that do not involve spontaneous delivery, such as the Bracht technique, but there are no recent data on safety or complications.

Evidence level III

6.8 How should delayed delivery of the arms be managed?

The arms should be delivered by sweeping them across the baby's face and downwards or by the Lovset manoeuvre (rotation of the baby to facilitate delivery of the arms). C

There is no evidence to indicate which method should be attempted first. Evidence level IV

6.9 How should delayed engagement in the pelvis of the aftercoming head be managed?

Suprapubic pressure by an assistant should be used to assist flexion of the head. C

The Mauriceau-Smellie-Veit manoeuvre should be considered, if necessary, displacing the head upwards and rotating to the oblique diameter to facilitate engagement. C

There is no experimental evidence to indicate which is the best method of assisting engagement of the head in the pelvis.

Evidence level IV

6.10 How should the aftercoming head be delivered?

The aftercoming head may be delivered with forceps, the Mariceau-Smellie-Veit manoeuvre or the Burns-Marshall method. C

There is no experimental evidence as to which method is preferable. Concern has been expressed about risks of the Burns-Marshall method if used incorrectly, leading to over-extension of the baby's neck.

Evidence level IV

6.11 How should obstructed delivery of the aftercoming head be managed?

If conservative methods fail, symphysiotomy or caesarean section should be performed. C

Successful delivery both by symphysiotomy and by rapid caesarean section when attempts to deliver the aftercoming head are unsuccessful, have been described.

Evidence level IV

7. Management of the preterm breech and twin breech

7.1 How should preterm babies in breech presentation be delivered?

Routine caesarean section for the delivery of preterm breech presentation should not be advised. C

The mode of delivery of the preterm breech presentation should be discussed on an individual basis with a woman and her partner. ✓

Where there is head entrapment during a preterm breech delivery, lateral incisions of the cervix should be considered. ✓

Evidence from the Term Breech Trial cannot be directly extrapolated to preterm breech delivery, which remains an area of clinical controversy.[37,38]

One randomised trial of planned caesarean section for preterm breech was abandoned because of insufficient enrolments.[39]

A retrospective cohort study found that very-low-birthweight breech or malpresenting neonates delivered by a primary caesarean section had significantly lower adjusted relative risks of death compared with those delivered vaginally. However, the authors emphasised that a causal relationship cannot be inferred.[40]

Although the majority of obstetricians use caesarean section for the uncomplicated preterm breech, only a minority believe that there is sufficient evidence to justify this policy.[37] There is general acknowledgement that the numerous retrospective studies which suggest that caesarean section confers a better outcome in this situation have been subject to bias.[41] This is acknowledged in some reports.[42] The poor outcome for very-low-birthweight infants is mainly related to complications of prematurity and not the mode of delivery.[43]

Evidence level III

A specific problem encountered during preterm breech delivery is delivery of the trunk through an incompletely dilated cervix. In this situation, lateral cervical incisions have been used to release the aftercoming head. Similar rates of head entrapment have been described for vaginal and abdominal delivery.[44]

In the absence of good evidence that a preterm baby needs to be delivered by caesarean section, the decision about the mode of delivery should be made after close consultation with the woman and her partner.[38]

Evidence level IV

7.2 How should a first twin in breech presentation at term be delivered?

Women should be informed of the benefits, including reduced perinatal mortality, and risks, both for the current and for future pregnancies, of planned caesarean section for breech presentation. **C**

Women should be advised that planned caesarean section for breech presentation carries a very small increase in serious immediate complications for them compared with planned vaginal birth. **C**

In the absence of specific evidence on relative risks of planned vaginal birth and planned caesarean section for the first twin in breech presentation, it would be reasonable to use data from singleton breech presentation as a proxy to assist decision making.

Evidence level III

Oettinger *et al*.[45] compared the outcome of breech presenting twins over two time periods, where the caesarean section rate increased from 21% to almost 95%, and found no change in neonatal morbidity or mortality. They did, however, find an increase in maternal mortality in association with a caesarean section delivery. In a review of three cohort studies (1812 women) and one randomised controlled trial (120 women), twins with twin A presenting as breech were less likely to have a low 5-minute Apgar score if they had a planned caesarean section (OR 0.33, 95% CI 0.17–0.65).[46]

Evidence level IIa

Although many clinicians choose caesarean section when the first twin presents as a breech, because of concern about 'interlocking', this complication is extremely rare. Cohen *et al*.[47] reported 'interlocking' occurring only once in 817 twin pregnancies where the first twin was breech and the second cephalic. The attendant should be aware of this possible diagnosis if the delivery of the trunk is delayed and be prepared to displace the head of the second twin upwards or to perform rapid caesarean section.

Evidence level III

7.3 How should a second twin in breech presentation be delivered?

Routine caesarean section for twin pregnancy with breech presentation of the second twin should not be performed. C

The second twin is nonvertex in about 40% of cases. In an observational study, low Apgar scores were found to be less frequent when delivery was by caesarean section.[48] However, a causal relationship cannot be inferred. Another observational study concluded that the type of presentation should not influence the choice of method of delivery.[49] In a nonrandomised report on the safety of vaginal delivery for the nonvertex second twin,[50] there were no fetal losses in either group of second twins, with 74 being delivered by caesarean and 76 being delivered vaginally. In a retrospective cohort study, neonatal morbidity after vaginal delivery was similar for noncephalic-presenting and cephalic-presenting second twins, particularly at lower gestational ages.[51]

Evidence level III

Rabinovici *et al*.[52] carried out a randomised study of twin deliveries where the second twin's presentation was nonvertex. The results showed no difference in 5-minute Apgar scores or in any other indices in neonatal morbidity between the two groups but the power to detect differences was low as the study only included 60 twins.

Evidence level Ib

The presentation of the second twin at delivery is not always predictable. The chance of cephalic delivery may be improved by routinely guiding the head of the second twin towards the pelvis during and immediately after delivery of the first twin. On the other hand, some attendants prefer to routinely expedite delivery of the second twin by internal version and breech extraction irrespective of the presentation.

Evidence level IV

8. Training: skill, experience and judgement of the intrapartum attendant

8.1 What part does the skill of the attendant play in vaginal breech delivery?

A practitioner skilled in the conduct of labour with breech presentation and vaginal breech birth should be present at all vaginal breech births. ✓

If a unit is unable to offer the choice of a planned vaginal breech birth, women who wish to choose this option should be referred to a unit where this option is available. ✓

Practitioners supervising labour with a breech presentation or carrying out vaginal breech birth should have appropriate training, which may include simulated training. ✓

The skill, experience and judgements of the intrapartum attendant are important, in particular with respect to the assessment of fetal condition.

In the seventh Annual Report of the Confidential Enquiry into Stillbirth and Deaths in Infancy, the most avoidable factor in causing breech stillbirths and death among breech babies was suboptimal care in labour.[34] In cases where the cardiotocograph was available for review, there was clinical evidence of hypoxia in all but one case before delivery and delays in staff response to fetal compromise occurred in nearly 75% of cases. These delays ranged from 30 minutes to 10 hours. Consultants were informed in only 50% of these cases before delivery. Clinical inexperience at the time of delivery exacerbated the risk for an already hypoxic baby in some cases. Trauma was the sole cause of death in only one case. Any woman who gives birth vaginally with breech presentation should be cared for by an attendant with suitable experience.[53] Good communication between practitioners is important.

Evidence level IV

In recent years in the UK, there has been a reduced number of vaginal breech deliveries managed by an increased number of trainees. Alternative methods of training need to be introduced (such as videos, models and scenario teaching).[54–56] Simulation training has been shown to improve performance in the management of a simulated vaginal breech delivery (CNST criterion 5.2.1).[57] A video-recorded teaching aid on vaginal breech delivery and symphysiotomy is available in the World Health Organization Reproductive Health Library (available from rhl@who.int; www.rhlibrary.com).

Evidence level IV

9. Documentation

What is the place of documentation?

All details of care should be clearly documented, including details of counselling and the identity of all those involved in the procedures.

10. Auditable standards

What standards may be used to evaluate care of women with breech presentation during delivery?

1. Discussion with woman regarding mode of delivery documented in the notes.
2. Review with the mother of the birth documented in the notes.
3. Proportion of planned vaginal deliveries that take place vaginally.
4. Proportion of planned caesarean sections that deliver by caesarean section.
5. Rate of experienced attendant being present during breech labour.
6. Rate of experienced attendant being present during vaginal breech birth.
7. Rate of birth trauma during breech delivery.
8. Rate of perinatal death related to breech birth.
9. Rate of perinatal death or severe morbidity related to breech birth.
10. Rate of neonatal encephalopathy related to breech birth.
11. Training program in place for improving vaginal breech delivery skills.

Evidence level IV

References

1. Pritchard JA, MacDonald PC. Dystocia caused by abnormalities in presentation, position, or development of the fetus. In: *Williams Obstetrics*. Norwalk, CT: Appleton-Century-Crofts; 1980. p.787–96.
2. Cheng M, Hannah M. Breech delivery at term: a critical review of the literature. *Obstet Gynecol* 1993;82:605–18.
3. Ghosh MK. Breech presentation: evolution of management. *J Reprod Med* 2005;50:108–16
4. Danielian PJ, Wang J, Hall MH. Long-term outcome by method of delivery of fetuses in breech presentation at term: population-based follow up. *BMJ* 1996;312:1451–3.
5. Hofmeyr GJ, Hannah ME. Planned caesarean section for term breech delivery. *Cochrane Database Syst Rev* 2003(2):CD000166.
6. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR, *et al*. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. *Lancet* 2000;356:1375–83.
7. Lumley J. Any room left for disagreement about assisting breech births at term? *Lancet* 2000;356:1369–70.
8. Su M, Hannah WJ, Willan A, Ross S, Hannah ME; Term Breech Trial Collaborative Group. Planned caesarean section decreases the risk of adverse perinatal outcome due to both labour and delivery complications in the Term Breech Trial. *BJOG* 2004;111:1065–74.
9. Su M, McLeod L, Ross S, Willan A, Hannah WJ, Hutton E, *et al*. Factors associated with adverse perinatal outcome in the Term Breech Trial. *Am J Obstet Gynecol* 2003;189:740–5.
10. Rietberg CCT, Elferink-Stinkens PM, Visser GHA. The effect of the Term Breech Trial on medical intervention behaviour and neonatal outcome in The Netherland: an analysis of 35453 term breech infants. *BJOG* 2005;112:205–9.
11. Term Breech trial [correspondence]. Lancet 2001;357:225–8.
12. Glezerman M. Five years to the term breech trial: the rise and fall of a randomized controlled trial. *Am J Obstet Gynecol* 2006;194:20–5.
13. Gyte G, Frohlich J. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. *MIDIRS Midwifery Digest* 2001;11:80–3.
14. Goffinet F, Carayol M, Foidart JM, Alexander S, Uzan S, Subtil D, *et al*. PREMODA Study Group. Is planned vaginal delivery for breech presentation at term still an option? Results of an observational prospective survey in France and Belgium. *Am J Obstet Gynecol* 2006;194:1002–11.
15. Whyte H, Hannah M, Saigal S, Term Breech Trial Collaborative Group. Outcomes of children at 2 years of age in the Term Breech Trial. *Am J Obstet Gynecol* 2003;189:S57.
16. Hodnett ED, Hannah ME, Hewson S, Whyte H, Amankwah K, Cheng M, *et al*. Mothers' views of their childbirth experiences 2 years after planned Caesarean versus planned vaginal birth for breech presentation at term, in the international randomized Term Breech Trial. *J Obstet Gynaecol Can* 2005;27:224–31.
17. Palencia R, Gafni A, Hannah ME, Ross S, Willan AR, Hewson S, *et al*. Term Breech Trial Collaborative Group. The costs of planned

caesarean versus planned vaginal birth in the Term Breech Trial. *CMAJ* 2006;174:1109–13.
18. Hannah ME, Hannah WJ, Hodnett ED, Chalmers B, Kung R, Willan A, et al. Outcomes at 3 months after planned cesarean vs planned vaginal delivery for breech presentation at term: the international randomized term breech trial. *JAMA* 2002; 287:1822–31.
19. Coughlan C, Kearney R, Turner MJ. What are the implications for the next delivery in primigravidae who have an elective caesarean section for breech presentation? *BJOG* 2002;109:624–6.
20. Visser GH, Rietberg CC, Oepkes D, Vandenbussche FP. Breech presentation: infant versus mother. *Ned Tijdschr Geneeskd.* 2005;149:2211–4.
21. Verhoeven AT, de Leeuw JP, Bruinse HW. Breech presentation at term: elective caesarean section is the wrong choice as a standard treatment because of too high risks for the mother and her future children. *Ned Tijdschr Geneeskd* 2005;149:2207–10.
22. Doyle NM, Riggs JW, Ramin SM, Sosa MA, Gilstrap LC 3rd. Outcomes of term vaginal breech delivery. *Am J Perinatol* 2005;22:325–8.
23. Vendittelli F, Pons JC, Lemery D, Mamelle N; The Obstetricians of the AUDIPOG Sentinel Network. The term breech presentation: Neonatal results and obstetric practices in France. *Eur J Obstet Gynecol Reprod Biol* 2006 ;125:176–84.
24. International Federation of Gynecology and Obstetrics. Recommendations of the FIGO Committee on Perinatal health on guidelines for the management of breech delivery. *Eur J Obstet Gynecol Reprod Biol* 1995;58:89–92.
25. Society of Obstetricians and Gynaecologists of Canada. Policy Statement: the Canadian consensus on breech management at term. *J Soc Obstet Gynecol Can* 1994;16:1839–58.
26. Molkenboer JF, Roumen FJ, Smits LJ, Nijhuis JG. Birth weight and neurodevelopmental outcome of children at 2 years of age after planned vaginal delivery for breech presentation at term. *Am J Obstet Gynecol* 2006;194:624–9.
27. Broche DE, Riethmuller D, Vidal C, Sautiere JL, Schaal JP, Maillet R. Obstetric and perinatal outcomes of a disreputable presentation: the nonfrank breech. *J Gynecol Obstet Biol Reprod* 2005;34:781–8.
28. Rojansky N, Tanos V, Lewin A, Weinstein D. Sonographic evaluation of fetal head extension and maternal pelvis in cases of breech presentation. *Acta Obstet Gynecol Scand.* 1994;73:607–11.
29. Royal College of Obstetricians and Gynaecologists. *Pelvimetry: Clinical Indications*. Green-top Guideline No. 14. London: RCOG; 1998.
30. Nwosu EC, Walkinshaw S, Chia P, Manasse PR, Atlay RD. Undiagnosed breech. *BJOG* 1993;100:531–5.
31. Ophir E, Oettinger M, Yagoda A, Markovits Y, Rojansky N, Schapiro H. Breech presentation after cesarean section: always a section? *Am J Obstet Gynecol* 1989;161:25–8.
32. 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*. 1997:2027;350:1799–804.
33. Jeyabalan A. Larkin RW. Landers DV. Vaginal breech deliveries selected using computed tomographic pelvimetry may be associated with fewer adverse outcomes. *J Mat Fetal Neonat Med* 17:381–5, 2005
34. Confidential Enquiry into Stillbirths and Deaths in Infancy. *7th Annual Report*. London: Maternal and Child Health Research Consortium; 2000 [www.cemach.org.uk/publications/7th_Report.pdf].
35. Brady K, Duff P, Read JA, Harlass FE. Reliability of fetal buttock sampling in assessing the acid–base balance of the breech fetus. *Obstet Gynecol* 1989;74:886–8.
36. Hofmeyr GJ, Kulier R. Expedited versus conservative approaches for vaginal delivery in breech presentation. *Cochrane Database Syst Rev.* 2000(2):CD000082.
37. Penn ZJ, Steer PJ. How obstetricians manage the problem of preterm delivery with special reference to the preterm breech. *BJOG* 1991;98:531–4.
38. Penn ZJ, Steer PJ. Preterm breech. *Contemp Rev Obstet Gynaecol* 1992;4:172–6.
39. Penn ZJ, Steer PJ, Grant A.A multicentre randomised controlled trial comparing elective and selective caesarean section for the delivery of the preterm breech infant. *BJOG* 1996;103:684–9.
40. Muhuri PK, Macdorman MF, Menacker F. Method of delivery and neonatal mortality among very lLow birth weight infants in the United States. *Matern Child Health J* 2006;10:47–53.
41. Bowes WA Jr, Taylor ES, O'Brien M, Bowes C. Breech delivery: evaluation of the method of delivery on perinatal results and maternal morbidity. *Am J Obstet Gynecol* 1979;135:965–73.
42. Gravenhorst JB, Schreuder AM, Veen S, Verloove-Vanhorick SP, Verweij Ra, Ens–Dokkum MH, et al. Breech delivery in very preterm and very low birthweight infants in the Netherlands. *Br J Obstet Gynaecol* 1993;100:411–5.
43. Cibils LA, Karrison T, Brown L. Factors influencing neonatal outcomes in the very low birthweight fetus (< 1500 g) with a breech presentation. *Am J Obstet Gynecol* 1994;171:35–42.
44. Robertson PA, Foran CM, Croughan–Minihane MS, Kilpatrick SJ. Head entrapment and neonatal outcome by mode of delivery in breech deliveries from 28 to 36 weeks of gestation. *Am J Obstet Gynecol* 1996;174:1742–7.
45. Oettinger M, Ophir E, Markovitz J, Stolero E, Odeh M. Is caesarean section necessary for delivery of a breech first twin? *Gynecol Obstet Invest* 1993;35:38–43.
46. Hogle KL, Hutton E, McBrien KA, Barrett JF, Hannah ME. Cesarean delivery for twins: a systematic review and meta-analysis. *Am J Obstet Gynecol* 2003;188:220–7.
47. Cohen M, Kohl SG, Roisenthal AH. Fetal interlocking complicating twin gestation. *Am J Obstet Gynecol* 1965;91:407.
48. Ginsberg NA, Levine EM. Delivery of the second twin. *Int J Gynaecol Obstet* 2005;91:217–20.
49. Sibony O, Touitou S, Luton D, Oury JF, Blot P. Modes of delivery of first and second twins as a function of their presentation study of 614 consecutive patients from 1992 to 2000. *Eur J Obstet Gynecol Reprod Biol* 2006;126:180–5.
50. Laros RK Jr, Dattel BJ. Management of twin pregnancy: the vaginal route is still safe. *Am J Obstet Gynecol* 1988;158:1330–8.
51. Caukwell S, Murphy DJ. The effect of mode of delivery and gestational age on neonatal outcome of the non-cephalic-presenting second twin. *Am J Obstet Gynecol* 2002;187:1356–61.
52. Rabinovici J, Barkai G, Reichman B, Serr DM, Mashiach S. Randomised management of the second nonvertex twin: vaginal delivery or caesarean section. *Am J Obstet Gynecol* 1987;156:52–6.
53. Abasiattai AM, Etuk SJ, Asuquo EEJ, Iklaki CO. Perinatal outcome following singleton vaginal breech delivery in the University of Calabar Teaching Hospital, Calabar: a 10-year review. *Mary Slessor Journal of Medicine* 2004;4:81–5.
54. Gibson J. Advanced Life Support in Obstetrics: the story so far. *MIDIRS Midwifery Digest* 2000;10:517–19.
55. Burr RW, Johanson RB, Lucking P. External Cephalic Version at Term [video recording]. 2000.
56. Johanson RB, Cox C, O'Donnell E, Grady K, Howell CJ, Jones PW. Managing obstetric emergencies and trauma (MOET). Structured skills training using models and reality-based scenarios. *The Obstetrician & Gynaecologist* 1999;1:46–52.
57. Deering S, Brown J, Hodor J, Satin AJ. Simulation training and resident performance of singleton vaginal breech delivery. *Obstet Gynecol* 2006;107:86–9.

APPENDIX

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: *Guidance for the Development of RCOG Green-top Guidelines* (available on the RCOG website at www.rcog.org.uk/clingov1). 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

Ia	Evidence obtained from meta-analysis of randomised controlled trials.
Ib	Evidence obtained from at least one randomised controlled trial.
IIa	Evidence obtained from at least one well-designed controlled study without randomisation.
IIb	Evidence obtained from at least one other type of well-designed quasi-experimental study.
III	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies.
IV	Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities.

Grades of recommendations

A	Requires at least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing the specific recommendation. (Evidence levels Ia, Ib)
B	Requires the availability of well controlled clinical studies but no randomised clinical trials on the topic of recommendations. (Evidence levels IIa, IIb, III)
C	Requires evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities. Indicates an absence of directly applicable clinical studies of good quality. (Evidence level IV)

Good practice point

✓	Recommended best practice based on the clinical experience of the guideline development group.

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The final version is the responsibility of the Guidelines and Audit Committee of the RCOG

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.

This guideline was reviewed in 2010. A literature review indicated there was no new evidence available which would alter the recommendations and therefore the guideline review date has been extended until 2012, unless evidence requires earlier review.