Management of the preterm breech

How should preterm singleton babies in breech presentation be delivered?

Women should be informed that routine caesarean section for breech presentation in spontaneous preterm labour is not recommended. The mode of delivery should be individualised based on the stage of labour, type of breech presentation, fetal wellbeing and availability of an operator skilled in vaginal breech delivery. C

Women should be informed that caesarean section for breech presentation in spontaneous preterm labour at the threshold of viability (22–25^{+6} weeks of gestation) is not routinely recommended. C

Women should be informed that planned caesarean section is recommended for preterm breech presentation where delivery is planned due to maternal and/or fetal compromise. [*New 2017*] ✓

How should labour with a singleton preterm breech be managed?

Labour with a preterm breech should be managed as with a term breech. [*New 2017*] C

Where there is head entrapment, incisions in the cervix (vaginal birth) or vertical uterine incision extension (caesarean section) may be used, with or without tocolysis. D

Management of the twin pregnancy with a breech presentation

How should a first twin in breech presentation be delivered?

Women should be informed that the evidence is limited, but that planned caesarean section for a twin pregnancy where the presenting twin is breech is recommended. [*New 2017*] C

Routine emergency caesarean section for a breech first twin in spontaneous labour, however, is not recommended. The mode of delivery should be individualised based on cervical dilatation, station of the presenting part, type of breech presentation, fetal wellbeing and availability of an operator skilled in vaginal breech delivery. [*New 2017*] C

How should a second twin in breech presentation be delivered?

Routine caesarean section for breech presentation of the second twin is not recommended in either term or preterm deliveries. B

What organisational and governance arrangements should be in place to support a routine vaginal breech delivery service?

Simulation equipment should be used to rehearse the skills that are needed during vaginal breech birth by all doctors and midwives. ✓

Guidance for the case selection and management of vaginal breech birth should be developed in each department by the healthcare professionals who supervise such births. Adherence to the guidelines is recommended to reduce the risk of intrapartum complications. [*New 2017*] C

Departments should consider developing a checklist to ensure comprehensive counselling of the woman regarding planned mode of delivery for babies presenting by the breech. [*New 2017*] ✓

1. Purpose and scope

The aim of this guideline is to provide up-to-date information on the modes 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 (ECV) is the topic of the separate Royal College of Obstetricians and Gynaecologists (RCOG) Green-top Guideline No. 20a: *External Cephalic Version and Reducing the Incidence of Term Breech Presentation*.[1]

2. Introduction and background epidemiology

Breech presentation occurs in 3–4% of term deliveries and is more common preterm. It is associated with uterine and congenital abnormalities, has a significant recurrence risk and is more common in nulliparous women.[2] Term babies presenting by the breech have worse outcomes than cephalic ones, irrespective of the mode of delivery.[3]

Publication of the Term Breech Trial (TBT)[4] was followed by a large reduction in the incidence of planned vaginal birth. Nevertheless, vaginal breech births will continue, not merely because of failure to detect breech presentation and the limitations of ECV, but for reasons of maternal choice. Lack of experience has led to a loss of skills essential for these deliveries. Conversely, caesarean section can have serious long-term consequences.

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. What information should be given to women with breech presentation at term?

Women with a breech presentation at term should be offered ECV unless there is an absolute contraindication. They should be advised on the risks and benefits of ECV and the implications for mode of delivery. A

Women who have a breech presentation at term following an unsuccessful or declined offer of ECV should be counselled on the risks and benefits of planned vaginal breech delivery versus planned caesarean section. ✓

Please refer to the RCOG Green-top Guideline No. 20a: *External Cephalic Version and Reducing the Incidence of Term Breech Presentation*.[1]

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

Women should be informed that planned caesarean section leads to a small reduction in perinatal mortality compared with planned vaginal breech delivery. Any decision to perform a caesarean section needs to be balanced against the potential adverse consequences that may result from this. A

Women should be informed that the reduced risk is due to three factors: the avoidance of stillbirth after 39 weeks of gestation, the avoidance of intrapartum risks and the risks of vaginal breech birth, and that only the last is unique to a breech baby. B

Women should be informed that when planning delivery for a breech baby, the risk of perinatal mortality is approximately 0.5/1000 with caesarean section after 39^{+0} weeks of gestation; and approximately 2.0/1000 with planned vaginal breech birth. This compares to approximately 1.0/1000 with planned cephalic birth. C

Selection of appropriate pregnancies and skilled intrapartum care may allow planned vaginal breech birth to be nearly as safe as planned vaginal cephalic birth. C

Women should be informed that planned vaginal breech birth increases the risk of low Apgar scores and serious short-term complications, but has not been shown to increase the risk of long-term morbidity. B

Clinicians should counsel women in an unbiased way that ensures a proper understanding of the absolute as well as relative risks of their different options. ✓

Observational, usually retrospective, series have consistently favoured elective caesarean birth over vaginal breech delivery. A meta-analysis of 27 studies examining term breech birth,[5] which included 258 953 births between 1993 and 2014, suggested that elective caesarean section was associated with a two- to five-fold reduction in perinatal mortality when compared with vaginal breech delivery although the absolute risk of perinatal mortality with vaginal delivery was 3/1000. This meta-analysis is limited by the retrospective nature of many of the studies and the absence of complete intention to treat analysis. The increased practice of caesarean section accounts for only a small proportion (16%) of the decline in delivery-related perinatal death.[6]

Evidence level 2++

The TBT[4] randomised 2088 women to either planned caesarean section or planned vaginal birth at 121 centres in 26 countries. This trial was by far the major contributor to the Cochrane Review[7] which demonstrated a reduction in perinatal mortality with planned caesarean section (RR 0.29, 95% CI 0.10–0.86) from 1.3 to 0.3%. This trial also reported a reduction in the composite outcome of serious neonatal morbidity (RR 0.36, 95% CI 0.19–0.65). A number of subanalyses examining operator experience, prolonged labour or augmentation, and national (high or low) perinatal mortality rates failed to identify a group for whom morbidity was not increased with planned vaginal delivery although they were underpowered to assess mortality rates.

A 2-year follow-up of 923 out of 1159 children from the TBT[8] showed no difference in 'death or neurodevelopmental delay' (RR 1.09, 95% CI 0.52–2.30). This renders the morbidity, but not mortality, findings (and therefore the 'intention to treat' analysis in the original trial paper) less important.

Evidence level 1+

The TBT led to wide-scale elective caesarean section for breech presentation, with a corresponding reduction in perinatal mortality.[9] However, criticism of the trial followed,[10–12] particularly regarding case selection and intrapartum management. For instance, 31% had no ultrasound (to exclude an extended neck), growth-restricted babies were included and a few women were randomised in violation of the protocol and included in the 'intention to treat' analysis. A senior obstetrician was absent from 31.9% of births and any obstetrician was absent from 13% of births in the planned vaginal delivery group. Electronic fetal monitoring (EFM) was not used in most and prolonged active second stage was not prohibited which, when it occurred, was associated with increased morbidity.[13] 'Serious' neonatal morbidity encompassed some frequently benign outcomes and was twice as common in countries with a low perinatal mortality rate (5.1% versus 2.5%). Both short-term morbidity and mortality (1.3%) in the planned vaginal delivery group were higher than subsequent series have reported.[14,15] Glezerman,[10] commenting on analysis by Su et al.,[13] argued that in only 16 of the 69 neonates with the primary composite outcome could this be related to mode of delivery. However, while some of the deaths may not be attributable to the vaginal breech birth, it is still reasonable to assume some would not have happened if a caesarean section had been performed at 39 weeks of gestation. This highlights a fundamental issue: by eliminating the last 1–3 weeks of pregnancy and labour, the perinatal death of at least 1/1000 babies,[16] cephalic or breech, could be prevented.

Evidence level 2+

The limitations of the TBT meant planned vaginal breech birth continued, notably in Scandinavia, France and the Netherlands. As a result, further mortality and short-term morbidity data have become available. Vlemmix et al.[15] published a population-based cohort study of 58 320 nonanomalous term babies presenting by the breech delivered between 1997 and 2007 from the Netherlands Perinatal Registry, evaluating the effect of increased elective caesarean following the TBT. The perinatal mortality of babies presenting by the breech halved from 0.13 to 0.07% (OR 0.51, 95% CI 0.28–0.93). For planned vaginal breech birth, however, it remained stable (OR 0.96, 95% CI 0.52–1.76). More importantly, the perinatal mortality was 0.16% in the planned vaginal birth group and 0% in the elective caesarean section group ($P < 0.0001$) post publication of the TBT report although this mortality rate with vaginal delivery was notably lower than that reported in the TBT (0.16% versus 1.3%). Elective caesarean also reduced the risk of low Apgar scores (less than 7 at 5 minutes; OR 0.12, 95% CI 0.09–0.16) and neonatal 'trauma' (OR 0.24, 95% CI 0.15–0.37) compared with planned vaginal birth. The differences in mortality and morbidity persisted among different birth weights, with parity and with type of breech. The authors estimated that 338 additional caesarean sections were performed for each perinatal death prevented.

Evidence level 2++

More strict selection and management protocols than those employed in the TBT have been employed in smaller retrospective studies from individual institutions. These have limited statistical power to detect an effect on mortality, but most report reassuring results.[17–21] Indeed, the lower rates of short-term morbidity compared with those reported in either the TBT or the Dutch study[4,15] suggest that although evidence for the individual components is poor, the selection and management criteria employed were beneficial. They might, therefore, reasonably be expected to improve mortality.

Evidence level 3

Examining the effect of more strict selection and management was the intention of the much larger PREMODA study.[14] The outcomes of 2526 planned vaginal breech deliveries were compared with 5579 planned caesarean deliveries in 174 units in France and Belgium over a 12-month period. The strict criteria included 'normal' (definition unstated) radiological pelvimetry which was performed in 82.5% of planned vaginal births, continuous EFM and routine ultrasound. As with the TBT,[4] induction or augmentation with oxytocin was allowed. Only 0.2% had an active second stage of more than 60 minutes, while 18.1% had a passive second stage (60 minutes or longer) compared with 5 and 3.1%, respectively, in the TBT.[4] Only 3.8% of vaginal deliveries had 'failed to progress' for more than 2 hours. Outcomes were analysed for neonates with no lethal congenital abnormality. In the planned vaginal delivery group, of whom 79% delivered vaginally, there were two deaths (0.08%); in the planned caesarean group, of whom 0.16% delivered vaginally, there were seven deaths (0.12%) (OR 0.64, 95% CI 0.13–3.06). Planned vaginal birth showed significant increases in Apgar scores of less than 7 at 5 minutes (OR 3.20, 95% CI 1.93–5.3) and total injuries, most of which were clavicular fractures or haematomata (OR 3.90, 95% CI 2.40–6.34). However, there was no difference in neonatal unit admissions (OR 1.33, 95% CI 0.94–1.86), or a composite measure of mortality or serious neonatal morbidity (OR 1.10, 95% CI 0.75–0.61). This remained after adjustment for other factors associated with this outcome (adjusted OR 1.40, 95% CI 0.89–2.23). The absolute risks for a 5-minute Apgar score of less than 7 (1.3%) and for perinatal mortality (0.08%) compared favourably to both the TBT and the Dutch cohort study.[4,15]

Evidence level 2++

