

Physiological breech birth Evaluation of a training programme for birth professionals

This paper reports an evaluation of the Breech Birth Network (BBN) physiological breech birth (PBB) training programme, which has been developed out of consensus research with highly experienced health professionals. The training was delivered in four National Health Service trust hospitals in the north and south of England throughout the spring and summer, 2016. The evaluation involved pre- and post-training surveys containing a mixture of open-ended and multiple-choice questions, and rating scales. Data were analysed descriptively. The results indicated that the training addressed the concerns of the participants and was rated highly in expected usefulness for practice. Significant improvements in self-reported confidence and objectively assessed knowledge were observed. Participants found discussions and hands-on practice accompanying videos helpful, and reported concerns about lack of support and involvement of obstetric colleagues both before and after the training. The package is an effectively designed and replicable programme for introducing physiological breech practice to health care professionals.

Shawn Walker

Midwife and PhD candidate at City, University of London and Norfolk and Norwich University Hospital NHS Foundation Trust

Claire Reading

Midwife at Médecins Sans Frontières

Olivia Silverwood-Cope

Midwife at Gloucestershire NHS Foundation Trust

Victoria Cochrane

Consultant Midwife for Normality at Chelsea and Westminster NHS Foundation Trust

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BACKGROUND

A physiological breech birth (PBB) is one that occurs entirely spontaneously due to the efforts of mother and baby, and the effects of gravity. The focus of professional care is on supporting optimal physiology, recognising deviation from the normal that requires assistance, and intervening only when such deviation occurs. No routine interventions are used, although assisting in a timely manner when required is a key skill, which the training seeks to develop. Physiological breech births also often involve upright maternal positioning. Therefore the methods taught in Breech Birth Network (BBN) PBB study days differ significantly from those taught in training programmes based on the use of a supine maternal birth position.

Physiological breech birth strategies have been advocated for some time by both midwives and obstetricians (Banks 1998; Cronk 1998; Krause 2007; Evans 2012; Dresner-Barnes and Bodle 2014),

and women still desire the option of birthing their breech babies vaginally (Homer et al 2015; Powell et al 2015; Sanders and Lamb 2015). However, until recently, evidence to support the safety of such methods was lacking. In 2015, Bogner et al's study first suggested that use of hand-knees position had no clinical consequences for neonates, and may be associated with a significant reduction in perineal trauma for mothers, as well as a high (>60 per cent) spontaneous birth rate (Bogner et al 2015). And last year, Louwen et al's long-awaited Frankfurt study also confirmed in much larger numbers that the practice is safe and offers some advantages (Louwen et al 2016).

STRUCTURE OF THE PROGRAMME

The BBN PBB study days have been provided in a similar format for health professionals since March 2013 (Davis 2013; Plested 2013), refined through evaluation feedback in previous iterations, introduction of new learning technologies, and the involvement of local teams to ensure the study days meet local needs. Facilitators for these days were all practising midwives with significant breech experience and/or experience of teaching breech skills within their NHS organisations, with the exception of one who took an administrative role. The content and structure have been increasingly driven by the first author's concurrent research into how professionals understand and learn breech skills (Walker et al 2016a; Walker et al 2016b). Although this evaluation focuses on the one-day, face-to-face training day, participants also had access to an online learning platform providing secure access to the videos and materials, to enable continued learning and dissemination to other colleagues following the training. Table 1 summarises the structure of BBN PBB study days.

TABLE 1. LEARNING ACTIVITIES BASED ON CONSENSUS RESEARCH

Learning activity	Associated consensus statement/recommendation in Walker et al 2016a or 2016b
Introduction to principles of physiological breech practice	The primary purpose of upright breech birth is to optimise physiology, for example to facilitate the mother's ability to birth her baby with maximum efficiency. A healthy, uncompromised baby moves in ways that assist his/her own birth. A calm, quiet, warm environment enhances a woman's ability to give birth.
Research update	Key skill: Facilitating an informed consent discussion that demonstrates respect for maternal intelligence and autonomy, while being realistic about the inability to guarantee a perfect outcome.
Lectures on 'normal for breech' and 'complicated breech birth,' including photographic and video examples	Breech education should include theoretical instruction on anatomy, physiology, mechanisms and manoeuvres.
Individual/small group recreation of mechanisms and manoeuvres with doll and pelvis during theoretical presentations	Breech education should include hands-on simulation and watching breech videos.
'Save the baby' - simulating resolution of a complicated breech birth alongside a real-life video of that complication occurring	Assessment skills: Optimal and delayed progress specific to breech labours; determine whether infant is coming freely or is stuck, by the signs of the infant part that is visible; identification of the level of pelvis where head entrapment has occurred.

	Performance of manoeuvres: Rotational manoeuvres for the arms; moving infant's body to mum's body; sweeping down the arms; assisting rotation of the fetal back to anterior; manual flexing of the head; sub-clavicular pressure to flex the head.
Presentation of models of care, providing examples of successful implementation, and including opportunity for discussion with colleagues and facilitators	A 'specialist' vaginal breech team in every labour setting. The role of 'specialists' is to mentor and support breech skill development throughout the entire maternity care team.

EVALUATION METHODS

Evaluation data were collected from four study days occurring within UK NHS trust hospitals from March-July 2016 in Canterbury, London, Portsmouth and Preston. The study days were evaluated using pre- and post-training surveys. The questions were of mixed types, including open-ended, multiple-choice and ratings scales, as described below. Two sets of pre- and post-training surveys were administered on paper, immediately before and immediately after the training. The other two sets of surveys were administered using the feedback tool in the Moodle-based online learning platform associated with the training, known as the virtual online community of practice (VCOP). These participants had access to the Moodle space from two weeks ahead of training. Although they were encouraged to complete the surveys during the final training activity, surveys were completed throughout the two weeks following training.

Overall, 106 participants completed the pre-training and 80 completed the post-training surveys (75 per cent). Almost all of the attrition came from the locations where online surveys were used. However, the written surveys contained a few instances where a question was left blank, or two numbers on the rating scale were circled instead of one; this was not possible on the online survey. On the few occasions where this occurred, the average of the two numbers was used, and means were calculated with a denominator reflecting the total number of answers received.

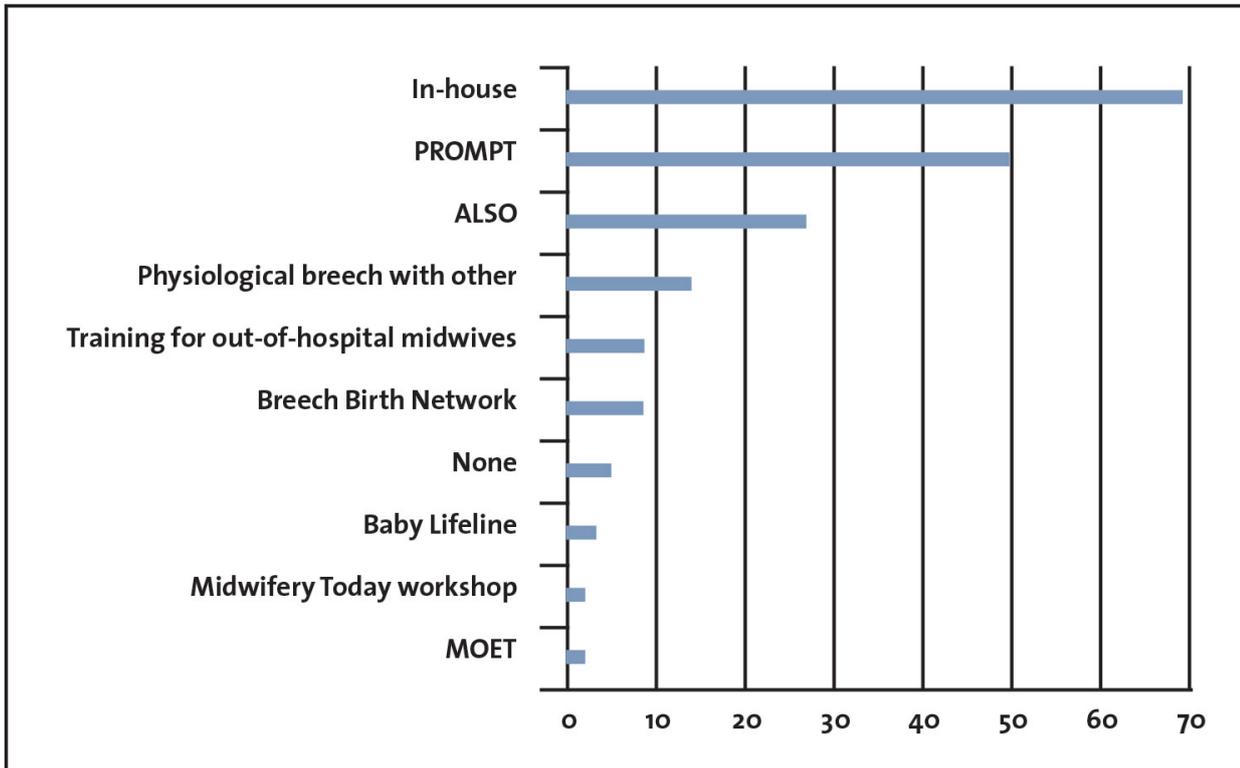
Surveys were anonymous. Each co-author helped to administer and collect the surveys. Following completion, hand-filled surveys were entered into a computer programme spreadsheet. Answers obtained through the VCOP were also exported into a spreadsheet, and the results from the four study days were amalgamated. Quantitative data were analysed within the spreadsheet using sum and average functions. Qualitative data were analysed by identifying the most recurrent themes among the answers for each question. Completely anonymised spread-sheet files were stored within a shared Dropbox folder, to enable each co-author to verify the data. Paper versions of the surveys were stored in a locked filing cabinet within the first author's home, registered with the UK Information Commissioner's Office for the purposes of data protection. As this was a training evaluation and not research, NHS ethics committee approval was not required.

RESULTS

PARTICIPANTS' BACKGROUND AND MOTIVATIONS

Participants' professional roles were: midwife (97), obstetric registrar (one), senior house officer (one), student midwife (six), doula (one). The professionals' years in practice ranged from one-36, with a median of nine. The doula was employed by the NHS trust hosting the training. Although not asked about their specific roles within midwifery, 11 participants indicated in their reasons for attending that they worked in community settings where they would be required to be the lead professional in an undiagnosed breech birth, and four indicated that they held a role as a clinical educator. The participants had previously attended a variety of training programmes either focusing on or including vaginal breech birth, as reflected in Figure 1.

Figure 1. Participants' previous training experience



When asked the total number of breech births attended in their careers, participants stated a range of 0-75, with a median of three. The median number of breech births attended as the lead professional was zero, with a range of 0-10. Collectively, the participants had attended 50 breech births in the previous year (range 0–3). Although their overall experience was low, responses suggested that 21 (20 per cent) of those attending the training had been the lead professional at a vaginal breech birth within the previous year.

Participants identified four main reasons for attending the BBN PBB study day, namely:
 [blob]Extending current knowledge and skills (55)

When asked in another open-ended question to identify their biggest concerns prior to the study days, participants identified the following four main concerns:

- Increasing confidence (48)
- General professional development/updating (25)
- Desire to better support women's informed decision-making and the option of vaginal breech birth within their local practice setting (20).

VALUE OF THE TRAINING

- Delay in delivery of the head/head entrapment (44)
- Lack of experience/confidence in themselves and among the wider maternity care team (18)
- Adverse outcome for baby and/or mother (16)
- Lack of collaboration and support from obstetric colleagues (12).

Participants were asked if the study day addressed the concerns they had prior to the training, with the option of answering 'Yes' or 'No'. Seventy-seven participants answered 'Yes' (96 per cent), and three participants answered 'No' (4 per cent). They were also asked to rate how useful they felt the training would be in their practice, using a seven-point rating scale, ranging from 1, not at all useful to 7, very useful. The mean response was 6.69, with a range from 4-7.

CHANGE IN CONFIDENCE

Participants were asked to rate their confidence (on the same seven-point rating scale) in managing a supine breech birth, and in facilitating an upright breech birth, before and after training. Confidence increased significantly in both areas. These results are summarised in Table 2.

Table 2. Physiological breech birth training evaluation results

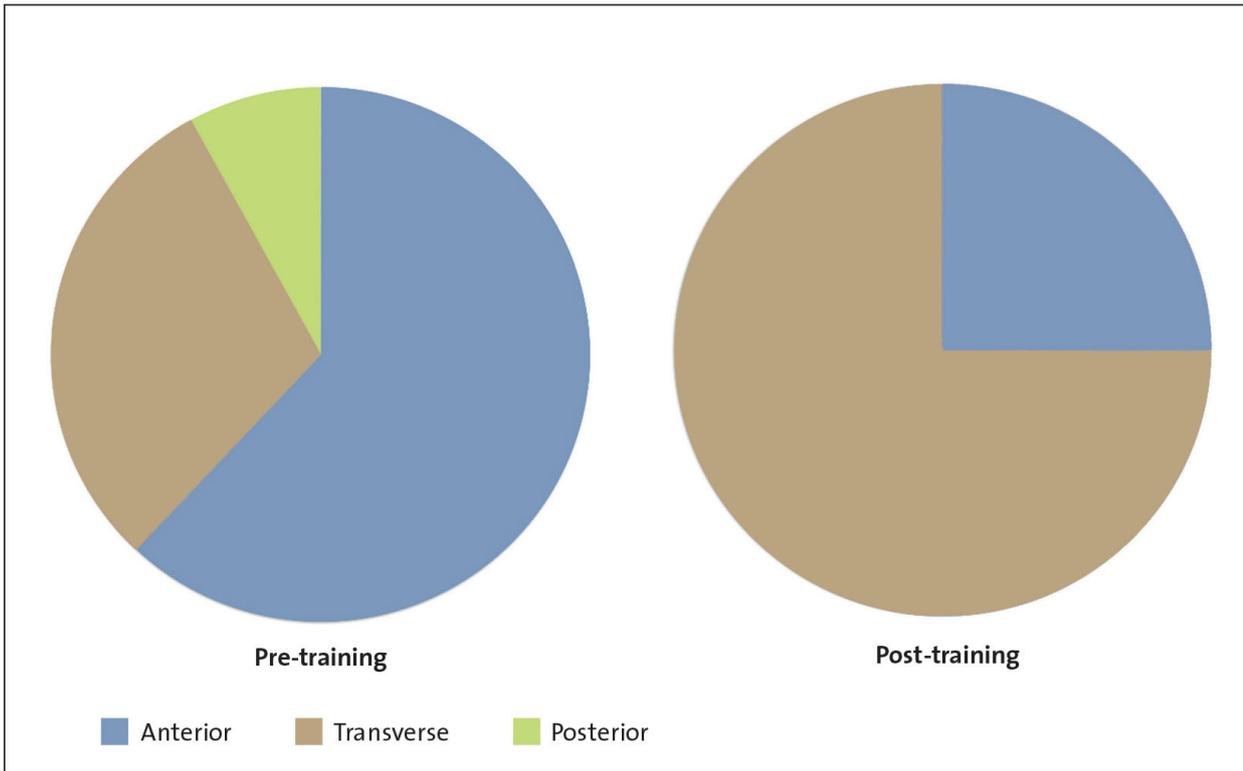
Measure	Scale 1-7	Mean		Range	
		Pre	Post	Pre	Post
Usefulness in practice	1 = not at all useful; 7 = very useful	N/A	6.69	N/A	4 – 7
Confidence to manage a supine birth	1 = not at all confident; 7 = very confident	2.99	4.51	1 – 6	1 – 7
Confidence to facilitate and upright birth	1 = not at all confident; 7 = very confident	3.07	5.31	1 – 7	1 – 7

CHANGE IN KNOWLEDGE

Change in knowledge was evaluated with two questions. The first, a multiple-choice question, asked participants to identify the direction of the fetal sacrum as the breech descends through the maternal pelvis: anterior (to the maternal front); transverse (to the maternal side); or posterior (to the maternal back). In BBN PPB training, knowledge of the optimal mechanisms of breech birth (Frye 2013) underpins clinical decision-making around whether the birth is unfolding normally, or intervention is required. The fetal sacrum is normally (>50 per cent of the time) in a transverse position during engagement and descent of the breech through the maternal pelvis, much like the occiput in an optimal cephalic birth. Rotation to a sacral-anterior position normally occurs with engagement of the fetal shoulders, and failure to completely rotate signals the need for intervention to deliver the fetal arms. Therefore, this question addresses knowledge of the breech mechanisms as a dynamic and clinically significant process, which is one of the unique features of this training.

Prior to training, a majority of participants felt that the fetal sacrum was normally in an anterior position during descent through the maternal pelvis, followed by transverse, and posterior. Following training, the majority identified the correct answer as transverse, followed by anterior, and no participants thought the fetal sacrum was normally posterior during descent. The change in understanding following the study day is represented in Figure 2.

Figure 2. Changes in understanding the normal mechanisms of breech birth



The survey also evaluated the change in knowledge about assisting delayed engagement of the aftercoming fetal head, where the fetal head is in an extended position at the inlet to the maternal pelvis, in order to demonstrate knowledge of the different levels of the pelvis at which head entrapment can occur (Walker et al 2016a). In the pre- and post-training surveys, participants were asked how they would manage this complication in an open-ended question. Correct answers followed the current Royal College of Obstetricians and Gynaecologists (RCOG) guideline (2006) and demonstrated knowledge that the head would need to be manually flexed and, if necessary, elevated off the pelvic inlet and rotated to assist engagement in the maternal pelvis.

In the analysis process, answers were awarded one point if the answer included head flexion, and one point if the answer demonstrated knowledge of the possibility that the fetal head may need to be elevated and rotated in order to assist entry into the maternal pelvis. If this question was left blank, or the answer included something that would introduce additional danger to the fetus, one point was deducted.

In the pre-survey, the total score for the 106 participants was 31 (mean 0.29), including 60 points for identifying the need for manual flexion of the head, and six points for identifying the possible need to elevate and/or rotate. However, 35 points were deducted, due to answering unsure/no answer, suggesting that the woman assume a knees-chest position (which would further extend a head impacted at the inlet), or suggesting that the baby be left to 'hang' while awaiting maternal effort. In the post-training survey, the total score for 80 respondents was 95 (mean 1.19). This included 44 points for describing manual head flexion manoeuvres, and 61 points for identifying the possible need to elevate and/or rotate. Ten points were deducted for answers suggesting that changing the woman's position to hands/knees from supine was an appropriate management strategy at this time: "Put the woman into all fours to extend the pelvic outlet." While the BBN PBB training package does emphasise the utility of spontaneous and judiciously guided maternal position changes at the early signs of slow progress, a change from supine to upright with the fetal head extended and possibly impacted at the pelvic inlet could expose the infant to cervical spine or nerve damage. This result has prompted greater clarity around the use of maternal position changes within the training.

However, results for this aspect of the evaluation indicate a significant improvement in knowledge of head entrapment at the inlet to the pelvis, and understanding of safe and effective manoeuvres to resolve this complication, with a change in mean score from 0.29 to 1.19 before and after training.

FEEDBACK

Participants were asked what they liked the most about the study days in an open-ended question. The most common answers were: videos (27), storytelling and reflective discussions (27), hands-on activities and scenarios (25), the practical and realistic approach (13), the description of the mechanism and physiology (13), new manoeuvres (8) and the mix of teaching styles (6). Included in the hands-on scenarios, several commented very positively on a unique activity used in this training programme: participants watched footage of a complicated breech birth and simultaneously identified and resolved the specific complication on a manequin or doll-and-pelvis set, with the suggestions and assistance of their colleagues, where appropriate.

SUGGESTIONS FOR IMPROVEMENTS

Participants were asked what could be improved in future study days, in an open-ended question. The most common answers were: more organised group work (12), the involvement of obstetric colleagues (6), information to share with women/counselling scenario (4), more about breech clinics/pathways/implementation (3) and more time (3).

DISCUSSION

This is the first published evaluation of a physiological breech birth training programme. The results indicate that the programme addressed the concerns participants - mostly midwives - had prior to the training. Participants generally felt the training would be highly useful to their clinical practice. The evaluation survey results also indicated that the training achieved observable changes in knowledge in two key areas, and a clear increase in confidence. Moreover, confidence increased to both manage a lithotomy delivery and facilitate an upright breech birth. This balance allows for choice of maternal position as the evidence-based standard of care for all physiological births (National Institute of Health and Care Excellence [NICE] 2014), and the possibility that in some breech births use of lithotomy positioning may be clinically indicated.

This evaluation reflects similar or better outcomes than evaluation studies conducted for other breech training programmes (Walker et al 2017 in press). However, the gold standard for evaluating a training programme designed to improve the safety of breech birth is one that includes neonatal and maternal outcome measures. No breech training programme known to the authors has associated improved outcomes with breech training. Practical obstetric multi-professional training (PROMPT), the most popular external training programme reported by participants, is used widely throughout the UK (Winter et al 2012). This is in part because it is one of the few training programmes to demonstrate a change in outcomes, particularly a reduction in neonatal seizures, following training (Draycott et al 2006). However, their outcome study excluded non-cephalic births, so does not provide evidence relevant to the breech segment of PROMPT training.

One of the weaknesses in this evaluation is that the participants were predominantly midwives, which does not reflect the balance of multi-professional team working within global maternity care. The hosts for each of the training days made concerted efforts to engage obstetric colleagues to achieve team training, but they were unsuccessful. This lack of collaboration was identified as a concern among participants, both before and after the study day. Effective team work significantly improves safety outcomes in health care (West and Lyubovnikova 2013). Training almost entirely midwives may improve safety on the rare occasions that a midwife needs to facilitate an unanticipated breech birth in a community setting. But without collaboration, support and common technical language between the multi-professional team, no training - no matter the quality - will improve the overall safety of vaginal breech birth for women and professionals. The evidence now

exists that physiological breech birth is at least as safe as supine breech birth, and that at least one training programme can effectively teach the skills required to support it. Midwives now need their obstetric colleagues to enter the conversation about the way forward.

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