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## **Principles of physiological breech birth practice: a Delphi study**

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## **Abstract**

**Objective:** to establish a multi-professional consensus on shared principles underlying the practice of physiological breech birth.

**Design:** three-round Delphi e-survey.

**Setting:** multi-national.

**Participants:** a panel of thirteen obstetricians and thirteen midwives, experienced in facilitating physiological breech births in varied settings, and involving varied maternal birthing positions, and two service user representatives.

**Methods:** an initial survey contained open-ended questions. Answers were coded, amalgamated and categorised. A total of 164 statements were put to the panel in the second round, and 9 further statements were proposed in the third round. The panel indicated the extent of their agreement using a 5-point Likert scale. The pre-determined level of consensus was 70% of respondents indicating 4 or 5 on the Likert scale (agreement or strong agreement).

**Findings:** the panel indicated consensus on 37 of 66 proposed statements under the theme, 'Principles of Practice.' Negative data (29/66 statements) are also reported, highlighting areas of divergence. The findings suggest a paradigm shift away from management strategies based on prediction and control, and towards facilitation strategies based on relationship and response.

## **Conclusion**

Concepts of breech-specific normality require further exploration. The principles articulated in this research can be used to design further researcher exploring the influence of physiological breech practices on neonatal and maternal outcomes, including women's experiences of maternity care.

## **Keywords**

Breech presentation, midwifery, obstetrics, Delphi, physiological birth, models of care

## **Highlights**

- Upright positioning is a tool, and not a rule, of physiological breech birth
- In physiological birth, locus of greatest efficacy perceived within mother-baby unit
- Clinical ability to enable rather than control birth process is linked to experience
- Calm, supportive relationships in birth environment considered a key safety factor
- Restrictive policies and negative attitudes may undermine safety of breech birth

1 **Introduction**

2  
3

4 This paper outlines a set of guiding principles for the practice of physiological  
5 breech birth, as determined by a Delphi consensus technique survey involving  
6 experienced midwives, obstetricians and service user representatives. It  
7 addresses an apparent disparity between practices which have been thoroughly  
8 researched, and thus used to provide evidence-based guidelines, and differing  
9 practices as described by a group of professionals and women experienced in  
10 physiological breech birth, which have been much less thoroughly researched. In  
11 order to create meaningful studies to determine the safety of these new  
12 practices, it is useful to consider how physiological breech practices differ from  
13 mainstream practices at the most fundamental and even philosophical levels,  
14 which often remain tacit when more practical guidelines and training manuals are  
15 written.

16

17 Breech presentation at term, where the fetus presents bottom- or feet-first at the  
18 time of birth, affects approximately 1:25 women (Ferreira et al, 2015). Mode of  
19 birth is controversial (Caughey, 2007), with many breech presenting infants being  
20 born by caesarean section, but there is renewed interest in vaginal breech birth  
21 (Marko et al, 2015). Prior to this research, professional literature indicated some  
22 midwives and obstetricians were facilitating vaginal breech births (VBBs) in ways  
23 differing significantly from the assisted breech delivery protocols used in  
24 randomised controlled trials informing practice recommendations internationally

25 (Advanced Life Support in Obstetrics (ALSO), 2010; PROMPT, 2012; RCOG,  
26 2006). Practitioners advocating fundamental changes in practice have argued  
27 that upright maternal positioning, in particular, promotes spontaneous  
28 physiological birth (Banks, 2007; Cronk, 1998; Evans, 2012; Krause, 2006;  
29 Reitter et al, 2014). Additionally, anecdotal and women's advocacy literature  
30 indicates that at least some women preferred a more active, physiological  
31 approach to VBB (Berkley, 2006; Sanders and Lamb, 2015). However, the most  
32 recent Cochrane Review comparing the safety of VBB with caesarean section  
33 delivery (CS) made clear the results cannot be generalised to 'methods of breech  
34 delivery which differ materially from the clinical delivery protocols used in the  
35 trials reviewed' (Hofmeyr et al, 2015, p. 3), in which supine maternal positioning  
36 and routine assistance were standard practices. This point has also been made  
37 previously by midwifery critics (Fahy, 2011). Therefore, a meaningful gap in the  
38 evidence exists concerning whether or not use of upright maternal positioning  
39 constitutes a 'materially different' VBB method, and whether or not such  
40 differences result in materially different outcomes.

41

42 Although the Cochrane review suggests that 'materially different' methods may  
43 affect the outcomes of planned VBB, to date only a small study by Bogner et al  
44 (2015) has provided outcome data concerning the use of upright positioning. In  
45 Bogner et al's study, use of hands/knees maternal positioning appeared to be  
46 similarly safe for the infant as supine positioning, however they reported a  
47 significant variation between rates of perineal damage for upright VBB (14.6%)

48 and lithotomy VBB (61%). This suggests a material difference between either the  
49 necessity or the inclination to perform an episiotomy when upright positioning is  
50 used, which affects maternal morbidity outcomes. In order to affirm or discount  
51 this variation, future research would need to acknowledge and measure this  
52 difference in practice. Because other differences may produce similar important  
53 changes in outcomes, establishing a set of agreed principles underpinning the  
54 practice of physiological breech birth using a multi-professional consensus  
55 technique is an essential step towards improving practice, evaluation and  
56 research design in this area of care.

57

58 The primary purpose of this Delphi study was to establish such a consensus on  
59 standards of competence for the practice of upright breech birth, defined as a  
60 *VBB in which the woman is encouraged to be upright and active throughout*  
61 *labour and able to assume the position of her choice for the birth*, and the results  
62 of this aspect of the study have been reported separately [Supplementary  
63 Information 1]. However, due to the potential material differences as described  
64 above, it was necessary to explore the underlying principles of practice as they  
65 emerged in the research, and not assume that upright VBB will share such  
66 principles with mainstream assisted breech delivery methods. In the process, it  
67 became immediately apparent that participants perceived upright positioning  
68 itself to be a product of the underlying principle of optimising labour and birth  
69 physiology, rather than an essential feature of practice – upright positioning is a  
70 *tool* and not a *rule* of physiological VBB practice. Therefore, adopting this

71 participant-led focus, a secondary aim in the research was to establish a set of  
72 guiding principles for the practice of physiological VBB. These principles of  
73 practice are reported in this paper.

74

## 75 **Methods**

76

77 This research consisted of a three round Delphi e-survey, conducted from June  
78 2014 – June 2015, involving an initial round of open-ended questions, followed  
79 by two rounds in which participants rated their level of agreement with an  
80 aggregate set of statements in order to establish a consensus [Supplementary  
81 Information 1]. Participants were recruited by purposive, network and social  
82 media sampling, and worked in a wide variety of settings internationally. The 28-  
83 member panel which participated in the Delphi study included 13 midwives and  
84 13 obstetricians working in the following countries: Australia, Austria, Brazil,  
85 Canada, Germany, Mozambique, New Zealand, United Kingdom, and the United  
86 States of America. At least half worked primarily in hospitals, but the panel's  
87 experience included home and birth centre settings. The professionals' mean  
88 years of experience was 27 (range of 5-50) and mean number of total breech  
89 births attended was 135 (range of 20-400). The research also involved two  
90 service user representatives identified as leaders of national advocacy  
91 organisations. These women were also considered 'experienced' due to their  
92 personal encounters with breech pregnancy and their extensive involvement  
93 supporting other women planning VBBs, albeit the nature of their experience was

94 different from the professionals'. Ethical approval for this study was obtained  
95 from the Research Ethics Committee of City University London (Ref: PhD/14-  
96 15/13).

97

98 A more detailed account of the methods and recruitment process of this study  
99 have been reported in a complementary paper, along with results pertaining to  
100 the theme, Standards of Competence [Supplementary Information 1]. This paper  
101 reports results from the same study under the theme, Principles of Practice.  
102 Results have been reported separately to enable a fuller discussion of the  
103 philosophical implications of these principles. This paper includes one variation  
104 from the previously reported methods. In the second round (R2), a multiple-  
105 choice question (MCQ) was added to ascertain the variety of participants'  
106 experience with maternal birthing positions described in the first round, in  
107 answers to open-ended questions. The MCQ enabled all relevant options to be  
108 checked and included an 'other' box. The principles of Practice theme included  
109 66 statements grouped into the following categories: first principles (14  
110 statements), maternal positioning (12 statements and 1 MCQ), birth environment  
111 (18 statement), fetal positions (14 statements), and safe progress (8 statements).  
112 This theme contained 60 statements and 1 MCQ in R2 and 6 statements in R3.  
113  
114 The findings reported below also differ from classical Delphi methods in an  
115 important way. Items failing to reach a 70% rate of agreement (*negative results*)  
116 were removed from further consideration, rather than re-evaluated in R3. Instead,

117 6 modified statements formed from the panel's feedback were included in R3.  
118 Negative results are also reported in this paper. Delphi studies have been  
119 criticised for tending to force a consensus and masking evidence of dissent, such  
120 as bimodal results indicating a meaningful split in opinion (Thangaratinam and  
121 Redman, 2005). To avoid a potential bias toward consensus, this study has  
122 reported the significant number of positive results where a strong (>70%)  
123 consensus was achieved, as well as the statements which were not supported at  
124 this level.

125

126 The experienced panellists participating in this Delphi survey research returned a  
127 consensus-level agreement on 37 statements under the Principles of Practice  
128 theme. These statements are reported under the categories they were grouped  
129 into during the research in *Table 1*, along with the percentage of respondents  
130 who agreed with that statement, the mean of the responses on a 5-point Likert  
131 scale (1=strongly disagree; 5=strongly agree) and the standard deviation (SD).  
132 Negative results, those which did not achieve a minimum 70% rate of agreement  
133 among respondents, are reported in *Table 2*. Language taken directly from the  
134 consensus statements is in italics in the text descriptions below.

135

136 Participant responses in the first round, including comments about the research  
137 question, indicated that most viewed upright maternal positioning to be a product  
138 of a facilitative approach aiming to optimise physiology. Responsiveness to  
139 feedback and member checks is a central aspect of trustworthiness in Delphi

140 research (Hasson and Keeney, 2011). Therefore, most statements proposed  
141 reflected the panellists' orientation and used the phrase, *physiological breech*  
142 *birth*, rather than imposing the researcher's original language, *upright breech*  
143 *birth*.

144

## 145 **Findings**

146

### 147 *First Principles*

148

149 Participants in the research referred to *first principles* and the *teaching of*  
150 *principles* in their responses. Therefore, statements concerning fundamentals or  
151 philosophical approaches to practice were grouped into this category for  
152 consideration. The panel strongly agreed that the purpose of upright positioning  
153 was to *optimise physiology*, facilitating *the mother's ability to birth her baby with*  
154 *maximum efficiency*, and that optimising this physiological process could  
155 increase the *safety* of VBB for both mother and baby. The principles achieving  
156 consensus in this study reflect a philosophy of care which recognises the locus of  
157 greatest efficacy as lying within the mother-baby unit, as opposed to the active  
158 management strategies and procedures performed by professionals, which are  
159 the subject of most contemporary guidelines. The phrases *power from above*,  
160 *uncompromised baby moves in ways which assist his/her own birth*, *the mother's*  
161 *attitude*, *no routine manoeuvres*, *uncommon to need to do anything*, *woman-led*  
162 *positions*, all suggest a perceived effectiveness inherent to the physiological

163 process, dependent on contributions from both mother and baby. The  
164 participants' consensus statements suggested they perceive a strong but not  
165 absolute tendency toward success within this physiological process, which again  
166 differs significantly from training programmes suggesting spontaneous breech  
167 birth at term is uncommon (PROMPT, 2012).

168

169 Although in this approach attendants may appear to 'do' less than they would in  
170 an assisted breech delivery, the panellists' view that the attendance of *skilled and*  
171 *experienced professionals* significantly impacts the safety of VBB gained the  
172 highest level of consensus in this category. Clinical actions consistent with a  
173 physiological VBB approach may be facilitative, using *judicious guidance* to  
174 contribute to physiological optimisation, or they may be responsive to a perceived  
175 problem. In contrast, although the result was borderline, the panel did not reach a  
176 consensus-level agreement around the view that *antenatal screening ... has a*  
177 *significant impact on the safety* of VBB, nor did they recommend stricter  
178 screening criteria as a means of reducing risk where available skill and  
179 experience were minimal. The results in the first principles category emphasised  
180 relationship, such as within the mother-baby unit and with caregivers, and  
181 response, such as the experienced attendant's on-going assessment of steady  
182 progress. They de-emphasised models of care based on prediction of risk, the  
183 foundation of antenatal screening, and control, such as further limiting the ability  
184 of women to access VBB based on narrower selection criteria, although this

185 strategy is a mainstay of national-level breech delivery guidelines (RCOG, 2006,  
186 Kotaska et al, 2009).

187

### 188 *Maternal Positioning*

189

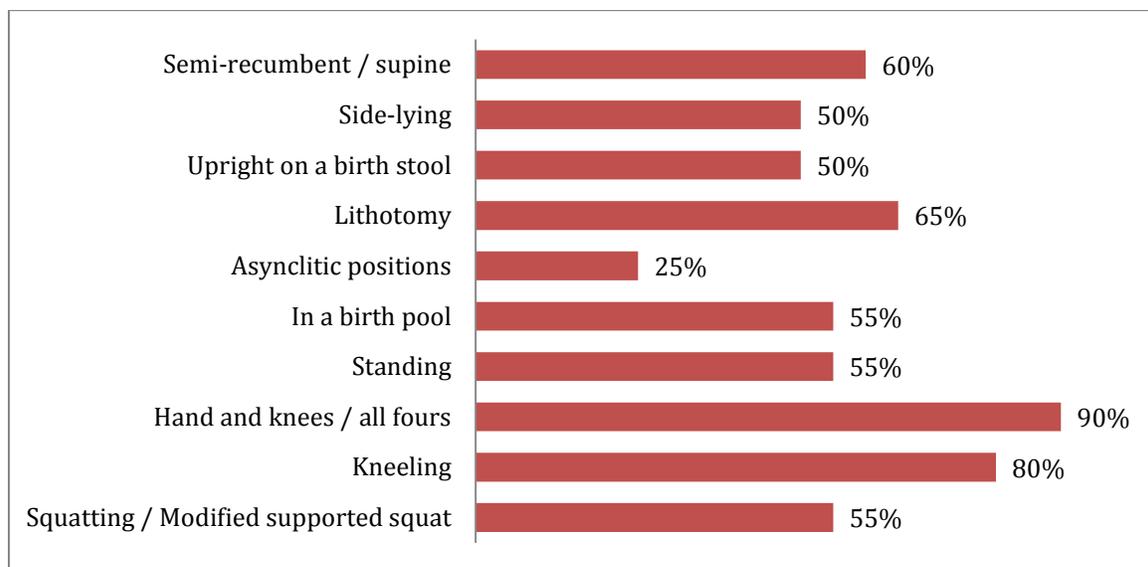
190 The statements which achieved consensus in this category reflected an  
191 approach to maternal positioning which was enabling and responsive, rather than  
192 prescriptive and directing. Again, the locus of greatest efficacy was within the  
193 mother-baby unit, with attendants recognising this inherent ability and responding  
194 to the unfolding process rather than controlling it. Phrases such as *variety of*  
195 *maternal positions, judicious guidance ... to resolve delay, the mother's ability to*  
196 *move, and spontaneous positioning ... guided by interactions with the baby,*  
197 encapsulated this philosophy within the consensus statements. The embodied  
198 knowledge of mother and baby was privileged in the caregiving relationship, and  
199 the clinical ability to enable the birth process, rather than control it, was linked to  
200 *skill which develops with time and experience.*

201

202 The participants reported experience supporting VBBs in a variety of maternal  
203 positions, including water births. Figure 1 illustrates the percentage of  
204 respondents (n=20) reporting experience with the 10 different maternal birthing  
205 positions described; one service user declined to respond as her baby had been  
206 born by CS. This variety confirmed the panel's initial feedback that upright  
207 position was a tool and not a rule of physiological VBB, although more of the

208 panel reported experience with kneeling and hands/knees positions than the  
209 others. In contrast, statements promoting a directive or restrictive approach to  
210 maternal positioning did not achieve consensus support with this panel. The  
211 experience and consensus statements also differ significantly from most  
212 international guidelines and training programmes which direct attendants to place  
213 women in a lithotomy position in order to assist a breech delivery.

214



215

216 **Figure 1.** *Maternal birthing positions encountered by panel members*

217

### 218 *Birth Environment*

219

220 The statements which received consensus in this category emphasised the  
221 importance of *calm*, *supportive* and familiar relationships within the birth  
222 environment, and the detrimental effects of conflict and *fear-based language*.

223 The panel indicated strong agreement around the premise that the quality of

224 relationships, between women and caregivers, and breech attendants and the  
225 wider multi-professional community, impacts both the physiological process and  
226 the overall safety of VBB. Although the panel clearly valued *skilled and*  
227 *experienced* professional attendance, they did not agree that *access to skilled*  
228 *midwifery and medical care* is the *most important* aspect of birth setting. This  
229 appeared to be because the panel considered that attitude and other  
230 environmental factors also contribute significantly to birth safety. The panel did  
231 not return a consensus on any statements regarding particular birth location,  
232 which probably reflects the multi-professional diversity and differences in practice  
233 settings within the panel. However, they did agree that restrictive policies and  
234 negative attitudes affect the ability of both women and skilled providers to access  
235 hospital-based birth settings.

236

### 237 *Fetal Positions*

238

239 The statements achieving consensus in this category reflected a new approach  
240 to evaluating the relative safety of proposed VBB in relation to fetal position. A  
241 consensus-level number of the panel were willing to support the range of  
242 longitudinal fetal positions (legs extended / *frank*, legs flexed / *incomplete*, one or  
243 more hips extended / *footling*) as potential candidates for a safe VBB, although  
244 not necessarily recognising them all as '*normal*.' Negative data indicated that  
245 strategies of attempting to predict outcomes from supposed static fetal positions  
246 and applying limiting pre-labour selection criteria received little support. Instead,

247 the panel supported the more open and responsive approach of assessing the  
248 advisability of proceeding with a VBB throughout labour, using criteria similar to  
249 those used in cephalic births – *lack of descent or lack of fetal well-being at the*  
250 *time of labour*. This also contrasts many contemporary guidelines which permit a  
251 trial of labour for only frank or complete breech presentations, and sometimes  
252 only frank breech presentations.

253

254 *Safe Progress*

255

256 Only one statement in this category achieved consensus-level agreement. Panel  
257 members considered a period of passive second stage, *a pause after full*  
258 *dilatation and before active pushing begins*, to be common and unproblematic.  
259 The variety of statements which failed to reach a consensus again suggests the  
260 panel's preference for a responsive, rather than prescriptive, approach to  
261 assessing progress within the unique complex of each individual birth, and in  
262 relation with each individual woman.

263

264 **Discussion**

265

266 This is the first research to describe a set of principles underpinning the practice  
267 of physiological VBB agreed by an experienced multi-professional panel  
268 including both midwives and obstetricians. In areas of professional practice  
269 where experimental evidence is not available, use of a consensus method like

270 the Delphi survey makes the process of expert opinion development transparent  
271 and collaborative. The significant number of statements which achieved 100%  
272 consensus in this process demarcate a clear common ground in the practice of  
273 physiological VBB among obstetricians and midwives working in very disparate  
274 settings, which is unlikely to be attributable to a localised cultural norm. Four out  
275 of the ten universally agreed statements contained the word 'safety.' We  
276 therefore propose that this common ground can be used to inform the design of  
277 future research to test the safety of practices based on these principles, using  
278 quantified methods.

279

280 The negative results reported in this paper also enable the identification of areas  
281 where further research is needed to answer questions which were important to  
282 this panel, but remained undecided. One of these areas concerned what sort of  
283 progress in labour should be considered 'normal for breech,' as evaluation of  
284 normal progress was considered a key safety concern. As the negative data  
285 [Table 2] indicate, the panel's open-ended responses in R1 suggested that the  
286 progress of breech labours could be generally quicker, slower, or roughly similar  
287 to cephalic labours, but none of the associated statements achieved a  
288 consensus-level agreement. Similar discrepancies occurred in the fetal positions  
289 category. This suggests that these topics require further consideration using  
290 different methods. Descriptive studies involving a population of unmedicated  
291 labours and births attended by experienced physiological practitioners would be  
292 a useful contribution to the research basis concerning what is 'normal for breech.'

293

294 The lack of a clear consensus that antenatal screening significantly improves  
295 safety was an unanticipated finding, although it is important to note that this  
296 result was borderline, and the principle did still achieve majority support.  
297 Professional guidelines and research reports commonly list a set of criteria used  
298 to identify a sub-group of women and breech-presenting fetuses for whom a VBB  
299 is considered to pose comparatively less, or more, perinatal risk, usually based  
300 on expert opinion (Kotaska, 2009; RCOG, 2006). Strict application of selection  
301 criteria is credited with improved perinatal morbidity and mortality outcomes  
302 observed in some settings (Borbolla Foster et al, 2014; Goffinet et al., 2006),  
303 although criteria and rates of VBB vary considerably between settings (Michel et  
304 al, 2009). However, some before-and-after studies have indicated that stricter  
305 application of selection criteria and an increased CS rate has not resulted in  
306 improved perinatal outcomes among the remaining VBBs (Hartnack Tharin et al,  
307 2011; Hehir et al, 2012; Vlemmix et al, 2014). The panel's consensus statements  
308 suggested that, while physical variables pertaining to women and their babies  
309 may correlate with certain birth outcomes, other variable characteristics  
310 pertaining to provider, environment and relationships may affect the safety of  
311 VBB. These elements deserve further attention to balance the current focus on  
312 'risk factors' in assessing suitability for VBB.

313

314 The finding that 91% of a panel with this level of experience feel that *episiotomy*  
315 *is never, or rarely, needed* to assist an upright breech birth is significant, given

316 that cutting a timely episiotomy has been identified as a key skill in assisted  
317 breech delivery in other research (Jordan et al., 2016; Maslovitz et al., 2007;  
318 Secter et al., 2015). This suggests that the lower maternal morbidity noted in  
319 Bogner's study (2015) is likely to be replicable in further research into  
320 physiological VBB practices. Similarly, the panel's consensus that *the mother's*  
321 *attitude and approach to birthing a breech baby* is a significant safety concern  
322 resonates with research indicating that strength of preference for vaginal birth is  
323 significantly predictive of ultimate mode of birth (Wu et al., 2014). Future VBB  
324 research should take account of maternal attitudes and self-perceived efficacy as  
325 potential safety factors, and take into consideration the likelihood that women  
326 with a strong preference for a particular mode of childbirth are less likely to  
327 consent to randomisation.

328

329 Considered in light of their divergence from most current international guidelines  
330 and research, the findings of this consensus research suggest within this panel a  
331 shift away from programmes of management based on prediction and control,  
332 and toward a philosophy of facilitation based on relationship and response. This  
333 is particularly evident in the openness around maternal birth position. . Although  
334 a enabling approach to positioning is often associated with greater maternal  
335 satisfaction (Priddis et al, 2012, Thies-Lagergren et al, 2013), the panel's  
336 consensus statements associate it with greater safety, a position which warrants  
337 further investigation. A responsive approach is also suggested in other areas  
338 such as using the individualised evaluation of progress of labour and fetal well-

339 being as the main indicators of appropriateness for vaginal birth, compared to the  
340 current emphasis on predictive selection criteria based on generalised relative  
341 risk.

342

343 *Conclusion*

344

345 Within this panel's physiological VBB model, the locus of greatest efficacy is  
346 considered to be within the mother-baby unit. Caregiver activities are primarily  
347 aimed at enhancing the mother-baby unit's self-efficacy, by judicious guidance  
348 and the maintenance of a facilitative environment, founded on supportive,  
349 collaborative relationships. In the facilitative approach described, perceived  
350 safety depends on the attendant's ability to recognise and respond to actual  
351 emerging problems in the individual situation, rather than anticipate potential risk  
352 based on generalised quantified data. This panel viewed attendants' ability to do  
353 less and enable more as a function of skill and experience, the need for which  
354 achieved the highest level of agreement as a safety concern. These elements  
355 are difficult to measure in quantitative studies based on clinical criteria and  
356 outcome data, but more creative methods of assessing competence and clinical  
357 decision-making surrounding VBBs may be fruitful. Given evidence that some  
358 care providers are actively obstructive to women wishing to attempt a VBB and  
359 the professionals supporting them (Catling et al., 2015; Powell et al., 2015), and  
360 the possibility raised in this research that such failure to collaborate has safety  
361 implications, research into outcomes of VBB should strive to include some

362 measurement of environmental and relationship factors perceived by women and  
363 professionals within the care episode.

364

365 This Delphi study reports the consensus agreements of a very experienced panel  
366 by modern standards. A 2007 survey of Australian obstetric specialist trainees  
367 indicated final-year trainees had attended a mean of 12 VBBs (Chinnock and  
368 Robson, 2007), compared to the panel's mean of 135. However, it is important to  
369 remember that the agreed principles of an experienced panel are not equivalent  
370 to safety data. Rather, the results of this research should be used to guide future  
371 research into the safety outcomes associated with these practices. The results  
372 may also be used to enable individual practitioners and institutions to consider  
373 the principles which underpin their own breech practices, and whether they are  
374 based on stronger evidence than presented here. Given the preference for  
375 physiological birth strategies expressed by at least some women requesting a  
376 VBB, individuals and institutions may also want to consider whether they are  
377 open to change by reflecting and comparing their own principles and strategies to  
378 those presented here.

379

### 380 **Acknowledgments**

381

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383 [*Table 3 – not included in blinded peer review*]. This work was supported by the  
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385 University of East Anglia, for her help in developing this research in its early  
386 stages.

387

388 **Declaration of Interests**

389

390 The first author has been funded to provide physiological breech birth training, as  
391 well as obstetric emergencies training in assisted breech delivery.

392

393

**Table 1.** Consensus statements on principles of practice for professionals attending physiological breech births – Percentage of panel in agreement, Likert mean and standard deviation (SD)

Likert scale: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree

| Statement  | %   | Mean | SD   |
|--|-----|------|------|
| <b>First Principles</b>  |     |      |      |
| Ensuring skilled and experienced professionals attend the birth has a significant impact on the safety of breech birth.  | 100 | 4.82 | 0.39 |
| The primary purpose of upright breech birth is to optimise physiology, e.g. facilitate the mother's ability to birth her baby with maximum efficiency.   | 100 | 4.77 | 0.43 |
| The safest breech birth exhibits optimum physiology: e.g. labour begins spontaneously at or near term and progresses steadily.   | 100 | 4.77 | 0.43 |
| Power from above is safer than pulling from below.   | 100 | 4.73 | 0.46 |
| In a physiological breech birth, a healthy, uncompromised baby moves in ways which assist his/her own birth.   | 100 | 4.64 | 0.49 |
| Optimising the physiological process increases the safety of breech birth for the baby.  | 96  | 4.68 | 0.57 |
| The mother's attitude and approach to birthing a breech baby has a significant impact on the safety of breech birth.   | 96  | 4.55 | 0.60 |
| Optimising the physiological process increases the safety of breech birth for the mother.  | 91  | 4.55 | 0.67 |
| Episiotomy is never, or rarely, needed to assist an upright breech birth.  | 91  | 4.50 | 0.67 |
| In a physiological breech birth, there should be no touching of mother or baby unless there is a problem requiring assistance. There are no routine manoeuvres.  | 91  | 4.43 | 0.81 |
| It is the mother's ability to move at the time of expulsive efforts that supports the physiological process.   | 87  | 4.35 | 0.71 |
| It is uncommon to need to do anything in physiological breech birth, that is, non-medicated woman, baby at term, spontaneous labour with woman-led positions.  | 74  | 3.95 | 0.95 |
| <b>Maternal Positioning</b>  |     |      |      |
| Care providers should develop skills to facilitate breech births safely in a variety of maternal positions.  | 100 | 4.86 | 0.36 |
| Sometimes maternal-led positioning is most conducive; sometimes judicious guidance is appropriate, especially to help resolve delay.   | 100 | 4.61 | 0.50 |
| Care providers should not disturb women's spontaneous movements in an otherwise normally progressing breech birth.   | 95  | 4.73 | 0.55 |
| Ability to support breech births in a variety of maternal positions is a skill which develops with time and experience.  | 95  | 4.55 | 0.60 |
| Care providers should share the evidence base concerning the affect of birth positioning on outcomes for women and their babies.   | 95  | 4.55 | 0.60 |
| Care providers should share their preferences and experience levels regarding maternal birth positions.  | 91  | 4.32 | 0.65 |
| Care providers should actively support a woman not to push if a premature urge to push occurs, such as in a footling birth.  | 86  | 4.09 | 0.75 |
| Mother-led positioning offers the greatest physiological advantages.   | 82  | 4.18 | 0.85 |
| When the mother is able to move freely during birth, her spontaneous positioning can be guided by interactions with the baby.  | 77  | 4.23 | 0.81 |
| When facilitating a physiological breech birth, care providers proactively use maternal position (or change in position) to promote normal descent.  | 77  | 3.95 | 0.79 |
| <b>Birth Environment</b>   |     |      |      |
| The appropriate setting for a breech birth is in a calm and supportive room with competent and kind caregivers.  | 100 | 4.86 | 0.35 |
| A calm, quiet, warm environment enhances a woman's ability to give birth.  | 100 | 4.82 | 0.39 |
| Having to fight to be 'allowed' to birth her baby physiologically over the last few weeks of her pregnancy is frequently detrimental to the physiological processes that occur during this time and therefore will effect the birth. | 100 | 4.30 | 0.47 |
| Many doctors and midwives who attend breech births face extreme hostility for doing so, and this sometimes limits their access to facilities and the skills of the multi-professional team.  | 96  | 4.48 | 0.73 |
| The introduction of strangers in the birth environment interferes with a woman's ability to give birth.  | 95  | 4.27 | 0.70 |
| Birth environment affects a woman's ability to give birth.   | 95  | 4.67 | 0.58 |
| Conversations about risk and fear-based language in the birthing space interfere with a woman's ability to give birth.   | 91  | 4.50 | 0.80 |
| A suboptimal birth environment leads to unnecessary intervention.  | 91  | 4.41 | 0.67 |
| While non-interference in a well-progressing birth is an important principle, some women appreciate and benefit from supportive, encouraging touch during labour.  | 91  | 4.26 | 0.92 |
| Mothers are aware of hospital politics and negativity towards breech birth, and this is a deterrent for some mothers who might otherwise prefer to be there.   | 86  | 4.38 | 0.86 |
| <b>Fetal Positions</b>   |     |      |      |
| An incomplete breech (one leg up, one leg folded) can be born safely but requires attentive professional support.  | 91  | 4.09 | 0.68 |
| A diagnosis of 'abnormal' breech position (unsafe for vaginal delivery) should be determined by lack of descent or lack of fetal well-being at the time of labour.   | 82  | 4.00 | 1.07 |
| Frank breech is the optimal position for a breech birth.   | 77  | 4.00 | 0.69 |
| A footling presentation can be born safely but requires attentive professional support.  | 77  | 4.05 | 0.84 |
| <b>Safe Progress</b>   |     |      |      |
| There is often a pause after full dilatation and before active pushing begins. This is not problematic.  | 86  | 4.18 | 0.66 |

**Table 2.** Negative data: Statements on principles of practice for professionals attending physiological breech births which did not achieve consensus – Percentage of panel in agreement, Likert mean and standard deviation (SD)  
Likert scale: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree

| Statement  | %   | Mean | SD   |
|--|-----|------|------|
| <b>First Principles</b>  |     |      |      |
| Antenatal screening of candidates has a significant impact on the safety of breech birth.  | 69% | 3.95 | 1.09 |
| Where the availability of skilled and experienced attendance is minimal, screening criteria will need to be stricter.  | 57% | 3.68 | 0.95 |
| <b>Maternal Positioning</b>  |     |      |      |
| Care providers should instruct women to assume a physiologically advantageous position for the birth.  | 64% | 3.64 | 1.05 |
| Care providers should ensure the mother's bottom is off the bed/floor enough for the baby to be born.  | 64% | 3.68 | 1.09 |
| <b>Birth Environment</b>   |     |      |      |
| The appropriate setting for a breech birth is the place chosen by the mother where she and the provider feel comfortable and safe. It can be the home, a birth centre or hospital. | 68% | 3.81 | 1.4  |
| Access to skilled midwifery and medical care is the most important aspect of birth setting.  | 68% | 3.77 | 0.87 |
| Breech births should ideally take place in a setting where emergency services (caesarean section and neonatal services) are readily available.                                     | 68% | 3.68 | 1.25 |
| The appropriate setting for a breech birth is where the woman feels safe and confident. For some this will be in a hospital setting and for some this will be in their own homes.  | 64% | 3.86 | 1.25 |
| A co-located midwifery-led unit (hospital-based birth centre) is an appropriate setting for a breech birth.  | 50% | 3.59 | 0.91 |
| An obstetric-led unit is the appropriate setting for a breech birth.   | 36% | 2.95 | 1.05 |
| The appropriate setting for a breech birth contains just one experienced and silent birth attendant.   | 32% | 3.0  | 1.02 |
| Breech births should only occur in hospitals which have over 1500 deliveries per year.   | 9%  | 1.95 | 1.17 |
| <b>Fetal Positions</b>   |     |      |      |
| Complete breech is the second most optimal position for a breech birth.  | 68% | 3.68 | 0.78 |
| With multiparous women, fetal position is less of an issue.  | 64% | 3.63 | 0.90 |
| No breech presentation is 'inappropriate' for a vaginal breech birth, so long as the mother has made an informed choice.   | 59% | 3.68 | 1.17 |
| The diagnosis of a footling breech should be made in labour with ruptured membranes, by determining whether or not the buttocks have engaged in the pelvis.                        | 48% | 3.33 | 0.85 |
| Any presentation is 'normal' until there is a problem.   | 41% | 3.23 | 1.15 |
| The optimal breech position at the start of labour is Right Sacrum Anterior/Lateral.   | 36% | 3.36 | 0.79 |
| An extended head on ultrasound in labor (chin higher than the occiput) is unsafe for vaginal delivery.   | 36% | 3.36 | 1.00 |
| A knee-presenting baby normally starts labour in a posterior position.   | 29% | 3.38 | 0.80 |
| A footling presentation (at least one hip extended) is unsafe for vaginal delivery.  | 27% | 2.77 | 0.97 |
| A dorsoposterior position is unsafe for vaginal breech birth.  | 9%  | 2.68 | 0.65 |
| <b>Safe Progress</b>   |     |      |      |
| Ideally, the birth should be complete within one hour of active pushing.   | 68% | 3.67 | 1.11 |
| Ideally, the birth should be complete within two hours of active pushing.  | 64% | 3.77 | 1.02 |
| Physiological breech births progress similarly to cephalic births.   | 55% | 3.5  | 1.06 |
| Following the birth of the buttocks, the head should ideally be born or delivered within the next 3-5 minutes.   | 55% | 3.72 | 1.16 |
| Progress should be rapid from the birth of the umbilicus to the birth of the head.   | 45% | 3.36 | 0.90 |
| Physiological breech births usually progress more quickly than cephalic births.  | 36% | 3.0  | 0.98 |
| Physiological breech births usually progress more slowly than cephalic births.   | 14% | 2.68 | 1.04 |

## References

- Advanced Life Support in Obstetrics (ALSO), 2010. The ALSO Course Syllabus. American Academy of Family Physicians, Leawood, Kansas.
- Banks M, 2007. Active breech birth: The point of least resistance. *New Zealand College of Midwives Journal* 36, 6.
- Berkley A, 2006. Stepping into the breech: the mother's story. *The Practising Midwife* 9, 16–18.
- Bogner G, Strobl M, Schausberger C, Fischer T, Reisenberger K, Jacobs, V.R., 2015. Breech delivery in the all fours position: a prospective observational comparative study with classic assistance. *Journal of Perinatal Medicine* 43, 707–713.
- Borbolla Foster A, Bagust A, Bisits A, Holland M, Welsh A, 2014. Lessons to be learnt in managing the breech presentation at term: An 11-year single-centre retrospective study. *Australia and New Zealand Journal of Obstetrics and Gynaecology* 54, 333–339.
- Catling C, Petrovska K, Watts N, Bisits A, Homer CSE, 2015. Barriers and facilitators for vaginal breech births in Australia: Clinician's experiences. *Women Birth. Midwifery* 29, 138-143.
- Caughey AB, 2007. Counseling patients about obstetric risk: the breech experience. *J Perinatol.* 27,139–40.
- Chinnock M, Robson S, 2007. Obstetric trainees' experience in vaginal breech delivery - Implications for future practice. *Obstetrics and Gynecology* 110, 900–903.
- Cronk M, 1998. Midwives and breech births. *Pr. Midwife* 1, 44–45.
- Evans J, 2012. Understanding physiological breech birth. *Essentially MIDIRS* 3, 17–21.
- Fahy K, 2011. Do the findings of the Term Breech Trial apply to spontaneous breech birth? *Women Birth* 24, 1–2.
- Ferreira JCP, Borowski D, Czuba B, Cnota W, Wloch A, Sodowski K, et al., 2015. The evolution of fetal presentation during pregnancy: a retrospective, descriptive cross-sectional study. *Acta Obstetricia Gynecologica*

Scandinavica 94, 660-663.

- Goffinet F, Carayol M, Foidart J M, Alexander S, Uzan S, Subtil D, Breart G, 2006. Is planned vaginal delivery for breech presentation at term still an option? Results of an observational prospective survey in France and Belgium. *American Journal of Obstetrics and Gynecology* 194, 1002–1011.
- Hartnack Tharin JE, Rasmussen S, Krebs L, 2011. Consequences of the Term Breech Trial in Denmark. *Acta Obstetrica et Gynecologica Scandinavica* 90, 767–771. doi:10.1111/j.1600-0412.2011.01143.x
- Hasson F, Keeney S, 2011. Enhancing rigour in the Delphi technique research. *Technological Forecasting and Social Change* 78, 1695–1704.
- Hehir M P, O'Connor H D, Kent E M, Fitzpatrick C, Boylan P C, Coulter-Smith S, Geary M P, Malone F D, 2012. Changes in vaginal breech delivery rates in a single large metropolitan area. *American Journal of Obstetrics and Gynecology* 206, 498 e1–4.
- Hofmeyr G J, Hannah M, Lawrie T A, 2015. Planned caesarean section for term breech delivery, *Cochrane Database of Systematic Reviews*. John Wiley & Sons, Ltd, Chichester, UK, p. Art. No.: CD000166. doi:10.1002/14651858.CD000166.pub2
- Jordan A, Antomarchi J, Bongain A, Tran A, Delotte J, 2016. Development and validation of an objective structured assessment of technical skill tool for the practice of breech presentation delivery. *Archives of Gynecology and Obstetrics*. doi: 10.1007/s00404-016-4063-4
- Kotaska A, Menticoglou S, Gagnon R, Farine D, Basso M, Bos H, Delisle M F, Grabowska K, Hudon L, Mundle W, Murphy-Kaulbeck L, Ouellet A., Pressey T, Roggensack A, 2009. SOGC clinical practice guideline: Vaginal delivery of breech presentation: no. 226, June 2009. *Int J Gynaecol Obs.* 107, 169–176.
- Krause M, 2007. Der Vierfüßlerstand - eine optimale Gebärhaltung bei Beckenendlage. *Die Hebamme* 20, 164-167.
- Marko KI, Lewis L, Kapner MD, Clausen M, Casillas S, Pinger WA, 2015. Cesarean Delivery Prevention: The Vaginal Breech Initiative at the George Washington University Hospital. *Obstetrics & Gynecology* 125:42S.
- Maslovitz S, Barkai G, Lessing JB, Ziv A, Many A, 2007. Recurrent obstetric management mistakes identified by simulation. *Obstetrics and Gynecology* 109, 1295–300.

- Michel S, Drain A, Closset E, Deruelle P, Subtil D, 2009. [Evaluation of decisional elements of vaginal delivery in case of breech presentation in 19 university hospitals in France]. *European Journal of Obstetrics and Gynecology and Reproductive Biology* 38, 411–420.
- Powell R, Walker S, Barrett A, 2015. Informed consent to breech birth in New Zealand. *New Zealand Medical Journal* 128, 85–92.
- Priddis H, Dahlen H, Schmied H, 2012. What are the facilitators, inhibitors, and implications of birth positioning? A review of the literature. *Woman and Birth* 25, 100-6.
- PROMPT 2012. PROMPT Course Manual, 2nd ed. Cambridge University Press, Cambridge.
- RCOG 2006. The Management of Breech Presentation, RCOG Green-top Guidelines, No. 20b. Royal College of Obstetricians and Gynaecologists, London.
- Reitter A, Daviss B-A, Bisits A, Schollenberger A, Vogl T, Herrmann E, Louwen F, Zangos S, 2014. Does pregnancy and/or shifting positions create more room in a woman's pelvis? *American Journal of Obstetrics and Gynecology* 211, 662.e1–662.e9.
- Salmond SW, 1994. Orthopaedic nursing research priorities: a Delphi study. *Orthopaedic Nursing* 13, 31–45.
- Sanders R, Lamb K, 2015. The six Cs of the breech experience. *MIDIRS Midwifery Digest* 25, 459–465.
- Secter MB, Simpson AN, Gurau D, Snelgrove JW, Hodges R, Mocarski E, Pittini R, Windrim R, Higgins M, 2015. Learning From Experience: Qualitative Analysis to Develop a Cognitive Task List for Vaginal Breech Deliveries. *Journal of Obstetrics and Gynaecology Canada* 37, 966–974.
- Thangaratnam S, Redman CW, 2005. The Delphi technique. *The Obstetrician and Gynaecologist* 7, 120–125.
- Thies-Lagergren L, Hildingsson I, Christensson K, Kvist L J. Who decides the position for birth? A follow-up study of a randomised controlled trial. *Women and Birth* 16, e99-e104.
- Vlemmix F, Berghenhenegouwen L, Schaaf JM, Ensing S, Rosman AN, Ravelli ACJ, van der Post JAM, Verhoeven A, Visser GH, Mol BWJ, Kok M, 2014. Term breech deliveries in the Netherlands: did the increased cesarean rate

affect neonatal outcome? A population-based cohort study. *Acta Obstetrica et Gynecologica Scandinavica* 93, 888–896.

Wu E, Kaimal AJ, Houston K, Yee LM, Nakagawa S, Kuppermann M, 2014. Strength of preference for vaginal birth as a predictor of delivery mode among women who attempt a vaginal delivery. *American Journal of Obstetrics and Gynecology* 210, 440.e1–440.e6.