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Author Version

2 **Title Page**

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4 **Expertise in Physiological Breech Birth: A mixed-methods study**

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7 **Running title:** Expertise in Breech Birth: A mixed-methods study

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43 **Introduction**

The recent Royal College of Obstetricians and Gynaecologists (RCOG) guideline on Management of Breech Presentation¹ refers to “clinical expertise (p4)” as an essential safety factor in vaginal breech birth, similarly to other guidelines globally. When breech expertise is unavailable, the safety and availability of vaginal breech birth decline. Although breech presentation occurs in approximately 1:25 pregnancies at term,¹ only a small portion are born vaginally.² This is attributed to a decline in expertise³ and fear of litigation.⁴ Women’s autonomy to decline surgical delivery and choose a vaginal breech birth is limited by lack of skill and experience.⁴⁻⁶ Understanding how breech expertise should be defined, and how it can be both attained and preserved, is essential for the provision of humane and dignified care that protects the autonomy of all.^{7,8}

Minimal empirical evidence exists to guide identification and evaluation of expertise. The Term Breech Trial⁹ associated attendance by a clinician “who judged him or herself to be skilled and experienced at vaginal breech delivery, confirmed by the Head of Department (p.744)”¹⁰ with a reduction in adverse outcomes when compared with the categories of licensed obstetrician or clinician with over 10 or 20 years experience. But reliance on self-assessment of skill in the trial has been criticized.¹¹ The objective of this mixed methods study was to explore the meaning of expertise in physiological breech birth, in order to understand how it can be developed within contemporary maternity services.

Methods

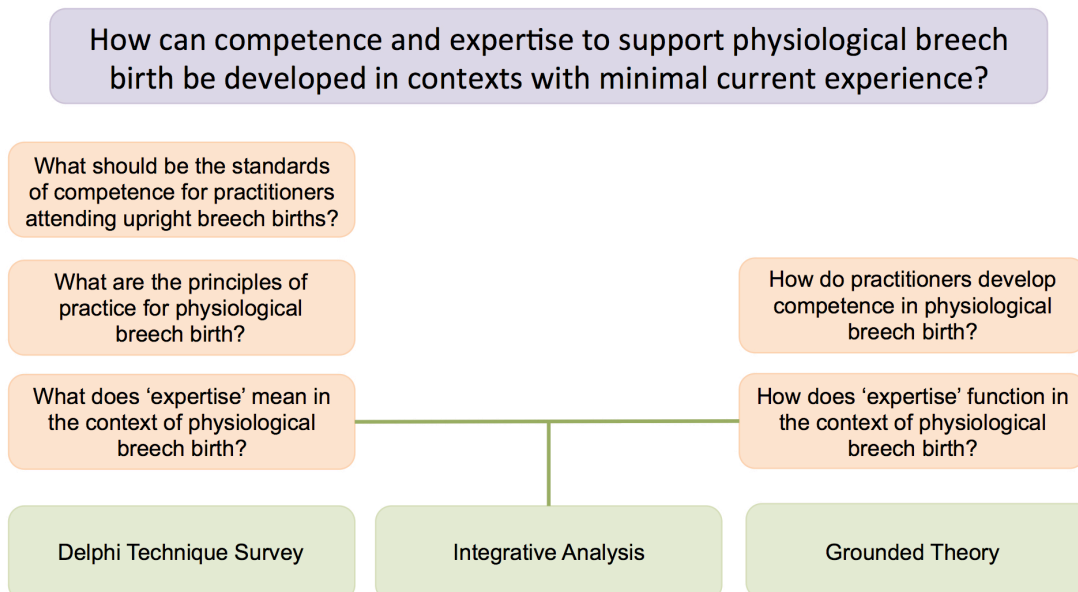


Figure 1: Research Design

We performed an integrative analysis¹² of data from two methodologically diverse studies [Figure 1]. Data came from a Delphi survey¹³ involving 26 comparatively experienced practitioners and 2 service user representatives, and a grounded theory interview study¹⁴ involving 14 practitioners moderately experienced with upright physiological breech birth [Table 1]. The pooled data set included free text answers to open-ended survey questions from the Delphi survey; a collection of statements which reached consensus agreement among at least 70% of the Delphi panel members [Table 2]; and transcriptions of in-depth interviews from the grounded theory study. Detailed descriptions of recruitment, methodologies and results of the contributing studies have been published separately.^{13,14}

Table 1: Backgrounds of participants in mixed-methods expertise study

Delphi consensus technique study	13 obstetricians, 13 midwives, 2 service user representatives
Settings	Australia, Austria, Brazil, Canada, Germany, Mozambique, New Zealand, United Kingdom, United States of America
Births	20-400 total breech births (mean = 135; median = 100)
Grounded theory interview study	9 midwives, 5 obstetricians
Settings	Australia, Brazil, Canada, the Netherlands, New Zealand, the Philippines, the United Kingdom, and the United States
Births	5-30 upright breech births

The data were analyzed using a constant comparative method that comes from grounded theory.^{12,15} We began by descriptively coding references to more experienced clinicians, and comparing the patterns we observed to the consensus statements in *Table 2*. These initial codes were then organized into categories reflecting social clinical roles and increasing layers of responsibility associated with some experienced clinicians. This iterative process included highlighting counter-examples and exploring tensions in the data, particularly the doubt multiple participants expressed about the concept of “breech expertise.” Theoretical categories were settled by relating the expansive progression of roles to a central concept of *generative expertise*, and comparing this to *alienating authority*; both are defined below.

The multiple data sets contributed diverse views¹⁶ of professionals with varying experience levels [*Table 1*]. Integration of this data during analysis enabled a more thorough exploration of processes,¹⁶ particularly the social functions of expertise, than would have been possible from either data set in isolation. Detailed memo writing throughout the analysis maintained an audit

trail of key decisions, and reflexive awareness of various sources of influence.^{15,17} Ethics approval was obtained by the City, University of London, School of Health Sciences Research Ethics Committee. All participants consented to participate and transcripts were anonymised prior to analysis. Clinicians who participated in the Delphi panel are identified by a three-digit code, e.g. OB104. Clinicians who participated in interviews are identified with a single-digit code, e.g. MW1. All data were stored and analyzed on a password-protected, encrypted laptop or central shared university drive, in line with ethics approval. Each of the three authors contributed to the original studies, design of this analysis and the writing up of the results. The first author performed the integrative analysis, in consultation with the other two authors.

Results

Table 2: Consensus statements: Qualities associated with expertise in physiological breech birth

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

Qualities associated with expertise	%	Mean	SD
Ability to anticipate the need to intervene based on careful observation of the birth and progress	100%	4.68	0.48
Keeps current and continues to attend breech births	95%	4.59	0.59
Having encountered and resolved complications successfully	95%	4.52	0.81
Openness to new research	95%	4.50	0.60
Experience with many births both breech and cephalic	91%	4.45	0.67
A special interest in breech birth	86%	4.36	0.73
Known for their empathy, knowledge and compassion	86%	4.23	0.68
Affinity – joy and happiness in the job	86%	4.23	0.69
One who has explored and evaluated a variety of different techniques and approaches to vaginal breech birth	86%	4.23	0.81
Ability to teach others the skills of breech birth	77%	4.18	0.80
Evidence of good outcomes over a significant number of births	77%	4.14	0.89
Attendance at a certain number of breech births	73%	4.14	0.83
Someone who knows how to create the conditions for a real fetus ejection reflex	73%	3.91	1.06
Leadership skills	71%	4.05	0.59
While numbers are helpful as a guideline, expertise is context-dependent. Expertise is more accurately understood through the demonstration of qualities such as those outlined above than by achieving any particular number.	95%	4.59	0.59
Number of births associated with consolidating expertise: 20 (mode and median of all responses)			

Volume Standards

As expected, participants viewed expertise as dependent on ample clinical experience. The Delphi survey results identified 20 births as an approximate number reasonably associated with acquiring expertise [Table 2]. During this period, professionals encounter most significant complications¹⁴ and develop pattern recognition abilities that enable them to distinguish normal and abnormal breech births. But complications occur unpredictably, and are encountered at variable rates. This integrative analysis suggests the critical ability to recognize and resolve complications [Table 2] is also influenced by time spent in simulation and teaching theory:

I've never attended a vaginal breech birth that's been anything other than easy, and that actually used to worry me ... I teach the [obstetric emergencies] course here so I get to practice on the dolls and pelvis on a regular basis, but I've never had to do most of the maneuvers myself. (OB4, >40 total breech births)

The Generative Function of Expertise

Expertise can be identified by its on-going function, rather than a static achievement. The participants involved in both studies saw expertise as generating comparatively good outcomes for mothers and babies. But expertise also had another essential function: it imbued confidence and competence in other professionals. Expertise can in this sense be called *generative*. Clinical experience is essential, but according to our integrative analysis, breech expertise develops through social relationships involving

distinct social clinical roles.

The Social Expressions of Expertise

The generative nature of expertise is expressed in social clinical roles: clinician, mentor, specialist, expert. Practitioners take on increased responsibility and expanded social roles as their experience grows, and each successive role incorporates the one before. Fulfilling these roles also contributes to the continued development of the practitioner's expertise, creating a positive feedback cycle. Expertise results from cumulative and continual learning and practice.

Clinician: The data indicated that generative expertise originates in reciprocal relationships with birthing women, *being willing and teachable from the woman and breech baby (MW103).*

The stuff that I've learnt since [training] as an obstetrician has probably been more instructive because I've learnt just through the process of observation and working with women, rather than being taught actively by someone else and being told, "This is the way you have to do it" (OB4).

Clinicians with generative expertise increase the likelihood of both planned and successful breech births because their confidence instills the same in birthing women.

I found that my experience was influencing them in the decision because all of my women were thinking about vaginal birth (MW3).

Comfort and familiarity with the process of breech birth brings increased

177 flexibility and openness to follow the woman.

178 *As providers gain experience, for sure in my experience, I've gotten*
179 *more comfortable with the mother being in her chosen position*
180 *(MW105).*

181 Enablement of women results in further opportunities to attend breech births
182 through referrals:

183 *So one woman told the other one, and suddenly a lot of breech*
184 *births were appearing from everywhere. I think we attracted the*
185 *breech births (MW9).*

186 Successful breech births attract further opportunities, and these clinicians
187 have the potential to develop into mentors.

188
189 *Mentor:* Comparatively experienced clinicians mentoring others at births
190 increase the likelihood that breech births will occur.

191 *We had a Dutch registrar who was very comfortable with breech*
192 *birth, and I had the opportunity to do a few, instead of the usual*
193 *scenario where the registrar's trying to race women to the operating*
194 *theatre as fast as possible. She used to come into the room and just*
195 *stand there. "I'll help if you need me, but just press on" (MW4).*

196 They are able to *step back and watch it unfold (MW113)*, enabling colleagues'
197 skills to come forward. Some participants described intentionally practising the
198 skill of stepping back, promoting shared responsibility for breech births, and
199 resisting attempts of less experienced colleagues to step aside.

200 *I could stand back because I wanted them to be able to do it when*
201 *there was nobody else. So it was important that I could do it myself.*

202 *But then, “I’m here so that you can do it” (MW7).*

203 When mentors with generative expertise support other clinicians at breech
204 births, their presence brings into the birth space an increased flexibility and
205 openness to follow the woman. They increase the likelihood and safety of
206 breech births among the colleagues they work alongside, and maintain their
207 own proficiency in the process. Some may develop into specialists.

208

209 *Specialists:* Breech specialists are experienced clinicians who have an
210 extended formal role working with breech presentation in a local setting. They
211 provide theoretical teaching in addition to attendance and mentorship at
212 breech births.

213 *In retrospect if somebody had given me a workshop that I now give*
214 *to people who might find themselves in that situation, I would have*
215 *left her [kneeling] and had her just push the baby out spontaneously,*
216 *which she would have done beautifully (OB1).*

217 In the interview data, skilled teaching had the effect of increasing colleagues’
218 confidence to attend breech births, by increasing their conceptual
219 understanding.

220 *[The workshop] left me with the feeling that I really understood*
221 *normal breech birth and how to identify when there was a problem*
222 *and what to do about it (MW5).*

223 The interview data indicated specialists were sought out for reflective
224 supervision activities such as *preparing* for births, *talking through* births and
225 birth videos, and *picking up tips*, each of which were mentioned by multiple
226 participants. Specialists also undertake service activities such as auditing

outcomes of breech births, identifying patterns in the experiences of other clinicians. The skilled teaching and reflection provided by specialists with generative expertise function to increase the likelihood and safety of vaginal breech birth by increasing confidence, skill and understanding among colleagues throughout the local maternity care context. Some specialists take on additional leadership and advocacy activities outside their local settings, in the role of a breech expert.

Experts: A breech expert is a specialist who mobilizes knowledge across multiple settings: *Understanding and teaching. Research and mentorship. Good outcomes over a high volume (MW105).* Each of these activities potentially increases the availability and safety of vaginal breech birth. Expert clinicians maintain the openness and flexibility characterizing their work with women and colleagues. This involves conducting their own research, being open to the work of others, and trying new methods [Table 2]. Although breech experts are heavily involved in teaching, the data were thick with references to the need to continue learning, from women, colleagues and new research:

We always learn. I think loving it and doing it often make you the right person but once you stop being humble in the presence of breech birth you will probably become dangerous (MW110).

The role of a breech expert is primarily in the synthesis and dissemination of knowledge about breech birth, in addition to their own experience, highly relevant to the expert's credibility.

252 *Alienating Authority*

253 Some of the more experienced clinicians, particularly midwives, expressed
254 doubt about the concept of “breech expertise,” and concern about the effect of
255 *segregating breech into a specialty* (MW102).

256 *I am not a fan of the “expert” model. I am into competence for all as a*
257 *basic skill* (MW101).

258 Analysis of the data revealed an antithetical expression of breech expertise,
259 *alienating authority*, which may help explain this resistance.

260

261 *Alienating authority* claims a mandate through experience or professional
262 hierarchy, but fails to generate consistent availability and safety of breech
263 births. This may involve over-estimation of one’s own skill, disregard of the
264 skills and experience of others, or misrepresentation of skill and its ability to
265 mitigate risks: *Claiming to be an ‘expert’ could mislead* (MW102). Alienating
266 authority is characterized by inflexibility and close-mindedness, which limits
267 continued learning: *They like to do it like they did it all the time.* (OB104). In
268 this data, individuals exhibiting alienating authority were described as
269 exercising more control over birthing women and colleagues: *And then the*
270 *consultant just came in and basically was just like, “Right I need an epidural*
271 *put in ...* (MW1). This type of expertise prioritizes one clinician’s preferences,
272 which may be asserted without relation to the needs and wishes of the
273 birthing woman or colleagues due to the implicit hierarchical nature of their
274 relationship.

275

276 Clinicians exercising alienating authority made care decisions based on

limiting and inaccurate predictions, undermining trust.

A woman who had been told that she wouldn't actually go into labor so that's why she had to have a caesarean section, she came into hospital in advanced labor so was very shocked about it all (MW1).

This also applied to alienating teaching and organizational practices:

"You've gotta have the woman flat on her back in lithotomy, and she's gotta have an epidural in, and she's gotta have an episiotomy, and you have to do this, this and this in this order. You can't do anything other than that, otherwise it's all gonna go pear shaped" (OB4).

Alienating authority diminished, rather than enabled, shared responsibility and experience throughout the team. This sometimes involved professionals in senior roles assuming authority: *Because there was that superior obstetric view, I felt like I needed to defer to him (MW6).* But the evidence also indicated some clinicians eagerly deferred to others during breech births, relinquishing the opportunity to acquire hands-on clinical practice, along with their own clinical responsibility for the births. Alienating authority undermines relational aspects of care. This potentially leads to fewer breech births, less flexibility for women and less confidence among colleagues, contributing to *the dying process (OB104)* for breech birth.

Mechanisms of sustainability

In this data, three mechanisms supported the gradual role expansion associated with the development of generative expertise: affinity, visibility and relationship. Individuals functioning with generative expertise were repeatedly

described as experiencing *joy, love* and *beauty* in their work with breech births, which contributed to sustaining their interest. Specialists teaching breech skills within and outside of their local contexts created visibility with two important results: increased volume and learning. They were called by colleagues to more births and were sought out by more women desiring vaginal breech births. They were also consulted to *talk through* more births, enabling them to recognize patterns beyond their own personal experience. Finally, their practice was based on relationship and response. This required for each participant some degree of flexibility to follow the woman and the rhythms of physiological birth, involving being on-call wherever possible, even within systems where this was not the norm. Three mechanisms of limitation promoted alienating authority: fear, under-utilized experience, and professional hierarchy.

Discussion

Expertise is defined by its on-going function: the generation of comparatively good outcomes, and confidence and competence among colleagues.

Generative expertise is developed and expressed in social clinical roles, which expand as experience grows: clinician, mentor, specialist, expert. In most contemporary maternity services, these social clinical roles are either not present, or filled on an *ad hoc* basis by practitioners with an interest, resulting in missed opportunities and inconsistently available services.^{5,6} Our analysis indicates that to develop expertise within a service, clinicians who have an interest in breech birth should be enabled to perform these roles more regularly, increasing the likelihood that a core group attends the 3-6

births per year recommended for maintenance of breech skills.¹³ Clinicians attending breech births should receive theoretical training based on recognized standards of practice,¹³ and be supported whenever possible by experienced colleagues who share clinical responsibility, until they are confident in their ability to identify and resolve significant complications.¹⁴ Services should recognize that this may take time to develop and require appropriate compensation. Absolute safety cannot be guaranteed, and a poor outcome is not necessarily evidence of incompetence. But adverse outcomes incurred by unsupported clinicians with minimal experience will have a negative impact on continued development of breech services.

The RCOG breech guideline¹ recommends, “Guidance for the ... management of vaginal breech birth should be developed in each department by the healthcare professionals who supervise such births (p7).” Similarly, our research reminds us that breech expertise resides within individuals rather than institutions. Enabling keen and experienced practitioners to lead the design of care models that meet personal and local needs may result in safer, more accessible, and more sustainable services. Our data suggest this will involve supporting experienced individuals to work flexibly, in order to attend more breech births, mentor colleagues, provide formal teaching, and share knowledge with wider research and practice networks.

In contexts where these social clinical roles are not recognized, small numbers of vaginal breech births dispersed across many different practitioners, with little or no experienced mentorship, disables the

development of any significant expertise. This leads to over-reliance on formulaic management plans, lacking the flexibility of a living art, and has safety implications for the vaginal breech births that do continue to occur. Additionally, this research indicates that when these social clinical roles are not available within local care contexts, practitioners who wish to develop their own skills with breech may look to experienced practitioners perceived as experts, who are otherwise alienated from mainstream practice. The lack of open, collaborative dialogue and shared learning between the mainstream and its margins may also have negative safety consequences. Similarly, care should be taken within institutions not to segregate specialists as the only breech attendants, possessing an exclusive skill set. Such circumstances replicate the problematic model of alienating authority. Specialist roles should support the wider maternity care team and be accountable to them.

A recent systematic review suggested that experienced mentorship in clinical practice is an important corollary to breech training, associated with higher rates of attendance at actual vaginal breech births.¹⁸ Models of specialist care provision have been explored with good results in areas such as twin pregnancy and birth¹⁹ and birth after caesarean section.^{20,21} While much work has been done on the benefits of models of continuity of carer provided by midwives,^{22,23} less research has addressed the impact of continuity of obstetric carer, and trusting, stable relationships within the professional team. Continuity has been identified in qualitative research as a significant factor influencing the success of complex physiological birth,²⁴ and the organization of obstetric and specialist midwifery services to provide greater levels of

relational continuity deserves further research.²⁵ Evaluation of a breech team's performance should include feedback from women and colleagues as well as perinatal outcomes, to ensure that the influence of specialists is generating comparatively better outcomes, competence and confidence throughout the entire service.

The strength of this research is the integration of data from 26 participants who are perceived as experts, 14 participants who are at an earlier stage of developing upright physiological breech skills, and 2 service user representatives. The participants worked in various international maternity care settings. This variety may increase the applicability of the findings across settings. But the heterogeneity of the sample means that the findings are not oriented toward implementation in any specific setting, and will therefore require further local work to implement successfully. Additionally, the methods used in this study do not enable us to verify our findings by demonstrating an association with improvement in outcomes. The implementation and effect of breech roles and teams remains to be tested predictively in practice. The opposing belief among a portion of participants that identification of specialists would limit, rather than expand, availability of breech births requires careful consideration in any setting intending to trial a breech team. A further limitation is that the participants in the research were all oriented to physiological breech birth,²⁶ involving upright maternal positioning.^{27,28}

Although many of the participants developed experience within settings where this practice was not normative, the social clinical roles may not function in the same way in maternity care contexts where women and/or their attendants

are not able to utilize upright birthing positions.

In conclusion, specialist teams may facilitate the development of generative expertise within maternity care settings, and this may help preserve women's autonomy in the provision of safe, respectful and dignified maternity care.⁸

Organizational systems should be put in place for flexible working, enabling specialists to support women and colleagues at breech births wherever possible, provide teaching and exchange lessons learned with other breech specialists. Any implementation of breech teams must be fully evaluated.

Such evaluation should include the views of service users, colleagues and managers regarding the usefulness the care model, opportunities and barriers to implementing it, and perinatal outcomes.

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