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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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6

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

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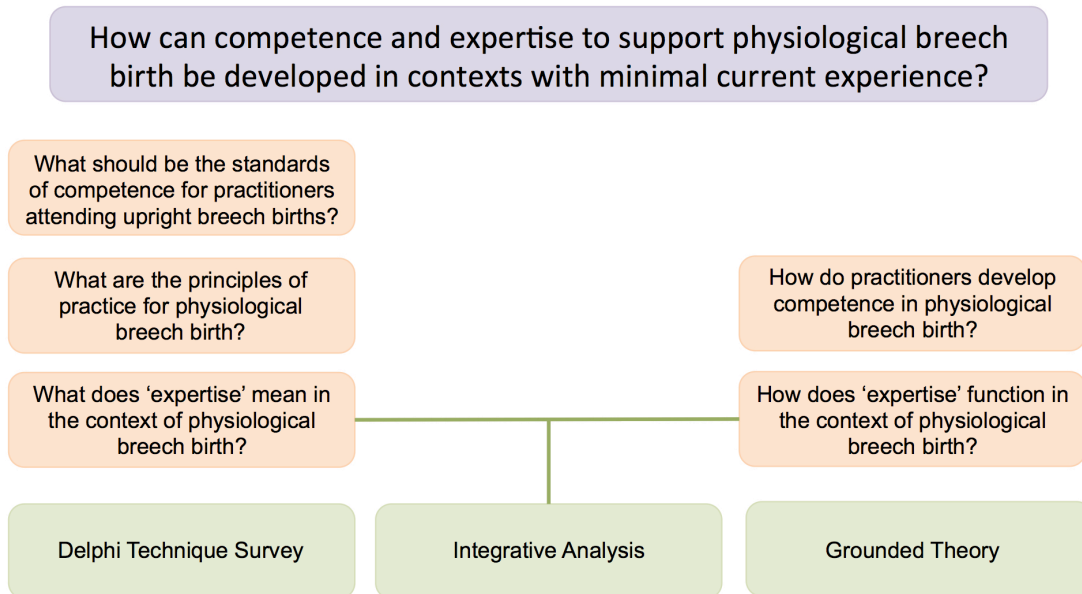
43 **Introduction**

44 The recent Royal College of Obstetricians and Gynaecologists (RCOG)  
45 guideline on Management of Breech Presentation<sup>1</sup> refers to “clinical expertise  
46 (p4)” as an essential safety factor in vaginal breech birth, similarly to other  
47 guidelines globally. When breech expertise is unavailable, the safety and  
48 availability of vaginal breech birth decline. Although breech presentation  
49 occurs in approximately 1:25 pregnancies at term,<sup>1</sup> only a small portion are  
50 born vaginally.<sup>2</sup> This is attributed to a decline in expertise<sup>3</sup> and fear of  
51 litigation.<sup>4</sup> Women’s autonomy to decline surgical delivery and choose a  
52 vaginal breech birth is limited by lack of skill and experience.<sup>4-6</sup>  
53 Understanding how breech expertise should be defined, and how it can be  
54 both attained and preserved, is essential for the provision of humane and  
55 dignified care that protects the autonomy of all.<sup>7,8</sup>

56  
57 Minimal empirical evidence exists to guide identification and evaluation of  
58 expertise. The Term Breech Trial<sup>9</sup> associated attendance by a clinician “who  
59 judged him or herself to be skilled and experienced at vaginal breech delivery,  
60 confirmed by the Head of Department (p.744)”<sup>10</sup> with a reduction in adverse  
61 outcomes when compared with the categories of licensed obstetrician or  
62 clinician with over 10 or 20 years experience. But reliance on self-assessment  
63 of skill in the trial has been criticized.<sup>11</sup> The objective of this mixed methods  
64 study was to explore the meaning of expertise in physiological breech birth, in  
65 order to understand how it can be developed within contemporary maternity  
66 services.

67

68 **Methods**



69

70 **Figure 1:** Research Design  
71

72 We performed an integrative analysis<sup>12</sup> of data from two methodologically  
73 diverse studies [*Figure 1*]. Data came from a Delphi survey<sup>13</sup> involving 26  
74 comparatively experienced practitioners and 2 service user representatives,  
75 and a grounded theory interview study<sup>14</sup> involving 14 practitioners moderately  
76 experienced with upright physiological breech birth [*Table 1*]. The pooled data  
77 set included free text answers to open-ended survey questions from the  
78 Delphi survey; a collection of statements which reached consensus  
79 agreement among at least 70% of the Delphi panel members [*Table 2*]; and  
80 transcriptions of in-depth interviews from the grounded theory study. Detailed  
81 descriptions of recruitment, methodologies and results of the contributing  
82 studies have been published separately.<sup>13,14</sup>

83

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

85

86

<b>Delphi consensus technique study</b>	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)
<b>Grounded theory interview study</b>	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

87

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

99

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

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

## 118 Results

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

122 Percentage of panel in agreement, Likert mean and standard deviation (SD)  
 123 *Likert scale: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree*  
 124  
 125

<i>Qualities associated with expertise</i>	<i>%</i>	<i>Mean</i>	<i>SD</i>
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

126

127

128 *Volume Standards*

129 As expected, participants viewed expertise as dependent on ample clinical  
130 experience. The Delphi survey results identified 20 births as an approximate  
131 number reasonably associated with acquiring expertise [Table 2]. During this  
132 period, professionals encounter most significant complications<sup>14</sup> and develop  
133 pattern recognition abilities that enable them to distinguish normal and  
134 abnormal breech births. But complications occur unpredictably, and are  
135 encountered at variable rates. This integrative analysis suggests the critical  
136 ability to recognize and resolve complications [Table 2] is also influenced by  
137 time spent in simulation and teaching theory:

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

143

144 *The Generative Function of Expertise*

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



152 distinct social clinical roles.

153

154 *The Social Expressions of Expertise*

155 The generative nature of expertise is expressed in social clinical roles:

156 clinician, mentor, specialist, expert. Practitioners take on increased

157 responsibility and expanded social roles as their experience grows, and each

158 successive role incorporates the one before. Fulfilling these roles also

159 contributes to the continued development of the practitioner's expertise,

160 creating a positive feedback cycle. Expertise results from cumulative and

161 continual learning and practice.

162

163 *Clinician*: The data indicated that generative expertise originates in reciprocal

164 relationships with birthing women, *being willing and teachable from the*

165 *woman and breech baby (MW103).*

166 *The stuff that I've learnt since [training] as an obstetrician has*

167 *probably been more instructive because I've learnt just through the*

168 *process of observation and working with women, rather than being*

169 *taught actively by someone else and being told, "This is the way*

170 *you have to do it" (OB4).*

171 Clinicians with generative expertise increase the likelihood of both planned

172 and successful breech births because their confidence instills the same in

173 birthing women.

174 *I found that my experience was influencing them in the decision*

175 *because all of my women were thinking about vaginal birth (MW3).*

176 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

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

234

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

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

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

251

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

277 limiting and inaccurate predictions, undermining trust.

278 *A woman who had been told that she wouldn't actually go into labor*

279 *so that's why she had to have a caesarean section, she came into*

280 *hospital in advanced labor so was very shocked about it all (MW1).*

281 This also applied to alienating teaching and organizational practices:

282 *"You've gotta have the woman flat on her back in lithotomy, and*

283 *she's gotta have an epidural in, and she's gotta have an episiotomy,*

284 *and you have to do this, this and this in this order. You can't do*

285 *anything other than that, otherwise it's all gonna go pear shaped"*

286 *(OB4).*

287 Alienating authority diminished, rather than enabled, shared responsibility and

288 experience throughout the team. This sometimes involved professionals in

289 senior roles assuming authority: *Because there was that superior obstetric*

290 *view, I felt like I needed to defer to him (MW6).* But the evidence also

291 indicated some clinicians eagerly deferred to others during breech births,

292 relinquishing the opportunity to acquire hands-on clinical practice, along with

293 their own clinical responsibility for the births. Alienating authority undermines

294 relational aspects of care. This potentially leads to fewer breech births, less

295 flexibility for women and less confidence among colleagues, contributing to

296 *the dying process (OB104) for breech birth.*

297

298 *Mechanisms of sustainability*

299 In this data, three mechanisms supported the gradual role expansion

300 associated with the development of generative expertise: affinity, visibility and

301 relationship. Individuals functioning with generative expertise were repeatedly

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

315

## 316 **Discussion**

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

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

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

337

338 The RCOG breech guideline<sup>1</sup> recommends, “Guidance for the ...  
339 management of vaginal breech birth should be developed in each department  
340 by the healthcare professionals who supervise such births (p7).” Similarly, our  
341 research reminds us that breech expertise resides within individuals rather  
342 than institutions. Enabling keen and experienced practitioners to lead the  
343 design of care models that meet personal and local needs may result in safer,  
344 more accessible, and more sustainable services. Our data suggest this will  
345 involve supporting experienced individuals to work flexibly, in order to attend  
346 more breech births, mentor colleagues, provide formal teaching, and share  
347 knowledge with wider research and practice networks.

348

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



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

365

366 A recent systematic review suggested that experienced mentorship in clinical  
367 practice is an important corollary to breech training, associated with higher  
368 rates of attendance at actual vaginal breech births.<sup>18</sup> Models of specialist care  
369 provision have been explored with good results in areas such as twin  
370 pregnancy and birth<sup>19</sup> and birth after caesarean section.<sup>20,21</sup> While much work  
371 has been done on the benefits of models of continuity of carer provided by  
372 midwives,<sup>22,23</sup> less research has addressed the impact of continuity of  
373 obstetric carer, and trusting, stable relationships within the professional team.  
374 Continuity has been identified in qualitative research as a significant factor  
375 influencing the success of complex physiological birth,<sup>24</sup> and the organization  
376 of obstetric and specialist midwifery services to provide greater levels of

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

382

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

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

402 are not able to utilize upright birthing positions.

403

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

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

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

414

Author Version

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