**What should be discussed when considering a vaginal birth? : A Delphi Study to develop a Core Information Set for vaginal birth.**

**Authors**

Dr Andrew Demetri, Clinical Research Fellow, Royal College of Obstetricians and Gynaecologists, andrew.demetri1@nhs.net, [**https://orcid.org/0000-0002-2820-5919**](https://orcid.org/0000-0002-2820-5919)

Dr Anna Davies, Research Fellow, University of Bristol, [anna.davies@bristol.ac.uk](mailto:anna.davies@bristol.ac.uk), **https://orcid.org/0000-0003-0743-6547**

Dr Danya Bakhbakhi, Academic Clinical Lecturer, University of Bristol, [danya.bakhbakhi@bristol.ac.uk](mailto:danya.bakhbakhi@bristol.ac.uk)

Ms Alexandra Hunt, Research Assistant, Health Data Science, University of Liverpool, [A.Hunt5@liverpool.ac.uk](mailto:A.Hunt5@liverpool.ac.uk)

Dr Sharea Ijaz, Research fellow in Evidence, University of Bristol, [s.ijaz@bristol.ac.uk](mailto:s.ijaz@bristol.ac.uk)

Professor Sheelagh McGuinness, Reader in Law, University of Bristol, [sheelagh.mcguiness@bristol.ac.uk](mailto:sheelagh.mcguiness@bristol.ac.uk)

Ms Gemma Beasor, Patient representative, [gemma.beasor@hotmail.co.uk](mailto:gemma.beasor@hotmail.co.uk)

Dr Gemma Clayton, Senior Research Associate in Biostatistics, University of Bristol, [gemma.clayton@bristol.ac.uk](mailto:gemma.clayton@bristol.ac.uk)

Ms Vicky Bradley, Medical Student, University of Liverpool, [v.r.bradley@student.liverpool.ac.uk](mailto:v.r.bradley@student.liverpool.ac.uk)

Dr Eve Bunni, Clinical Research Fellow, University of Liverpool, [eve.bunni@liverpool.ac.uk](mailto:eve.bunni@liverpool.ac.uk)

Dr Carol Kingdon, Senior Research Fellow, University of Liverpool, ckingdon@liverpool.ac.uk

Dr Andrew Sharp, Senior Clinical Lecturer in Obstetrics, University of Liverpool, [asharp@liverpool.ac.uk](mailto:asharp@liverpool.ac.uk)

Dr Christy Burden, Assistant Professor, University of Bristol, [christy.burden@bristol.ac.uk](mailto:christy.burden@bristol.ac.uk)

Professor Asma Khalil, Vice President for Academia and Strategy, Royal College of Obstetricians and Gynaecologists (RCOG), Professor in Obstetrics and Maternal Fetal Medicine and Director of Fetal Medicine at Liverpool Women’s NHS Foundation Trust and Fetal Medicine Consultant at St Georges NHS Foundation Trust, [AKhalil@rcog.org.uk](mailto:AKhalil@rcog.org.uk)

Professor Louise Kenny, Executive Pro-Vice Chancellor , Faculty of Health and Life Sciences, University of Liverpool, louise.kenny@liverpool.ac.uk

Dr Abi Merriel, Senior Clinical Lecturer in Obstetrics, Department of Women’s and Children’s Health, University of Liverpool, [abi.merriel@liverpool.ac.uk](mailto:abi.merriel@liverpool.ac.uk), [https://orcid.org/**0000-0003-0352-2106**](https://orcid.org/0000-0003-0352-2106)

**On behalf of the Options Collaborative Group**

**Corresponding author**

Name: Dr Abi Merriel

Role: Senior Clinical lecturer, NIHR Advanced Fellow and Honorary Consultant Obstetrician, Department of Women’s and Children’s Health, University of Liverpool.

Tel: 07740334922

Email: abi.merriel@liverpool.ac.uk

**Abstract**

**Objective**

Spontaneous vaginal births are often the presumed choice and represent 45% of UK births. However, information is inconsistently given about benefits and risks. This impacts decision-making and experience. A Core Information Set (CIS) is an agreed set of information points discussed prior to a decision. We aimed to develop a CIS for vaginal birth.

**Design**

Information points were identified from a literature search, patient information leaflets, interviews, and a survey. These informed a two-round Delphi survey, where stakeholders voted on the importance of items for inclusion. Items supported by >80% of participants were discussed by 28 parents and professionals at consensus meetings. The final CIS was populated with an engagement group ensuring accessibility.

**Setting**

The study took place in the UK, with participants recruited online.

**Population**

Pregnant and postnatal women, birth partners, healthcare professionals, medico-legal professionals and people working for interested/relevant organisations.

**Main outcome**

A CIS for vaginal birth.

**Results**

77 information items were identified. In round 1 (631 participants) of the Delphi Survey, 84.5% were from the patient group and 15.5% from the professional group; in round 2 (228 participants), 74.3% were from the patient group and 25.7% from the professional group. 28 items met the criteria for consensus discussion. The final CIS includes 19 information points addressing: labour process, pain relief, labour complications, procedures or interventions during labour, experiences after birth, outcomes for the baby and environment during labour.

**Conclusions**

This CIS can be used to facilitate discussions and support informed decision-making about vaginal birth.

**Keywords**

Core information set, Delphi technique, Consensus, Informed consent, Vaginal birth, Stakeholders, Women, Women’s health.

**Introduction**

Less than half of births in the UK are spontaneous vaginal births (SVB).(1) For many women, unless a caesarean birth (CB) is indicated, SVB is the presumed choice.(2) This assumed preference may have contributed to antenatal information about vaginal birth being inconsistent and insufficient.(3) Having greater knowledge about birth may influence women’s decisions and could improve birth experience.(4) There is renewed interest in developing decision-aids to facilitate women’s choices for of birth.(5–8) Supporting women to make informed choices, is championed by the National Institute for Health and Care Excellence (NICE),(9) birth advocacy groups, such as Birth Rights,(10) and enshrined in law.(11)

The physiological process of vaginal birth has benefits for both mother and baby, including shorter hospital stays, decreased risk of maternal wound infection and childhood asthma, and increased breastfeeding rates.(12–15) Risks include shoulder dystocia, pelvic and birth trauma ,or neonatal morbidity, which can have an impact on a woman’s, or the baby’s, long term health.(16,17) Knowing these risks and benefits may influence decision making. The paucity of high-quality antenatal information can also have detrimental effects on pregnancy and labour experiences.(18) It increases anxieties due to fear of the unknown and leads to a disconnect between expectation and reality.(16,19,20) This can culminate in reduced birth satisfaction, and post-traumatic stress disorder.(19–21)

Access to consistent, high quality antenatal information is imperative. Whilst women are not asked to consent to vaginal birth, the General Medical Council (GMC) document on decision making and consent requires that women are given appropriate information.(22) Information provision about CB and instrumental birth has been improved, yet there has been limited progress with information about vaginal birth.(23,24)

Core Information Sets (CIS) aim to improve the consistency and quality of information, whilst not overwhelming patients. A CIS is developed systematically, achieving consensus between patients and healthcare professionals about the key information that should be discussed prior to a treatment or clinical decision.(25,26)

We aimed to define a CIS for vaginal birth, to provide women with consistent, patient-centred information to ensure they are well-informed about vaginal birth. (24)

**Details of Ethical Approval**

Approval was granted on 27th April 2022 by the University of Bristol Research Ethics Committee (Ref: 10530).

**Methods**

This study was registered with the Core Outcome Measures Effectiveness in Tests initiative (<https://comet-initiative.org/Studies/Details/2069>), and adheres to their recommended protocol and development standards(27) and the COS-Standards for Reporting guidance (S1).(28,29) The methodology was adapted from previously developed core outcome sets and CIS.(30–32) The full protocol has been previously published.(33) The five stage process is detailed below.

***Stage 1: Development of long-list***

A ‘long-list’ of all information points about vaginal birth was collated from a review of the literature and patient information leaflets, interviews with antenatal and postnatal women, and a stakeholder survey.

Scoping review

A pragmatic literature search was devised and run by an information specialist (SD) in September 2022, to identify outcomes and information points about vaginal birth. The search was limited to English language systematic reviews between 2020-2022 and Cochrane reviews published between 2017-2022 respectively. These time frames were applied due to the large number of papers that met the criteria, meaning that data saturation was likely to be achieved within these periods. No studies were excluded based on methodological quality or risk of bias, as this was not considered relevant for extracting information points. We searched for patient information leaflets about vaginal birth from the Royal College of Obstetricians and Gynaecologists (RCOG),(34) Tommy’s Pregnancy Information(35) and NHS Trusts using a list of maternity units that was identified from Care Quality Commissions (CQC) website.(36) Leaflets on instrumental birth and vaginal birth after caesarean (VBAC) were excluded as these are related to clinical decisions in specific circumstances rather than for vaginal birth in general.

Two members of the research team (AD, SI) screened titles, abstracts and full texts using Covidence reviewing software.(37) Information items were then extracted from papers by several reviewers (AD, GS, ADe, SI). Information items included were any measured outcome, risk or complication detailed in the literature. A pre-piloted extraction form was used to extract information points relating to vaginal birth (S2). A similar form was used for data extraction from leaflets (S3).

Interviews

Semi-structured qualitative interviews were conducted with pregnant (>12 weeks) and postnatal women, regardless of the mode of birth. Participants were recruited online via social media. Interviews were conducted by three members of the research team (AD, ADa, AM), using a topic guide to explore what information participants thought was most important to share with expectant mothers (S4) and were recorded on an encrypted audio recorder. Interviews were transcribed and analysed using thematic analysis.(38) Interviews were coded to identify information points about vaginal birth. Analysis was conducted in parallel to the interviews, ensuring that when data saturation was achieved, interviews concluded.

Stakeholder survey

An online survey to capture information points from relevant stakeholder groups was undertaken. Stakeholders were all UK-based, and included antenatal and postnatal women, birth partners, healthcare professionals who work alongside women in labour and postnatally, representatives from groups with an interest in women’s birthing rights, and medicolegal experts with an interest in reproductive health. The survey was conducted online using REDCap.(39) Participant’s role and demographics were collected before they were asked to list the information items they believed to be crucial for women to be informed of when considering a vaginal birth. Survey data was thematically analysed and responses were coded to identify key information items. Codes were grouped to create themes and key information points were then identified from each of these.(38)

***Stage 2: Developing the long list of information points***

Using the exhaustive ‘long-list’ from stage 1, the information items were grouped thematically into subcategories to support presentation. The core research team (AD, AM, ADa) met to establish how items should be worded in the survey, and to develop definitions for items to support understanding. Duplicate items were removed. We had planned to involve the whole research team in this process, but due to time constraints this was carried about by three members of the team.

The long-list was presented as an online survey using REDCap.(39) It was piloted with four pregnant and postnatal women using Think-Aloud interviews.(40) Changes were made to enhance usability of the survey. The involvement of pregnant and postnatal women in this stage helped shape the final long-list for the Delphi survey rounds.

***Stage 3: The Delphi survey***

Survey participants were recruited through social media. Stakeholders invited to complete the questionnaire were antenatal and postnatal women, birth partners, healthcare professionals who work alongside women in labour and postnatally (including obstetricians, midwives, midwifery care assistants, anaesthetists, general practitioners and physiotherapists), representatives from groups with an interest in women’s birthing rights, and medicolegal experts and researchers with an interest in reproductive health.

The final survey was presented in a two-round modified Delphi process on REDCap.(39) Each round stayed open for approximately eight weeks. Demographic data was collected at the start of the survey, including which stakeholder group they belonged to, age, area of residence, and level of education. All participants were asked about their parity and modes of birth experienced. Stakeholders were subdivided into the parent/non-professional group (antenatal and postnatal women, birth partners, representatives from interested groups) and professional group (healthcare professionals, medicolegal experts, researchers). Professionals were asked for information on their job role, work location and experience. Professionals who were pregnant, had a baby, or were a partner of someone who was pregnant or had a baby, were included in the professional group.

In round 1, survey participants were asked to rate the importance of each individual item for inclusion in a CIS on a 9-point Likert scale (1-3 limited importance; 4-6 important but not critical; 7-9 critical). A priori exclusion criteria were applied to removal of items between rounds: where ≥80% of one of the stakeholder groups (patients/professionals) voted the item as being of limited importance, and <15% from either group believed it to be critically important, the item was removed before round 2.

In round 2, the Delphi survey with the retained items from the first round was redistributed to round 1 participants. Round 2 included information on: the participant’s own score, the median score, and histograms representing the distribution of scores for parents and professionals for each point. Participants were asked to vote again using the same 9-point scale.

Information items which were rated as critically important by ≥80% of participants by either parents or professionals, with <15% from either group classifying as limited importance, were carried forward to the consensus meetings.

***Stage 4: Consensus meetings***

An online consensus meeting was planned using Zoom video conferencing software.(41) Due to the number of items, two meetings were held. We purposively sampled Delphi participants (both parents and professionals) to achieve a mix of roles.

The consensus meeting participants were shown the median scores for both the parent and professional groups, as well a graphical illustration of the distribution of scores for these groups. Participants were asked to discuss their views on whether an item was vital to discuss with all women planning a vaginal birth. Participants were then asked to anonymously vote on items to ‘include’, ‘do not include’ or ‘unsure’. Consensus to include or exclude an item was defined a priori as ≥80% of participants agreeing to include it. Where consensus was not reached, further discussion and re-voting took place.

***Stage 5: Populating the vaginal birth core information set***

The agreed CIS items were then populated with information pertaining to them from National Institute for Health and Care Excellence’s guidelines, Royal College of Obstetrics and Gynaecologists’ Green Top Guidelines and systematic reviews with a preference for Cochrane reviews due to their rigorous nature. Women and health professionals participating in an engagement group were invited to refine the content.

**Results**

Stage 1

The scoping review included 145 relevant papers and 29 patient information leaflets. 17 interviews with antenatal and postnatal women were undertaken, and 136 participated in the online stakeholder survey. 426 information items relating to vaginal birth were identified.

Stage 2

Items identified in stage 1 were organised into a Delphi survey of 11 categories comprising 77 information items. Categories were: birth environment, labour process, pain relief, possible complications, possible intrapartum and postnatal procedures/interventions, experience after birth (short, medium, and long term), outcomes for the baby, and wider effects of birth (S5). Following piloting, the number of information items was reduced to avoid duplication, and wording and functionality of the survey was refined, until the survey was deemed usable and ready for circulation. This process produced 74 items for round 1 of the Delphi survey.

Stage 3

*Delphi Round 1*

Demographics for the parent group are detailed in Table 1, with professional participants in Table 2. Pregnancy-related demographics are shown in S6.

631 participants took part in round 1. We were not able to calculate the response rate for the survey due to the methods of recruitment. 533 (84.5%) were parents, birth partners or members of charity organisations, and 98 (15.5%) were professionals. 335 (62.9%) non-professional participants had given birth to at least one baby, and 144 (27.0%) were pregnant. 92 (17.3%) participants from this group were partners of someone who had been or was pregnant, and a further six (0.02%) were from groups or charities with an interest in pregnancy and birth. Participants represented all regions of the United Kingdom. 362 (67.9%), identified as white British, and 61 (11.4%) identified as white other. 102 (19.1%) identified as being of non-white ethnicity.

Of those that had previously given birth, 262 (78.2%) of these had experienced a SVB, 50 (14.9%) an assisted vaginal birth (forceps or ventouse), and 68 (20.3%) had experienced an emergency (11.3%) or elective (9.0%) caesarean.

From the professionals group, 33 (33.7%) were midwives, and five were midwifery care assistants (5.1%). 38 (38.8%) were obstetric doctors, of which 25 (65.8%) were consultants or specialty doctors, and 13 (34.2%) were trainees or clinical fellows. Ten (10.2%) professionals were anaesthetists and general practitioners. One participant was a medicolegal expert and five were researchers.

None of the information items in round 1 (scoring shown in S7) met the predefined criteria for exclusion, and therefore all items were carried forward to round 2.

Analysis of the free text comments resulted in three new items relating to family planning, comparisons with other modes of birth, and after care immediately following vaginal birth.

*Delphi Round 2*

Of the 631 who completed the first round, 526 provided an active email address for participation in round 2. Of these, 288 completed round 2, representing an attrition rate of 45.2%. 214 (74.3%) of round 2 participants were patients. There was a larger proportion of professionals in round 2 (25.7%) compared to round 1 (15.5%) of the survey.

29 items met the criteria to be included in the consensus meetings. S8 summarises the survey results for all items in round 2, with those rated as critical (7 to 9) for inclusion in the CIS by >80% of participants from either group highlighted.

Stage 4

Two online consensus meetings were undertaken to support attendance and ensure adequate time for discussion. 20 participants attended both meetings. The participants were nine parent representatives (six pregnant women/who previously had a baby, three members of interested charities or organisations), three researchers, and eight from the professionals’ group (five obstetricians, three midwives).

Of the 29 items carried forward, twelve met the pre-specified criteria to be included in the CIS without needing discussion in the consensus meeting, as >90% of participants from one or both groups had scored them as critical in the second Delphi round. These information points are highlighted in blue in S8, and the final items are shown in S9.

Participants agreed that some information points overlapped and could be combined as a single information point. The ‘pelvic floor injury’ and ‘bladder and bowel symptoms following birth’ information items were discussed at the consensus meeting, and it was decided to create a new item that captured both of these points called ‘Pelvic floor injury and potential issues with this area following birth’ Similarly, ‘choice of birth location’ and ‘transfer of birth location during labour’, were considered to be similar information items, and were combined to create one new information item called ‘choice of where to give birth’. This new item was included in the final CIS as both individual items met the threshold for automatic inclusion. Finally, the information item ‘the process of speeding up labour’ was deemed by the consensus meeting participants to be captured in the ‘how the stages of labour are defined, and the expected progress’ point, and so was merged. The process and rationale for merging of items is outlined in S10.

Once items had been combined, the participants discussed and voted. Where consensus on the item was not achieved, further discussions took place before another round of voting. Voting on items during the meetings is shown in S11.

From the discussed items the meeting participants derived two distinct groups of CIS items. The first of these was items related decision making about whether to have a vaginal birth, which was determined to be the key purpose of this core information set. The second was important information *after* having decided to have a vaginal birth, to ensure they are as prepared as possible. Following the voting, consensus was achieved for 19 items to be included in the final vaginal birth CIS, which were categorised into seven domains (figure 1). The consensus group wanted an additional supplementary list for sharing once a vaginal birth was planned (figure 2).

Stage 5

Seven Patient and Public Involvement and Engagement (PPIE) groups were held with 22 participants to populate and refine the core information set (S12). The PPIE groups involved midwives, parents and researchers, members from interested organisations, charity workers and a statistician and meetings with risk communication experts. Diagrams displaying anatomical details were requested along with additional detail available in a longer version of the CIS.

**Discussion**

Main Findings

The final CIS contains 19 key information points, grouped into seven domains, to support discussions and informed decision making about vaginal birth. These domains are labour process, pain relief, procedures or interventions, potential complications, postnatal experiences, outcomes for baby, and environment during labour, and potential risks to mother and/or baby. Discussing these domains will ensure that health professionals have addressed essential information, agreed by parents and professionals, to promote a better understanding of childbirth.

The 19 information points is more than the 8-13 other CIS’s contain.(25,26) Our aim was to produce up to 15 points (33) but a flexible approach was adopted as childbirth is a broad subject.(33)

Much of this information is available within patient literature, though not always in an accessible form. For instance, patient leaflets cover the stages of labour and what to expect,(42) pain relief options,(43–45) and procedures like CB, instrumental birth, and episiotomy.(46) NICE guidelines discuss potential complications and risks of different birth modes,(47) while postnatal care literature addresses recovery and emotional changes.(48) Baby outcomes and long-term effects,(49) and the labour environment is explored in various resources.(50)

Now that the most valuable and critical-to-know information has been identified and complied as a single CIS, it is important to develop methods to best communicate this information effectively in everyday practice.(26) This could include using the information to standardise conversations women have with healthcare professionals about their mode of birth,(51) creating visual aids to demonstrate risks,(52) and informing, updating or linking into existing patient information leaflets and online resources. In partnership with an engagement group we have populated the vaginal birth core information set (S12), to ensure it aligns with the communication needs of those who will use it. The resource incorporates the context specific and evidence-based statistics for each item, whilst utilising language and visual aids which women find accessible. This can be used as a starting point for discussions about mode of birth. However, it is a minimum set of information and should not preclude discussion of other information, tailored to individuals needs based on their own history, risk factors and desire for information.(53,54)

This is the first study to create a core information set to improve communication and decision making antenatally regarding birth choices. Although the study was based in the UK, it can be used as a guide to the information that should be discussed about vaginal birth in any setting, as long as the content of the CIS is tailored to local information. Low and middle-income settings may be able to use the identified core information set but populate it using careful translation, regional statistics and cultural contextualisation to ensure its relevance.

Strengths and Limitations

The iterative process involved more than 600 stakeholders. Importantly, the process has had majority participation by women who were pregnant, or have given birth in the past, ensuring the views of the end-users were represented. The online process allowed for completion of the survey by people throughout the United Kingdom, reflected positively in the varied geographical locations of participants. Additionally, there was good diversity amongst the participants, with 19.2% in the first round and 17.3% in the second round of the survey identifying as non-White ethnicity, showing engagement of diverse groups.(55)

We used a systematic and comprehensive approach to identifying potential items and a rigorous Delphi survey process. We achieved good engagement of patients and professionals in two survey rounds. We aimed to balance having a small but representative group of participants for the CIS consensus meetings to ensure manageable discussions. However, the number of participants was commensurate with other Delphi consensus meetings.(25,26,32) Extending the meeting across two dates allowed for facilitation of more meaningful engagement.

The Delphi survey had an attrition rate of 45.2% between round one and two. This was higher than our aim of 20%.(56) Delphi survey attrition rates vary, from 20% to 90%.(57) Therefore an attrition rate of up to 50% is reasonable. The attrition was greatest in the patient group, however, there remained a high majority of patients compared to professionals. Demographics within the patient group remained similar between rounds. This mitigated the risk of underrepresentation of these voices in the second round.

This work focused on information points regarding spontaneous vaginal birth, and we did not aim to compare it with other modes of birth. To support informed decision-making, it will be important to enable women to make comparisons between differing birth modes. CISs relating to induction of labour, instrumental and caesarean are underdevelopment.(58)

The a-priori definitions for inclusion of items for the consensus meeting and the final core information set allowed for a replicable and objective process.

**Conclusion**

This vaginal birth CIS can be used to support discussions between healthcare professionals and women planning a vaginal birth. The CIS should be seen as a minimum list of points to discuss with those planning a vaginal birth, tailored to individual circumstances, needs, and expectations. This CIS can make a difference to the information received by women, by standardising the key elements for discussion and reducing variation in these discussions.

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**Contribution to Authorship**

ADemetri and AM conceived the study, obtained the funding, drafted the protocol and carried out the study and wrote the first version of the manuscript. ADavies helped with drafting the protocol and carrying out the study. DB, CB, and AS helped with formulating the methods for the study. SI, SM and GC assisted with conceiving and carrying out stage 1 of the study. AH aided in conceiving and carrying out stage 2 of the study. GB, GC, AK and LK helped with study conception and feasibility. VB, EB, CK populated the Core Information Set. The Options Study Collaborative Group Members were contributors to the direction of the project and the final manuscript. All authors read and approved the final manuscript.

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Options Study Collaborative Group Members:

|  |  |
| --- | --- |
| **Name** | **Role** |
| Professor Deborah Lawlor | Professor of Epidemiology, MRC Investigator and BHF Chair, University of Bristol |
| Professor Gordon Smith | Professor of Obstetrics, University of Cambridge |
| Professor Jane Norman | Professor of Obstetrics and Provost and Deputy Vice Chancellor University of Nottingham |
| Dr Jon Heron | Associate Professor in Medical Statistics, University of Bristol |
| Professor Louise Kenny | Executive Pro Vice Chancellor of the Faculty of Health and Life Sciences at the University of Liverpool |
| Professor Sheelagh McGuinness | Professor of Law, University of Bristol |
| Dr Anna Davies | Research Fellow in health psychology and services research, University of Bristol |
| Professor Dame Tina Lavender | Professor of Maternal and Newborn Health, Liverpool School of Tropical Medicine |
| Dr Christy Burden | Associate Professor in Obstetrics, University of Bristol |
| Professor Jonathan Ives | Professor of Empirical Bioethics, University of Bristol |
| Professor David Lissauer | NIHR Professor of Global and Fetal Medicine, University of Liverpool |
| Dr Emma McGoldrick, | Consultant Obstetrician, Liverpool Women’s Hospital |
|  |  |
| Mr Simon Grant | Consultant in Fetal Medicine, North Bristol NHS Trust |
| Mr Sherif Abdel-Fattah | Consultant in Fetal Medicine, North Bristol NHS Trust |
| Dr Danya Bakhbakhi | Academic Clinical Lecturer in Obstetrics & Gynaecology, University of Bristol |
| Dr Laura Bonnet | Senior Lecturer in Health Data Science, University of Liverpool |
| Dr Andrew Demetri | Academic Clinical Fellow in Obstetrics & Gynaecology, University of Bristol |
| Dr Mairead Black | Senior Clinical Lecturer in Obstetrics, University of Abderdeen |
| Dr Sam Finnikin | National Clinical Specialist Advisor in personalised care at NHS England, GP, Clinical Research Fellow at University of Birmingham |
| Dr Amie Wilson | Research Fellow in Global Maternal Health, Midwife |
| Alexandra Freeman | Executive Director, Winton Centre for Risk & Evidence Communication, University of Cambridge |
| Professor Pete Blair | Professor of Epidemiology and Statistics, University of Bristol |
| Dr Kate Birchenall | Sub-Specialist trainee in fetal medicine and Honorary lecturer, University of Bristol |
| Joanne Johnson | PPI Core group rep |
| Ms Abigail Johnson, | Midwife, North Bristol NHS Trust, |
| Dr Chloe de Souza | Obstetrics and Gynaecology Trainee, North Bristol NHS Trust |
| Dr Aine Dempsey, | Obstetrics and Gynaecology Trainee, St Michael’s Hospital |
| Dr Gabriella Snook | Obstetrics and Gynaecology Trainee, North Bristol NHS Trust |

**Disclosure of Interests**

No conflicts of interest.

**Ethical approval**

A favourable ethical opinion for this study was granted on 27th April 2022 by the University of Bristol Research Ethics Committee (Ref: 10530).

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