



## Women's experiences of intermittent auscultation fetal monitoring in labour: A qualitative study

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### ABSTRACT

**Background:** Internationally, intermittent auscultation (IA) is recommended for monitoring the fetal heart rate during labour and birth for women with uncomplicated pregnancies. IA can identify changes in the fetal heart rate that may indicate the need for additional care or intervention. IA is a central facet of midwifery practice, but there is little evidence about women's experience of IA.

**Aim:** Our study aimed to explore women's experiences of IA in the UK.

**Methods:** Between February and May 2023, 23 women were recruited through social media, service user organisations and charities, for a single episode, online interview or focus group with informed consent. Audio recordings were transcribed and thematically analysed.

**Findings:** The analysis constructed two over-arching themes: 'Choice takes work' and 'Impact of IA monitoring on the labouring woman'.

**Discussion:** Women reported a lack of informed decision-making in relation to intrapartum fetal monitoring. The experience of our participants showed that not all women for whom IA would be recommended according to current clinical guidelines were offered it, while others experienced IA without understanding its function or the availability of other options.

**Conclusion:** Limited antenatal communication from maternity care professionals about fetal monitoring in labour has an impact on women's opportunities to make informed decisions. A committed approach to informed decision making in the antenatal period could reduce practice variation and better support midwives to support women in their birth choices.

### Significance Statement

#### Problem or issue

Intermittent auscultation (IA) is a central facet of midwifery practice, but there is very little evidence about women's experience of IA.

#### What is already known

IA is recommended for fetal monitoring during labour for women

with uncomplicated pregnancies. IA allows increased mobility in labour compared with continuous monitoring, and potentially better communication and holistic assessment of the labouring woman.

#### What this paper adds

Limited communication about fetal monitoring practice in labour from maternity care professionals in the antenatal period has an impact on women's opportunities to make informed decisions about monitoring.

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## 1. Background

The aim of fetal monitoring during labour is to identify changes in the fetal heart rate and pattern that may indicate inadequate oxygen supply to the baby so that additional care or intervention, such as instrumental vaginal birth or caesarean birth, can be implemented to improve outcomes for the baby [14]. The World Health Organization, International Confederation of Midwives (ICM), and the International Federation of Gynaecology and Obstetrics recommend ‘intermittent auscultation’ (IA) for fetal monitoring in uncomplicated pregnancies during labour and birth, and in settings where no alternative approach to fetal monitoring is available [5,11,12,35]. If there are no identified risk factors for fetal compromise in labour, IA is recommended in preference to continuous electronic fetal monitoring (CEFM) [1,3,17]. Moreover the use of CEFM, especially for low risk labours is contested, indeed at least one leading obstetric researcher has argued that “more we use it [CEFM], the more harm we do” [16]. The research evidence shows that CEFM in ‘low risk’ women is associated with an increase in intervention during labour and birth without improving outcomes [22,30,9].

IA involves locating and listening to the fetal heart rate immediately after a contraction using a pinard or hand held Doppler ultrasound device. There is limited evidence recommending one device over another [14]. During the first stage of labour, it is recommended that IA is carried out every 15–30 minutes, with United Kingdom (UK) guidelines and those of the ICM recommending every 15 minutes [24]. In the second stage of labour, most guidelines recommend listening at least every five minutes [5,17]. The midwife will auscultate the fetal heart beat for at least a full minute [17], recording the presence of increases (accelerations) or decreases (decelerations) in the heart rate. If, on intermittent auscultation, there is an increase in the fetal heart rate baseline (as plotted on the partogram) of 20 beats a minute or more from the start of labour, or a deceleration is heard, full review taking into account the whole clinical picture and potential further action is recommended [12,17]. Further action might include a period of more frequent listening-in, transfer to CEFM and/or intervention to expedite birth [17].

IA is a central facet of midwifery practice around the world. In the UK, national enquiries have raised concerns about midwifery IA practice [15,23], and a programme of research (Listen2Baby) is underway aiming to provide research evidence to support the co-design of a ‘toolkit’ to improve midwifery IA practice (researchregistry ref:8463). Women’s experience of IA is an important consideration as an indicator of quality of care [20], but there is very little research evidence. A systematic review of ten studies about women’s experience of fetal monitoring, conducted between 1976 and 2013, documented that, compared with CEFM, IA allowed increased mobility in labour, closer proximity and engagement with women by the midwife, highlighted by some women as important, and potentially better communication and holistic assessment of the woman and baby’s clinical condition [29]. However, only two of these studies included women’s experiences of IA and only one of these was conducted after 1985. The most frequent procedures during pregnancy and birth, including fetal monitoring, are those that are least likely to have been discussed and/or informed consent sought [31,4]. As the first step in the Listen2Baby project we aimed to capture the neglected perspective of women’s experience of IA.

## 2. Method

Between February and May 2023, we aimed to recruit women who had experienced IA during labour through advertisements posted on social media, and through service user organisations and charities involved in the project or known to members of the research team. All respondents were sent further information about the study with an interview consent form and invited to take part in a focus group or

individual interview, whichever they preferred.

A topic guide was developed by RR, JM and BF in response to the study research question. The guide was piloted with two women with lived experience of IA and used to create a broad structure for the interview, with flexibility for the participant to develop and expand on the topics of particular importance to their experience. Data were collected through single episode interviews or focus groups with informed consent. These were conducted online or by telephone by an experienced qualitative researcher (JM). Audio recordings were transcribed verbatim, checked against the original recording, and loaded into the data analysis software, NVivo 13 [13].

We analysed the data thematically as data collection progressed [6]. The primary researcher (JM) coded the transcripts and developed core categories. These were interpreted into themes in discussion with the wider multidisciplinary research team (RR, JS, SK, CP, SM, MA). The team included two lay members with lived experience of IA in their labours. In line with their preferences about terminology, and those of the women who took part in interviews, we refer to ‘fetal’ heart rate monitoring in this paper, but also use the word ‘baby’ rather than ‘fetus’ when reporting what the woman said.

We purposively sampled for diverse experiences and collected participant characteristics to ensure variation in our sample. During the interviews, it became clear that not all participants had experience of IA during established labour, although they had earlier confirmed that they had IA in labour. Those who had CEFM had not been aware that there were different fetal monitoring options for labour. We coded the data from these participants separately, but following careful consideration within the research team, we then incorporated it into the main dataset as we found it added explanatory value to our categories about the (lack of) information sharing and choice-making discussions. We were only able to recruit one partner and so excluded their data from this analysis. Sampling continued until data saturation was agreed by the wider team to have been reached [28].

## 3. Results

We spoke to a diverse sample of 23 women who had given birth in the preceding 3 years. We conducted 16 individual interviews, one two-person interview, and a focus group of six participants supported by an interpreter. Interview discussions lasted between 20 and 65 minutes (average 36 minutes) with the focus group lasting 74 minutes. Selected participant characteristics are summarised in Table 1.

Table 1: Participant characteristics

Twelve of the women in our sample described their most recent pregnancy as being classified by their maternity provider as at ‘low risk’ of complications and 11 were classified as ‘higher risk’. Six women gave birth at home, six in a midwifery unit and 11 in an obstetric unit. In terms of their fetal monitoring experience in their most recent pregnancy, one woman had no fetal monitoring, 12 had IA only, four had IA

Table 1  
Participant characteristics.

Characteristic		Number of participants
Age	26–30	8
	31–35	12
	36–40	3
Ethnicity	White British	13
	Mixed Black and Other	2
	South Asian	6
	British Asian	2
Education	Graduate	16
	High school	5
	Missing	2
Number of births experienced	One	12
	Two	4
	Three	3
	Four or more	4

and CEFM, and six had only CEFM.

The analysis constructed two over-arching themes, each explained by 2 sub themes:

1. Choice takes work:
  - a. Knowing about IA informs choice
  - b. Not knowing or not remembering being told about fetal monitoring constrains choice
2. Impact of IA on the labouring woman
  - c. IA as disruptive
  - d. IA as reassuring

### 3.1. Choice takes work

Some of the women we spoke to described being unaware of different fetal monitoring methods, or the possibility of discussing different options and choices with their care provider. They described accepting the recommendation or practice of the maternity care team on admission in labour, often without any discussion. However, some of the women we spoke to described searching for information about birth place choices and that this was where they learned of the different types of monitoring most common in different settings. They described this information and the support from their midwifery care team, as directing their choices.

#### 3.1.1. Knowing about IA informs choice

Those participants who knew about fetal monitoring options in labour described how they did their own information gathering about how they would like to be supported in their birth. This could be as a result of a previous poor experience, and looking for alternative options, or to inform choices in a first time birth experience about how they would like to be supported. They then brought this information to their antenatal appointments to discuss with the midwife.

“...because I had a bad experience, I had to get my head around it before the third to come to terms with it. So I’d actually done quite a bit of reading around how to get what I wanted for a birth, and one of the things that came up a lot was having intermittent monitoring. I wanted a very hands-off, leave me alone [birth]” Alison, experience of IA in labour, four or more births.

“I started looking at birth study research and went, ‘oh actually, maybe a home birth is for me.’ I looked at the ‘cascade of intervention’ and knew that, ‘OK, so this is what I want to try and avoid, I want to try and have as little intervention as possible, and little disruption to the natural setting for my birth, and I wanted my birth day to be right.’” Sally, experience of IA in labour, one birth.

If participants had opted for a home birth, they described having preparatory meetings, visits or webinars where the activities of the midwife in labour were presented and discussed by their care provider. This included discussion of intermittent fetal monitoring, what it is for, how it is done, and what happens if there are any concerns. This information giving was described by women as contributing to them feeling informed about their birth.

“the home birth midwife team did an online webinar that said what to expect at your home birth, so that mentioned the monitoring, so I knew it was gonna happen and I knew they were gonna be doing that, but I guess that’s a positive thing that I knew to expect them to monitor it and how often.” Anna, experience of IA in labour, one birth.

Support for women’s choice around fetal monitoring and associated care was variable across our sample. Participants described experiences of when this communication worked well and they felt supported.

“having had conversations with my midwife, she said, “There will be times where I will sit you down and I will say to you in this situation:

‘you are better being in hospital’, [...] and I think I really respected that honesty, actually I don’t know all of the things that can go wrong and the things that they’re on the lookout for, so in that situation, I definitely would have trusted, her advice” Alice, experience of IA in labour, one birth.

“the matron was happy to sign me off for a home birth, or a birth centre birth [that would be monitored using IA] so it gave me a bit of confidence” Grace, experience of IA in labour, three births.

However, some practitioners were described as more risk-averse than others. This could result in inconsistency in both messaging and potential care decisions, which caused confusion and anxiety for the woman.

“although I’d had it all signed off [IA and Midwife Led Unit], I did end up going for an induction [...] when it got to the point where I needed to be transferred to the midwife led unit, the delivery suite did get quite antsy with my poor midwife, and tried to tell that because I had a section before, she needed to send me down to delivery [for CEFM monitoring], she said ‘well no, it’s written in the notes that have been signed off by so-and-so, and I’m taking her upstairs, so I’m sorry’” Alison, experience of IA in labour, four or more births.

Some participants described being classified as ‘higher risk’ due to previous caesarean birth, previous pregnancy loss, IVF conception or higher weight. They described their choices to give birth outside of an obstetric unit or to have IA instead of the recommended continuous CEFM as ‘outside of guidance’ [guidance for uncomplicated pregnancies that are recommended for midwifery led care and intermittent fetal monitoring].

These participants felt they had to negotiate to have IA ‘outside of guidance’. They described how they were accepting of more intensive CEFM monitoring if the IA raised concerns about the fetal experience of labour but they did not want to start their labour with the restrictions associated with CEFM. Their request for an active, mobile labour, which IA was felt to support, was based on their belief that IA worked (it was effective in revealing red flags that might warrant a change in management), midwives were competent to interpret and act on the IA findings, and that the birthing woman’s choices considered the mother and her unborn baby as an interdependent unit.

“My big argument was, I don’t want to start at intervention level three when actually we will be perfectly fine on the base level.” Mary, experience of IA in labour, three births.

“that goes to show how effective the intermittent was, although it wasn’t a continuous thing, it still picked it up enough that there was a problem without being strapped to a monitor, which is what I didn’t want, I wanted to be able to move, I wanted to have the freedom and, there is definitely a time and a place for continuous monitoring, but the intermittent was definitely effective enough to pick up a problem before it was a problem really, ‘cause he was absolutely fine and it still picked it up well in advance” Alison, experience of IA in labour, four or more births.

Among women who knew about IA these conversations appeared to reflect local practice and midwives’ adherence to guidelines around recommended eligibility for planning place of birth rather than individualised assessment and care. This led to some challenging conversations between participants and practitioners that participants found stressful.

“I would have liked a list of the evidence for and against what I was being told, or advised against, rather than just being told: ‘this is how we do it,’ I’d have never have thought with my first that I would have gone against all guidance with my third [IA, Waterbirth, VBAC] and it was the evidence that I’d looked at” Alison, experience of IA in labour, four or more births.

“we had IVF, and that was kind of thrown at me as, “Oh well, we don’t recommend it [homebirth and IA] in IVF,” but no real kind of facts or research to back that up” Sarah, experience of IA in labour, one birth.

While some participants shared strong preferences for their birth place and the fetal monitoring associated with that care pathway, all participants requested communication about what was being done in labour and why, and how it might inform care decisions. Participants reported distress when recommendations were framed as usual practice, removing the individuality of their experience, or when they experienced inconsistent support. Participants accepted that the maternity care team were experts in birth, but placed themselves as experts in their body.

### 3.1.2. *Not knowing or not remembering being told about fetal monitoring constrains choice*

Some of the women we spoke to could not recall fetal monitoring options or practice being discussed before or during their labour.

“once I went into the delivery suite they attached the monitors round me and that’s how it stayed for the rest of my labour. Yeah, I don’t remember a conversation about whether that’s what I wanted, or whether that was necessary.” Lucy, experience of IA in labour, one birth.

“I had written in my birth plan actually just to talk me through any intervention that you are doing, just for consent, but also just for peace of mind and reassurance [...] it didn’t really particularly stick in my mind that they had explained the intermittent monitoring and why they were doing it.” Isa, experience of IA in labour, one birth.

“I think it’s one of those things that as a professional you know what the Doppler is and you know why you are doing it, and that’s just part of the procedures, and people assume that the women understand exactly what this is” Margaret, experience of IA in labour, three births.

Lack of communication about fetal monitoring was described by this group of participants as increasing their anxiety during the birth as they didn’t understand what was going on. This contributed to confusion and reduced the woman’s sense of control.

“Yeah, every time when I had that monitor with me, and like half an hour they did, and 10-minute rest, again did, but I don’t know why it was happening.” Padma, no experience of IA in labour, four or more births.

“so I definitely did panic when the student midwife couldn’t find the heartbeat, but if someone had said to me beforehand, ‘oh, sometimes we won’t be able to find it and you’ll need to change positions,’ and that kind of thing, and it would have just been a normal thing, rather than I was like, “Oh my God, why isn’t there a heartbeat, what’s happening?” So yeah, I think a bit more prep about what that’s about and what it’s for beforehand would be helpful.” Sarah, experience of IA in labour, one birth.

“I feel like I was more in control because they were explaining things to me; whereas in the second one, I honestly, I remember there were times I was looking at my husband like, “What is going on?” [...] I started getting really worried. I know my husband was getting worried thinking, ‘what is happening, why are they all rushing around, and why’s this not being communicated to us?’ Maya, experience of IA in labour, two births.

Participants talked about the need for midwives to check that women are aware of and understand their options, and not to make assumptions about women’s knowledge. They described how information was needed to make a choice, and emphasised that every woman’s experience is different.

“when we go, we shy and don’t know what to ask the midwife, if the patient ask the thing – it’s good, but if patient don’t ask- they should discuss about that topic” Padma, no experience of IA in labour, four or more births.

“I think that midwife care needs to be tailored individually because everyone wants something different [...] I feel like I made irrational choices, but just based on anxiety, or because I didn’t know what to expect.” Aarya, no experience of IA in labour, one birth.

“it’s checking people’s understanding is probably the most important thing, because it’s one thing to give someone the information, it’s another thing to check how much they’ve taken in, and for me that’s what felt light touch, is they’ve given me the information but no one’s checked how much I’ve taken in.” Isa, experience of IA in labour, one birth.

Participants described how conversations with maternity care professionals were more frequently framed as informing women what will happen, rather than as shared decision-making and informed consent.

“I went in with the mindset of what the midwife says, is what we did” Alison, experience of IA in labour, four or more births.

“rather than an explanation of what the options were, it was more informing me what would happen and I would have had to question that if I’d not wanted that” Sarah, experience of IA in labour, one birth.

While many participants felt comfortable and confident to follow the midwife’s recommendations, there was a universal request from women that their opinion be sought and their decisions be respected.

## 3.2. *Impact of IA on the labouring woman*

The impact of IA on the labouring woman was informed by two contrasting sub themes: ‘IA as disruptive’ and ‘IA as reassuring’. For the participants who had made clear choices for their birth, IA monitoring symbolised a ‘midwifery led care’ package. When participants were asked about their experience of IA in labour, responses focused on the impact of IA practice on the labouring woman herself. The accuracy and reliability of the method and the midwives’ ability to interpret the data was not questioned. The participants in our study had variable responses to IA, with some finding that it disrupted their labour while others found it reassuring.

### 3.2.1. *IA as disruptive*

Some participants described how IA disrupted their labour as they were expected to communicate with the midwife about their contractions or to change position to enable the midwife to carry out the IA.

“for quite a lot of labour I shut myself in the bathroom, ’cause I felt like that was a really dark cosy space where I felt safe, and I remember feeling irritated when they kept knocking on the door to come in and monitor baby, and then on occasion obviously they would put the Doppler on when a contraction was coming and I’d had have to say, “Oh, I’m having a contraction, don’t do that,” but obviously the interruption felt really annoying in terms of having to verbalise that” Sarah, experience of IA in labour, one birth.

“It was disempowering to feel reliant on a machine to tell me how my birth was going and disconnected me from my body and baby and birth. Another negative on the intermittent auscultation is that it made me watch the clock as I knew 15 minutes had passed each time” Bella, experience of IA in labour, two births.

In a few cases, midwives were described as being more concerned with the fetal monitoring practice than being mindful to the comfort of the woman. This created moments of tension in the care relationship and may have contributed to the perception of IA as disruptive.

“my movements were basically disrupting the monitoring, it was more about the monitoring than my comfort, is what it felt like” Fiona, experience of IA in labour, four or more births.

“The other thing I’d say is actually it was quite uncomfortable having them listening in: some of them really dug that thing in, and I think you might... ‘oh, it might be a little bit uncomfortable,’ but actually that was quite uncomfortable, and so making sure that people are OK with that digging it in.” Margaret, experience of IA in labour, three births.

A lack of communication about how and why midwives do fetal monitoring, and how the birthing woman is experiencing the IA can impact birthing women’s experience. Some participants shared how they would work with the midwife to minimise the disruption of IA.

“I think, the baby must have been coming down the birth canal, I was basically giving birth and it felt excruciating, I do you know, I mean all she did was probably gently touch me, but it was really not nice, so I just said, “Oh, please stop,” and she did” Grace, experience of IA in labour, three births

### 3.2.2. IA as reassuring

For many participants, IA monitoring was described as reassuring, with the midwife’s consideration for the woman’s comfort and her skills being valued. Participants described working with the midwife in the flow of their labour to signify the end of a contraction or altering position to enable the midwife to access her abdomen to hear the fetal heart.

“I suppose I found it reassuring that everything was fine. But for me it was a happy medium because I felt like I had that reassurance, but it wasn’t intrusive, and they were quite respectful and if I’d have said, ‘not right now,’ they would have stepped back” Grace, experience of IA in labour, three births.

“they explained to me that what they would do is when I felt a contraction coming on, if I could let them know, they would monitor and listen in to baby, and that they would just keep doing that, and they could do that once I was in the water as well. So yeah, I was happy with that, I was happy to have the monitoring ‘cause I wanted to make sure that baby was doing OK, but also really happy that I didn’t have to be stuck to the bed, that I could move around, and that they could still do that while I was in the water as well” Anna, experience of IA in labour, one birth.

Most participants described midwives as communicating findings or changes in the fetal monitoring schedule in calm, reassuring ways. This was described by participants as enabling them to feel informed and in control of their experience.

“They just kept me informed, even though everything seemed to be going okay, just to let me know, ‘yeah it sounds good’, that was positive.” Anna, experience of IA in labour, one birth.

These findings emphasise the individuality of women’s experience of labour and the skills and flexibility of the midwife required to work with the woman, her preferences and embodied experience of labour.

## 4. Discussion

In this study we explored women’s experience of IA as part of a wider project aiming to improve midwifery practice of IA in the UK. We found that information about fetal monitoring was not routinely shared with our participants antenatally or discussed during labour. While women often felt supported when they shared their choices with practitioners, this could involve difficult conversations if these choices were considered as ‘outside of guidance’. The experiences of our participants suggested that not all women for whom IA would be recommended (as per guidance) were offered this during pregnancy or in labour.

Informed choice is based on the availability and receipt of relevant and balanced information to allow the individual to weigh the risks and benefits according to their own values and interpretations) [36]. Women and practitioners have reported a lack of informed decision-making in maternity care, with options not always being presented to women [33, 36,4,7]. This includes discussion of fetal monitoring [31,4]. If women are not given information about fetal monitoring and birth place choices, they risk losing control over the medical decisions facing them [2]. Furthermore, women and practitioners have been described as acculturated to accept CEFM as the expected method of fetal monitoring in labour, independent of evidence-based eligibility criteria for intermittent monitoring [1,10,17,30]. Local interpretation of guidelines allows for local practice culture to influence the offer of fetal monitoring options or choices. While this can allow some flexibility for midwives and women, there is also the potential to cause confusion if women are not fully informed of their options and supported to advocate for their choice. For example, in relation to fetal monitoring during vaginal birth after caesarean (VBAC) or during the labour of women with higher weight, the RCOG green top guideline recommends CEFM [26], but some local guidelines indicate that either CEFM or IA may be possible [27,32].

We found parallels with women’s experience of choice making for IA monitoring, with research about women’s experiences of planning place of birth. Evidence suggests that women who prefer to plan birth outside of hospital, at home or in a midwifery unit, often have to actively seek out information themselves to inform their birth place choice [8]. Midwives may restrict choice in relation to birth place by not presenting the alternatives or not being encouraging when women express a preference [18]. Conversely, women felt supported when they were given information by their midwife and supported or offered different birth place options as a choice [8]. Some women in our study saw fetal monitoring practice in general, and IA in particular, as part of a package of care, inextricably linked with planned place of birth and a care pathway which was supportive of an intervention-free labour and birth. These women actively sought out or requested IA; for some this meant they were giving birth ‘outside of guidance’. Maternity professionals have an obligation to provide accurate and detailed information to support women’s decision making. If women who do not have a guideline identified risk factor have a right to decide on the form(s) of fetal heart rate monitoring to be used in their labour, women *with* risk factors have the same rights and professionals have the same obligations towards them. However, the experience of our participants showed that not all women were informed about fetal monitoring options, that women who met criteria for IA were not always offered it, while some had it without really knowing what it was or what it was for.

Ultimately, women will always have individual responses to fetal heart monitoring. For many it is reassuring; others find it disruptive. Some would rather it were done more often, or may prefer continuous fetal monitoring, and others less. Some will decline fetal monitoring altogether. This means that midwives need to inform women about the rationale for recommending IA or CEFM, find out about women’s individual choice beforehand, and check in with women about their choices during labour. In carrying out IA, midwives balance the need to follow practice guidelines, while minimising disruption to women’s labour [21]. One of the key recommendations of the Royal College of Midwives Professional Briefing on caring for women seeking choices that fall outside guidance is that ‘Midwives should support the woman to make informed decisions and suspend judgements on those decisions; clinicians are not required to ‘approve’ women’s informed choices’ [25], and yet some of our participants described the need for ‘sign off’ for care that differed from local guidance. It is recommended that care providers work with women in the antenatal period to include discussions about fetal monitoring in labour otherwise not all women will be in a position to make an informed decision for their labour. Our research has shown that while IA can be disruptive to a woman’s labour, this can be mitigated through discussion of why IA is being done, how it is done and

what the findings could mean for the woman and her baby. This informed approach allows the woman and midwife to work together with the woman's labour to maximise safety and comfort. Ideally these conversations would be recorded in the birth plan or the woman's Personalised Care and Support Plan (PCSP) [19,34].

## 5. Strengths and Limitations

Our study uniquely explored women's experiences of IA in labour within UK maternity services, but may also help inform IA practice in other countries. Our sample was diverse in terms of participant characteristics and experiences. Our principal limitation was the use of social media and service-user organisations to recruit our participants, with the consequence that most participants were well-informed about fetal monitoring options and had actively made a choice for IA or a birth place option that would support this type of fetal monitoring. We purposively sampled to ensure that we heard the experiences of women without a strong fetal monitoring preference during labour, but our data may over-represent those who explicitly did not want CEFM. A small number of our participants had no direct experience of IA, which was not our intention when we planned this study. Invitations to take part in the study, and information provided about the aim of the study, clearly described the kind of fetal monitoring experience that we were interested in. Nevertheless, it became apparent that six of our participants did not have experience of IA, although two of these women should have been recommended for IA according to current guidelines. The experience of these women, in terms of lack of awareness and discussion of the different types of fetal monitoring with their midwife, reinforces the themes identified in our analysis and was informative in the broader context about awareness and choice, so we took the decision to include their data in the study.

## 6. Conclusion

Our participants described limited communication about fetal monitoring practices in labour from maternity care professionals in the antenatal period. This had an impact on the information and support they received and their opportunity to make informed decisions. Participants with a strong birth place or fetal monitoring preference described challenging a lack of evidence for local restrictions on their choice. Some participants were better supported in making choices than others and this may reflect the strength of local practice cultures or the individual providers of care. An approach to informed decision making in the antenatal period that supports midwives to have iterative conversations with women about their values and preferences could reduce practice variation and better support midwives to support women in their birth choices.

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## Author agreement

We, the authors state that this article is our original work. It has not received prior publication and is not under consideration for publication elsewhere. All authors have seen and approved the manuscript being submitted. The authors abide by the copyright terms and conditions of Elsevier and the Australian College of Midwives. Furthermore, the authors have no conflicts of interest to declare

## Ethical Statement

This study has received ethical approval from University of Oxford Central University Research Ethics Committee [ref: R76969\_RE001] on 01/12/22.

## CRedit authorship contributions statement

RR, JS, SK, BF, CP conceptualized the study; RR secured funding and designed the Methodology with BF, CP. The project was administered and data collected by JM. Formal analysis was undertaken by JM, CP, RR, with contributions of SK, JS, BF, MA, SM. The project was supervised by RR. JM wrote the original draft with all authors contributing to review and editing. All authors approve the final manuscript.

## Conflict of Interest statement

The authors have no conflicts of interest to declare

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