A qualitative exploration of midwives' and ambulance clinicians' experiences working together

Abstract

Background/Aims **Effective teamwork represents a significant component of high-quality maternity care. Midwives and ambulance clinicians are sometimes required to work together in the pre-hospital setting, but these interactions are not well documented or understood. This study aimed to explore the views and experiences of clinicians, to describe the barriers to and facilitators of effective teamwork in this context.**

Methods **Focus group discussions and in-depth interviews were conducted with 30 London-based clinicians who had experience of providing emergency maternity care in the pre-hospital setting as part of a multidisciplinary team. Data were analysed thematically, informed by principles of grounded theory.**

Results **Three overarching themes emerged: significance of the patient environment, reaching a shared mental model and interpersonal dynamics. Challenges included conflicting priorities and lack of understanding each other's roles and skillsets. Civility and multidisciplinary training were perceived as conducive to effective teamwork.**

Conclusions **The findings provide insight to the factors that were perceived to impact teamwork in a pre-hospital maternity context. Actions to improve patient safety include increased partnership working between acute and ambulance trusts, including the provision of multidisciplinary training.**

Implications for practice **Midwives and ambulance clinicians report a shared goal of a safe and positive experience for the families in their care. When working towards these outcomes, teams require leadership that acknowledges the various professional remits present.**

Keywords

Ambulance service | Home birth | Multidisciplinary | Obstetric emergencies | Pre-hospital maternity

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Maternal and newborn health is a cornerstone for public health and human development (World Health Organization and UNICEF, 2023). While the UK has a low incidence of perinatal morbidity and mortality when compared with global figures, there has been a concerning plateau in the number of adverse outcomes over recent years (Knight et al, 2023), particularly in comparison to other similarly resourced countries (Diguisto et al, 2022). National efforts to reduce stillbirth rates were hindered by the COVID-19 pandemic (NHS England, 2023) and the maternal mortality rate has seen a statistically significant increase (Felker et al, 2024). London has more births per year than any other region in the UK (Office for National Statistics, 2022) and its maternity services are challenged with chronic staffing issues (NHS England and NHS Improvement, 2019) and higher rates of medical complexity and social disadvantage (Bewley and Helleur, 2012). There is discussion on how such pressures can displace risk into the community, with implications for ambulance services (Heys et al, 2023).

It has been estimated that 9.9–31.9% of women who plan to give birth at home require transfer to hospital via ambulance services because of maternal, fetal or neonatal concerns (Blix et al, 2014). Rates may now be higher, as the percentage of births at home has seen a slight increase (Office for National Statistics, 2022); however, there is no recent national dataset examining this. When birth complications occur in the community, midwives may be required to refer to and work in collaboration with the ambulance service. Unpublished internal data from the London Ambulance Service show that approximately 11 000 maternity related emergencies are attended each year. It is unclear how many of these calls represent complex births or obstetric emergencies with midwives in attendance; however, when these professionals do interact, it is in the context of clinically significant and often time-critical circumstances.

The NHS faces scrutiny because of preventable harm and problematic organisational cultures in maternity services (Kirkup, 2022; Ockenden, 2022). Reports have

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called for actions to address these issues (Birthrights, 2022; Care Quality Commission, 2022; Ockenden, 2022; NHS England, 2023). A common recommendation is multidisciplinary training, although these programmes rarely include ambulance clinicians.

It is widely acknowledged that effective teamwork is critical for patient safety and outcomes (Rabol et al, 2011; West, 2011; Sun et al, 2018). Many characteristics of functioning teams are described in the literature. General definitions recognise a team as a group of people who work together, with commitment to shared objectives, whose members are clear about their specified roles and communicate regularly (Richardson, 2011). In healthcare, team definitions place emphasis on patient safety, time efficiency and multidisciplinary working (West and Lyubovnikova, 2013; Harris et al, 2022).

According to some studies, effective teams positively impact patient outcomes, including morbidity and mortality (Sun et al, 2018; West et al, 2011). Furthermore, breakdowns in communication in multidisciplinary teams are considered a primary cause of errors and near misses in healthcare (Rabol et al, 2011). While healthcare professionals generally share the common objective of providing high-quality care to their patients, they are often trained in silos with varying professional identities, values and remits (Harris et al, 2022). When professionals of multiple disciplines are required to work together, these cultural and organisational differences can challenge the ideals of effective teamwork and in turn may impact patient care and outcomes.

Literature on multidisciplinary teams providing maternity care in the pre-hospital environment is limited. In the UK, the majority of births and obstetric emergencies occur in hospital (Office for National Statistics, 2023); therefore, the larger body of evidence focuses on labour ward teams. Working relationships between midwives and obstetricians have been explored in a number of studies (Smith et al, 2008; Reiger and Lane 2009; Howarth et al, 2011; Ratti et al, 2014). A common finding is that staff perceive effective teamwork to be pivotal in the provision of safe care, which is reflected in studies that examine teams working in other areas (Babiker et al, 2014; Royal College of Physicians, 2017). While midwife-obstetrician teams may share some qualities and challenges with midwife-ambulance clinician teams, the findings are unlikely to be transferable, as hospital-based clinicians have more regular contact, opportunities to train together and familiarity with their working environment.

A small number of studies have explored the pre-hospital perspective (Davis-Floyd, 2003; Feltham et al, 2016; Heys et al, 2022). The main findings are that communication in obstetric emergencies is often 'fractured' and that individuals value opportunities for multidisciplinary training. However, a gap in the evidence remains; it is unclear how midwives and ambulance clinicians interact with each other in the context of unplanned births and obstetric emergencies in the community. Notably absent from the literature is a focus on the internal values and external factors that influence the ability of multidisciplinary teams to work effectively together in this setting.

This study aimed to explore midwives' and ambulance clinicians' experiences of teamwork in the provision of maternity and neonatal care in the prehospital setting in London, including home births, stand-alone birth centres and other non-hospital environments. The study considered how physical, cognitive and organisational factors (referred to as human factors) impact teamwork in multidisciplinary teams and their ability to provide quality pre-hospital maternity care. Participants shared experiences from various clinical situations, including unplanned community birth or birth before arrival of healthcare professional and/or midwife, postpartum haemorrhage, shoulder dystocia, eclampsia, newborn life support, twin birth, antepartum haemorrhage, uterine rupture, retained placenta and fetal wellbeing concerns.

Methods

This phenomenological study explored interpersonal dynamics and individual experiences of midwives and ambulance clinicians using both focus group discussions and in-depth interviews. Plummer (2017) proposed that the interaction between participants in focus groups can elicit narratives that may not emerge in one-to-one interviews. Therefore, it was anticipated that the discourse between participants may provide a foundation of core concepts to be explored further during in-depth interviews.

Participants

A total of 30 healthcare professionals participated in the study, recruited through purposive sampling of every individual who met the inclusion criteria and consented to participate. The aim was to recruit an equal number of midwives and ambulance clinicians, to provide a balanced representation of the various perspectives in a multidisciplinary team. London Ambulance Service NHS Trust employees were invited to participate through internal communications, including bulletins, emails and posters displayed in ambulance stations. Midwives were primarily recruited through social media; posts on midwifery Facebook forums and Twitter (now known as 'X') provided information about the study. A 'snowball' sampling technique was used for both professional groups, where existing participants referred colleagues to the study.

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Posters, emails and social media posts included a QR code that could be scanned to access a screening page, which provided information on the purpose of the study and inclusion criteria. These criteria included ambulance clinicians of any skill level currently employed by the London Ambulance Service and registered midwives based in London with experience in the last 3 years of working in a multidisciplinary team to provide emergency maternity care in the pre-hospital environment. Those who expressed interest were asked to disclose their job role and confirm their experience with the subject matter.

Clinicians who met the inclusion criteria were given a participant information sheet and a consent form to return to the authors. All who consented to participate were recruited.

Table 1. Participant descriptions

Profession	Role	Number included
Midwife (*n*=13)	Community midwife (working in traditional community midwifery teams that attend home births and/or standalone birth centres during 'on-calls')	6
	Home birth midwife	2
	Consultant midwife	2
	Senior midwife manager	1
	Case-loading midwife	2
Ambulance clinician (*n*=17)	Paramedic	7
	Paramedic clinical team manager	3
	Emergency medical technician (non-registered clinicians working in the ambulance service)	2
	Critical care advanced paramedic practitioner	2
	Newly qualified paramedic	2
	Urgent care advanced paramedic practitioner	1

Table 2. Data collection methods

Collection method	Professional group	*n*	Time each (hours)
Focus group discussion A	Ambulance clinicians	5	1.5
Focus group discussion B	Midwives	3	1.5
Focus group discussion C	Midwives and ambulance clinicians	6	1.5
In-depth interviews	Midwives and ambulance clinicians	Midwives=7; ambulance clinicians=9	1

Data collection

Data were collected between July and August 2023 and involved three focus group discussions held at a central London location (one with ambulance clinicians, one with midwives and one with participants from both professional groups) and 16 online in-depth interviews (*Table 2*). In-depth interviews were conducted over Microsoft Teams video call at a time convenient to the participant, to minimise environmental distractions.

The first author conducted interviews using a semi-structured approach, which ensured flexibility to explore interesting topics as they arose in the participant narrative. This resulted in rich and local data. The first author's own experience and knowledge led to a partly deductive approach, as the topic guide included questions based on anticipated issues, such as leadership and teamwork. The first author designed the guide with open-ended initial questions, funnelling in specific topics later in the interview. Example questions include:

- Tell me about your experience in pre-hospital maternity care
- How did you feel about what was happening at the time?
- How was the team dynamic?
- Who was the leader?
- What worked well in that case?
- What did not work well?

Focus group discussions and interviews were transcribed verbatim to ensure accuracy and familiarity with the data.

Data analysis

Thematic analysis was conducted by the first author, informed by grounded theory principles (Glaser and Strauss, 1967), as such methods are appropriate when little is known about a phenomenon (Bryant and Charmaz, 2019). Open coding was used to examine each line of transcript and process codes were assigned. The first author navigated each stage of thematic analysis iteratively and reflexively. The stages were familiarisation with the data, generation of initial codes, searching for themes, reviewing potential themes, defining and naming themes and producing the report. Key words and patterns were labelled and assigned 'groups' in NVivo software, which allowed for the emergence of themes. As data analysis continued, earlier transcripts were revisited to ensure that coding was accurate.

There is no universally defined criterion for determining data saturation in qualitative research. However, a grounded theory perspective considers saturation as reaching the point in analysis where no new

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codes occur in the data (Urquhart, 2013). This required data collection and analysis to occur simultaneously. Using this definition, saturation was reached as the final interviews added to the same codes with no new emergent themes.

Ethical considerations

The study received ethical approval by the London School of Hygiene and Tropical Medicine's Ethical Review Committee (reference: 28622) and the Clinical Audit and Research Unit at London Ambulance Service NHS Trust (reference: 150623). All standards stipulated by the ethics boards and research and development teams were upheld throughout the duration of the research project. Participant confidentiality was maintained through pseudonymisation and data protection measures.

Results

The participants included diverse roles, experience and skillsets (*Table 1*). A total of 13 midwives took part, half of whom were community midwives, and 17 ambulance clinicians took part, with the largest group being paramedics.

As the study reached saturation, it became apparent that the participants all perceived their experiences through a 'human factors' lens, encompassing physical, cognitive and organisational factors. This informed the eventual definition of themes: significance of the patient environment, reaching a shared mental model and interpersonal dynamics.

Significance of the patient environment

Participants highlighted the environment's significance, with issues like patient access and space affecting teamwork. Ambulance clinicians often felt excluded from the patient space, while midwives focused on optimising the environment to support labour and birth. These variations were rooted in participants' professional backgrounds, knowledge of physiology and organisational protocols.

'Being' in the space

Many ambulance clinicians described being denied access to patients as a barrier to working effectively in the team. There were numerous reasons cited for not 'being' in the space: the clinician's gender, not being needed and minimising people in the environment were all discussed in multiple accounts. This led to mixed feelings among ambulance clinicians, with some comfortable waiting outside and others feeling obligated to provide care, particularly for vulnerable patients.

> ***'There was no physical room for me to get anywhere near the patient or even attempt to be involved. I just had to watch and ask … "Shall I get some kit out?" Even if you wanted to join the team … You might not be able to, just due to physical space'. Maria, Urgent Care Advanced Paramedic Practitioner***

'Optimising' the space

Both groups stressed the importance of optimising the environment, but their use of language was indicative of different perspectives, priorities and approaches. Midwives saw their role as advocates, focusing on facilitating the woman's choices and protecting the space to enhance labour and birth.

> ***'You work so hard, thinking about those environmental factors that are going to get labour going well and get the woman comfortable. I feel like a big part of our job is gatekeeping that room'. Chloe, Home Birth Midwife***

In contrast, ambulance clinicians adopted a problem-solving approach, viewing pre-hospital maternity care similarly to high-acuity scenarios, such as cardiac arrests.

> ***'We try to optimise the environment with 360 degree access, like for a cardiac arrest, with space for each team member to come in'. John, Paramedic***

> ***'Something has gone wrong, that is why we've been called. I think our role is to slot in and troubleshoot'. Muhammad, Paramedic***

On the ambulance

Midwives described ambulances as unfamiliar and uncomfortable, feeling a shift in dynamics when moving onto the vehicle, which often led to confusion around decisions on patient transport and care.

> ***'I'd say that on stepping into the ambulance, that's the really stark difference for me, of when I'm no longer in charge. That's kind of how I feel. Like I'm on your turf. You tell me what we do now'. Esther, Caseloading Midwife***

Reaching a shared mental model

A shared goal of ensuring the best outcomes for mother and baby was recognised, but differing clinical concerns and risk perceptions posed challenges. Lack of understanding of each other's roles hindered team efficiency.

> ***'We have the same overall goal, but different ways of getting there. The midwife's priority might be giving a drug to stop the haemorrhage, whereas one of my***

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priorities is thinking about how we are going to get this patient out of the five-storey house'. Peter, Paramedic Clinical Team Manager

Scope of practice

Both midwives and ambulance clinicians had limited understanding of each other's roles, skills, drugs and equipment. This was evident through their language and reflections of teamwork. Some midwives referred to the ambulance service as 'the paramedics' and didn't appear to recognise the diverse workforce of registered and non-registered clinicians that may respond to a maternal or neonatal emergency. This lack of clarity sometimes negatively impacted the ability to work together. While both professional groups acknowledged the midwife's role as 'the expert', how this translated to the delegation of tasks in an emergency was less clear.

'[Midwives] were seemingly unaware of what we can and can't do. They asked if I had done fetal monitoring, which I can't do as I'm a paramedic'. Talia, Paramedic

However, multidisciplinary training improved mutual understanding of each other's scope of practice.

'Having done the study day with London Ambulance Service, it changed my perspective on things. Because I think before doing that, I didn't understand their role at all. That training really helped my communication with them'. Asha, Community Midwife

Interpersonal dynamics

Behaviours and relationships significantly influenced teamwork. Mutual respect and civility facilitated effective communication, while lack of respect and dysfunctional relationships hindered teamwork.

Civility and respect

Overall, participants reported feeling appreciated for being present and grateful when attended to by other members of the team.

'They were relieved that we were there, and we were relieved that they were there'. Fred, Paramedic

However, a minority of participants alluded to experiences where a lack of friendliness or respect impacted on clinicians' bandwidth and ability to coordinate care. This was not felt to be specific to the midwife-ambulance clinician dynamic, as participants reflected on similar tensions when working with GPs, obstetricians, neonatal nurses and the fire service.

'We felt dismissed. [The midwives] walked in, didn't introduce themselves and asked me to wait in the corridor. I'd built a rapport with the woman and had all my kit set up. It felt like a negative experience'. Michaela, Paramedic

In contrast, introductions, active listening, coaching and asking for each other's clinical opinion were felt to have a positive effect on relationships in the team.

'The scene management was brilliant. The midwife was calm, explained things, coached me through it. I learned a few things there and the [neonatal] resus felt smooth'. John, Emergency Medical Technician

Leadership

Leadership roles were assumed based on expertise, but role delegations were often unclear, leading to challenges in decision making and coordination of care. This ambiguity was particularly evident in scenarios that involved both maternal and newborn emergency care.

'There's been a couple of times where role definition hasn't been as clear with who's leading what at what point. So at what point does it stop being a maternal emergency and come to us with resuscitation, where our skills come into it more?'. Joseph, Paramedic Clinical Team Manager

In some cases, midwives were newly qualified or had not previously provided care in the community and yet assumed the position of leader. One midwife described how delegating tasks was challenging in the absence of experience.

'I found it difficult because I was quite junior at that point as well. Trying to know exactly what role I should give the paramedics, what should I do? I was like, "how am I the one that's supposed to make these decisions" when I don't really know what I am doing other than dealing with the emergency myself?' Rosie, Home Birth Midwife

A common area of contention was deciding when and how to transport patients and where to convey to. Extrication and transport were deemed to be the remit of the ambulance service; however, the teams often had competing priorities and approaches, which in some cases led to confusion and delays. These challenges highlighted how important decisions often lay in a figurative crevice between the two professional remits. Participants felt that effective leaders trusted their colleagues' clinical assessment and were able to make plans considering the contributions of each team member. However, this was

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difficult to achieve when professional policies did not align with each other.

> ***'It is challenging, trying to get your scopes of practice to work on the same patient at the same time. We are all just trying to advocate for the patient'. Thomas, Paramedic Clinical Team Manager***

Followership

Followership behaviours were more evident among ambulance clinicians, who often followed midwives' direction and provided support. Less experienced ambulance clinicians sometimes missed elements of care because of their passive roles, while more experienced paramedics actively contributed their skills and knowledge to complement that of their midwife colleagues.

> ***'I walked in and said "what do you need?". I suggested, "shall I give my tranexamic acid? Shall I get the carry chair?". You know, things that I know I can bring to the picture. But I think you need a level of experience for that'. Maria, Urgent Care Advanced Paramedic Practitioner***

> ***'We were trying not to step on each other's toes. As a newly qualified paramedic, I didn't know how to speak up or suggest things. We assume the midwives know what they are doing'. Jade, newly qualified paramedic***

Participants expressed that effective followership required confidence and competence. However, ambulance clinicians frequently cited a lack of maternity exposure and training as factors that limited their clinical understanding of obstetric emergencies.

Effective collaboration

There was no consensus on when to assume leadership or make suggestions in the team. The clinical situation and the perceived 'bandwidth' of team members often prompted these decisions. Participants often offered rigid or dichotomous ideals when discussing their views on roles in the multidisciplinary team. However, as participants reflected on their experiences, the concept of collaborative leadership emerged. Both midwives and ambulance clinicians spoke positively of situations where primacy of care was fluid and the respective clinicians lead on their areas of expertise.

> ***'There was a sense of calm that [the ambulance crew] were there and an understanding between the two teams. We made a plan together'. Mariam, Homebirth Midwife***

Key points

- Midwives and ambulance clinicians can be required to form a team to provide maternity and newborn care in the pre-hospital environment.
- However, these professional groups rarely interact outside of clinically complex encounters and therefore have a limited understanding of the other's priorities and scope of practice.
- While it is generally agreed that the primary goal for both groups is to ensure a positive outcome for the families in their care, there can be conflict in how the team achieve this.
- There are several human factors perceived by midwives and ambulance clinicians to impact on their ability to work effectively together.
- There is a need for ambulance services and acute trusts to collaborate more, to improve patient safety in this area.

Discussion

This study highlights how physical and intangible aspects of the environment, shared mental models and interpersonal dynamics impact team performance in pre-hospital maternity care. The participants' familiarity (or lack thereof) in pre-hospital environments affected behaviour and confidence. These results corroborate the findings of O'Donovan and McAuliffe (2020), that a lack of familiarity can impact dynamics in teams. Various studies have considered how the layout and design of the healthcare environment can positively or negatively impact teams (Huisman et al, 2012; Nordin et al, 2021) but the literature rarely considers that in the pre-hospital context, clinicians work in unfamiliar and often challenging environments that are not designed with emergency care provision in mind.

The absence of shared 'mental models' and a lack of understanding of one another's roles reduced team efficiency. The concept of shared mental models in healthcare are described as facilitators of effective teamwork (McComb and Simpson, 2014). The findings support this view, as communication challenges and differing levels of clinical concern created barriers to making plans of care.

Training and collaboration opportunities improved clincians' ability to reach shared mental models with other professionals, aligning with literature that links simulation-based training to better team functioning in obstetric emergencies (Buljac-Samarddzic et al, 2020; Hernandez et al, 2021). However, midwives and ambulance clinicians rarely had chances to train together outside of urgent care situations. Relationships significantly affected experiences and patient care: mutual respect enhanced communication, while incivility hindered teamwork, supporting Riskin et al's (2015) assertion that rudeness reduces medical team performance. Active listening, coaching and seeking clinical opinions improved cross-professional relationships.

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Strengths and limitations

The study's diverse sample and interactive focus groups provided rich insights. The interaction between participants during the focus groups elicited discussion and a deep level of reflection. The discourse was interspersed with 'light bulb' moments of understanding, poignant sharing of perspectives and offering of solutions. Ethnography refers to the method of studying individuals in their cultural context (Burke and Kirk, 2001); an ethnographical dimension emerged as the first author observed how the participants interacted with each other.

However, the data collection methods also represent a potential weakness. The use of focus groups and interviews can be criticised for only showing what people say, and not what they do (Anderson, 2010). Social desirability may have influenced how participants shared their experiences, considering the presence of the researcher and their peers.

Owing to the academic requirements of a Masters project, all data collection and analysis was conducted by the first author. While the emergence, identification and definition of themes were discussed with the second author, it did not provide the multiple perspectives that increase reliability and rigour. The first author's dual role as a researcher and practitioner provided unique insights but also potential biases. An inductive approach helped mitigate these biases and ensure data represented participants' experiences.

It was acknowledged that the first author's position as a midwife and an ambulance service employee may influence the questions asked and the interpretation of the data. While it would lack transparency to deny the potential impact of their personal values and assumptions, the complementary use of an inductive 'bottom-up' approach provided unexpected results without attempting to fit the data into existing theories (Vossler and Moller, 2017).

Implications for practice

Policymakers should recognise the ambulance service's role in maternity care, including them in local and national recommendations. Increasingly, ambulance services across the UK are employing consultant and specialist midwives; these roles are instrumental to facilitating inter-organisation learning and improvements. NHS trusts should consider these as examples of learning from excellence. Education providers both in pre-registration courses and practice development should facilitate and promote simulation-based multidisciplinary training with parity across professional groups.

Future research

It was outside the scope of this study to include the perspectives of women and their families directly. However, patient experience is an essential dimension to consider in the pursuit of healthcare improvement and should be explored in future enquiries concerning prehospital maternity care. Equally, clinicians' experiences of working together can be affected by transfer times, policies and organisational cultures. Therefore, clinicians working outside of London are likely to have views and experiences that differ from those expressed in this study and should be explored in future research.

Conclusions

The insights gathered from this study highlight that midwives and ambulance clinicians work together in the context of high acuity and often time-critical circumstances. Teamwork and management may impact maternal and newborn health and experience, with far-reaching implications across the life course. However, there is an absence of strategy acknowledging the ambulance service and their input at a national and local systems level. Many clinicians have reported a lack of understanding of each other's roles and remits, which is perceived to inhibit their ability to work effectively as a team. **BJM**

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CPD reflective questions

- Can you think of an example in your clinical practice where you were required to work together with an unfamiliar professional? What barriers and facilitators were there to you providing the best possible care?
- How would you mitigate the challenges associated with a crowded and noisy environment in a time-critical scenario?
- What communication techniques could you use to ensure that you are understood by another professional who may be unfamiliar with your terminology?
- What does the term 'collaborative leadership' mean to you, and how would you use this in your practice?
- You attend a woman in labour at home, two paramedics have arrived first. The woman appears to be birthing imminently and is being supported by the ambulance crew. How would you approach this situation?

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