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Citation: Yuill, C., Kerauden, S., Murphy, R., Uddin, N. & Rocca-Ihenacho, L. (2023). Developing the Midwifery Unit Self-Assessment (MUSA) Framework: a mixed methods study in six European midwifery units. Sexual and Reproductive Healthcare, 35, 100819. doi: 10.1016/j.srhc.2023.100819

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Link to published version: https://doi.org/10.1016/j.srhc.2023.100819

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Sexual & Reproductive Healthcare 35 (2023) 100819

Contents lists available at ScienceDirect

Sexual & Reproductive Healthcare

journal homepage: www.elsevier.com/locate/srhc

Developing the midwifery Unit Self-Assessment (MUSA) Framework: A mixed methods study in six European midwifery units

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ARTICLE INFO

Keywords:
Midwifery units
Maternity services
Mixed methods
Europe
United Kingdom

ABSTRACT

Objective: Evidence indicates that midwifery units are associated with improved health outcomes and experiences; however, there are barriers to their development and scale-up. Guidelines are crucial to their implementation, ensuring that they are developed and integrated sustainably and safely. This study aimed to evaluate and explore the use of a self-assessment tool and improvement process for midwifery units in Europe.
Methods: A mixed methods study was conducted with six midwifery units located in Europe. Quantitative and qualitative data were collected and analysed concurrently, and each informed the other, making the approach both interactive and iterative. The six midwifery units were invited to complete the self-assessment tool, the responses of which were analysed descriptively, and implement an improvement process into practice. Interviews were conducted with midwives using the tool and analysed thematically.
Results: Findings indicate benefits and potential feasibility of an improvement process for midwifery units, and suggest that the self-assessment tool is a generative and reflexive practice for midwives. However, issues were identified around limitations of the tool, structural barriers and professional autonomy. Midwifery units require a framework to guide and support their implementation, improvement and scale-up.
Conclusion: Results highlight the need for more consideration of how macro-level barriers, encompassing social, legal and political dimensions of maternity care, factor locally in the implementation and scale-up of midwifery units. More research is needed to evaluate the feasibility and outcomes of implementing a self-assessment and improvement framework in midwifery units across Europe.

Introduction

There is an increasing recognition of the importance of midwifery-led care for improving global maternal-infant health [1–3]. Midwifery units (MUs) – also commonly referred to as 'birth centres' – are healthcare facilities, in which midwives take primary professional responsibility for delivering maternity care for women and birthing people with uncomplicated pregnancies. MUs may be located away from (freestanding) or adjacent to (alongside) an obstetric service (Table 1), and provide holistic, safe care built on a bio-psycho-social philosophy of care [4]. Evidence indicates that MUs are associated with improved maternal health outcomes and experience and lower costs than obstetric units (OUs) [5,6]. Research also shows similar perinatal outcomes between MUs and OUs, and supports the expansion of MU options in high-income countries, with "no statistically significant impact on infant mortality and lower odds of maternal morbidity and obstetric intervention" [5 pp240-1].

Despite the demonstrated benefits of and international support for MUs, their implementation has not been systematic in Europe, and mapping of units outside of the UK has yet to be carried out. Euro-Peristat has previously provided numbers of women using AMU, which can be difficult to disaggregate from OU statistics, but recent reports have not reported on place of birth [8,9]. MUs in countries such as France, Italy and Spain are often only existent as AMUs, and some countries have mostly small private FMUs known as 'maternity homes' (e.g. Belgium, Italy and Switzerland) or none at all (e.g. Austria and Greece) [10]. In some European countries, where it is illegal to give birth outside of a hospital or when midwifery is not an autonomous profession in practice, the implementation of MUs faces significant challenges [10]. MUs are more common in the United Kingdom (UK)

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https://doi.org/10.1016/j.srhc.2023.100819
Received 29 November 2022; Received in revised form 30 January 2023; Accepted 31 January 2023
Available online 3 February 2023
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Table 1
Definition of midwifery units [7].

Term	Definition
Freestanding midwifery unit (FMU)	Medical diagnostic and treatment services and interventions are not available in the same building or on the same site. Access is available as part of an integrated service, but transfer will normally involve a journey by ambulance or car.
Alongside midwifery unit (AMU)	During labour and birth, medical diagnostic and treatment services, including obstetric, neonatal and anaesthetic care are available in a different part of the same building, or in a separate building on the same site. This may include access to interventions that can be carried out by midwives, for example electronic fetal heart monitoring. To access such services, women will need to transfer to the obstetric unit, which will normally be by trolley, bed or wheelchair.

than in the rest of Europe. A majority of National Health Service (NHS) Trusts have either an AMU or FMU, and 14 % of the births occurred in such settings in 2016 [11]. However, even in the UK, OUs remain the norm for birth care, and MUs are often not prioritised and are perceived as "unaffordable luxuries" [12]. Mapping of maternity services in England suggests that there is a potential for 36 % of all births to be facilitated in MUs, meaning that they are currently underutilised, despite their accessibility and significant policy support for these settings in England [11,13]. Barriers to uptake are often located within the healthcare service characteristics, including limitations of care pathways, poor leadership and deskilling of the midwifery workforce [13]. Moreover, research on MUs reveals how issues at the boarder cultural and structural levels related to gender, reproductive rights, medicalisation and midwives' autonomy shape the strategies used to implement this approach to care [14].

Given the barriers to development and scale-up of MUs, practice guidelines are crucial to their implementation, ensuring that they are developed and integrated sustainably and safely. The *Midwifery Unit Standards* [7,10] provide evidenced-based guidance for those working in or planning to open an MU. The *Standards* promote an organisational culture that embraces the bio-psycho-social philosophy of care, as the foundation for well-functioning of MUs [7,10]. This philosophy recognises the physiological, psychological, social and cultural needs of women and birthing people with a focus on what creates health and well-being, facilitating a positive transition to parenthood [7,10]. It also recognises midwives' agency, sense of ownership and engagement with the MU, allowing them to take a central role in the continuous improvement of the unit [15].

Implementing the midwifery Unit Standards

In order to support the integration of the *Standards* in practice, a self-assessment tool was developed with the purpose of helping MU staff benchmark their settings, performance and organisation of care against each standard. The self-assessment tool was developed in consultation with the American Associations of Birth Centres (AABC) and Euro-Peristat as well as peer-reviewed by European stakeholders and ten experts in MU research, implementation and management [16].

The resulting tool (Supplemental file) includes 60 indicators arranged into ten themes and formatted as questions. Respondents can select either 'Yes', 'No', 'Partly' or 'Not applicable', depending on whether their MU meets these indicators. Each indicator is linked to one of the *Midwifery Unit Standards*, which can be used as reference source. Most indicators feature sub-questions that are triggered by a 'Yes' or 'Partly' response, resulting in 210 items, concerning philosophy of care, governance, environment and organisation of care. The tool can be completed via Qualtrics, a secure online survey platform. Using the self-assessment tool includes the development of an improvement plan based on the self-assessment results and involves identifying short-, medium- and long-term high impact actions. This improvement plan is co-produced by midwives, key stakeholders and researchers during a stakeholder event hosted by the MU.

As a first step of evaluation, our team conducted a rapid participatory appraisal of the self-assessment tool from midwives working in and managing MUs in Europe and the UK [16]. Our appraisal aimed to gather the views of midwives on the tool and stakeholder engagement process to identify the degree of support needed by services in the process of self-evaluation and co-creation of an improvement plan. We identified areas for improvement and development, as well as the importance of taking the micro-*meso*-macro-level contexts of providing midwifery-led care in different health service settings into account when conducting this research [16]. Building on our foundational work and with the aim of enhancing this self-assessment process, we conducted a mixed methods study to evaluate and explore the use of the tool in practice and to inform the development of a framework to support the implementation, scale-up and continuous improvement of MUs in Europe and the UK.

Methods

The study approach was informed by our previous rapid participatory appraisal of the self-assessment tool and improvement plan process and employed a mixed methods inquiry methodology with a convergent design [17,18]. A mixed methods inquiry approach allowed for the triangulation of different perspectives, contextualising quantitative data and informing qualitative data collection. Quantitative and qualitative data were collected and analysed concurrently, and each informed the other, making the approach both interactive and iterative. The research team was multidisciplinary, made up of anthropologists with backgrounds studying midwifery-led care [CY, LRI], midwives [SK, RM] and a radiographer working in maternal and child health research [NU].

Six MUs located in Europe and the UK took part in this study over a six-month period (January to June 2021). The MU locations were selected based on maximum variability and motivation, and both FMUs and AMUs were included. Recruitment of the units was conducted via Midwifery Unit Network partners and social media; seven MUs responded, but only six eventually participated in the study. All units were asked to complete two self-assessments online, host a stakeholder event, identify high impact actions and co-produce an improvement plan as part of their participation in the research (Fig. 1). The completed self-assessment tool data was analysed descriptively.

Midwives who took part were invited to a semi-structured interview near the end of the six months to provide insights into their local care contexts and their experiences of using the tool, conducting a stakeholder event, and creating and implementing their improvement plans. Recruitment was purposive, guided by "information power", and focused on the midwives who were undertaking the self-assessment process and had completed the tool on behalf of their MU. In this approach, sample size is determined by the richness of the information provided by participants in qualitative research; studies recruiting those with a high level of information will thus require a smaller sample size [19]. Seven midwives working in five of the six MUs took part in interviews, lasting from 30 to 60 min. Due to ongoing COVID-19 restrictions, all interviews were conducted remotely via Microsoft Teams. The interview data was transcribed and analysed thematically using NVivo. Ethics approval was granted by the Maternal and Child Health Proportionate Review Committee, City, University of London (ETH2021-0905). Local approvals were also obtained and recorded.

Results

Self-assessments

All participating units completed the self-assessment online and identified improvement areas (Table 2). Five of the six units hosted a

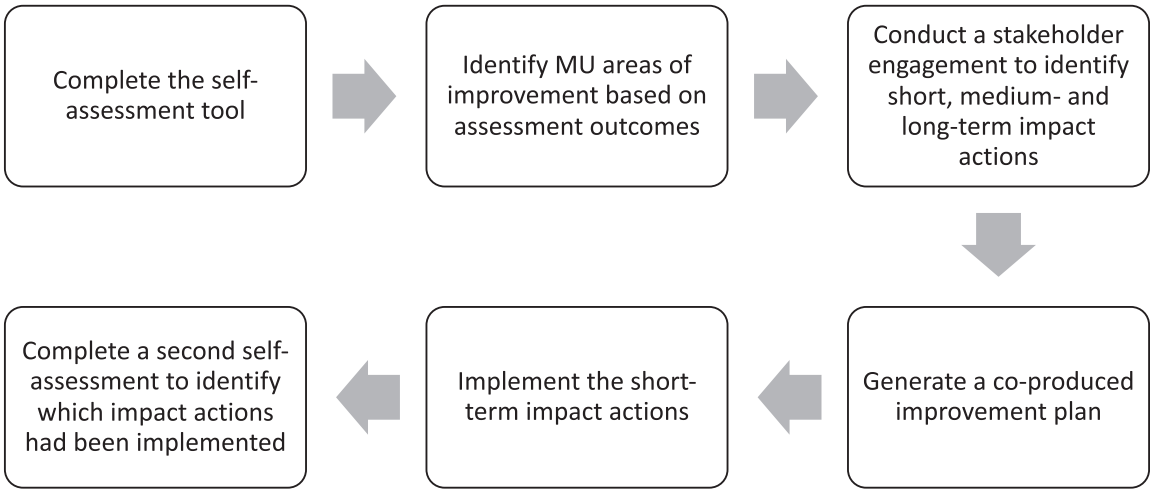

Fig. 1. The self-assessment and improvement process that participating MUs undertook.

Table 2
Characteristics of participating MUs.

Unit Name	Location	Type of MU	No. of rooms	No. of births (2020)	First assessment completed	Second assessment completed
Unit 1	France	AMU	2	117	Yes	Yes
Unit 2	Ireland	AMU	2	239	Yes	No
Unit 3	Northern Ireland	FMU	4	123	Yes	No
Unit 4	Poland	AMU	3	483	Yes	No
Unit 5	Scotland	AMU	6	860	Yes	Yes
Unit 6	Wales	FMU	6	247	Yes	Yes

stakeholder event and generated a co-produced improvement plan of three to five short-, medium- and long-term high impact actions with the research team, which they began to implement for the remainder of the study. One unit was not able to host an event due to significant IT service issues.

Three of the six units completed a second self-assessment online. There was increase in the number of 'Yes' responses between the first and second assessments in all three of the units, demonstrating notable improvement in meeting the *Midwifery Unit Standards*, even within a short timeframe (Table 3).

During the descriptive analysis, we identified eight key indicators within the self-assessment tool based on areas that appeared frequently in improvement plans or that are associated with the safe functioning of MUs (Table 4). While these are not weighted any more than other indicators for the self-assessment, they do represent areas that are fundamental to the safe and sustainable functioning of MUs, regardless of the context.(SeeTable 5.).

All six participating MUs reported having clear, co-produced written guidelines and procedures for transfers, specific referral pathways for the indications and the process of transfer to an obstetric unit or neonatal unit, and appropriate facilities and equipment to facilitate

Table 3
Percentages of 'Yes' responses in first and second self-assessments.

	Unit 1	Unit 5	Unit 6
First assessment	125 (60 %)	156 (74 %)	197 (94 %)
Second assessment	141 (67 %)	181 (86 %)	207 (99 %)

Table 4
Key indicators identified from the self-assessment tool.

Number	Indicator
1	The MU has a written public philosophy of care document.
9	The MU has clear co-produced (by different stakeholders) written guidelines and procedures for transfers.
12	The MU has a written evidence-based guideline (e.g. RQIA/GAIN or NICE guideline) for women and birthing people's suitability for midwifery-led care.
15	The MU has a written specific referral pathway for the indications and the process of transfer to an obstetric unit or neonatal unit.
20	There is a sufficient number of core staff to ensure continuous presence in labour and one-to-one care.
25	Training is required at least yearly.
44	The MU has the appropriate facilities and equipment to facilitate prompt transfer to an obstetric or neonatal unit when needed or in case of emergencies.
50	The MU has a multidisciplinary and service user advisory group, including midwives, obstetricians, paediatricians, senior management, general practitioners.

Table 5
Responses to the key indicators from the first assessment.

	1	9	12	15	20	25	44	50
Unit 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Unit 2	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Unit 3	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Unit 4	Yes	Yes	No	Yes	No	No	Yes	Yes
Unit 5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Unit 6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

prompt transfer to an obstetric or neonatal unit when needed or in case of emergencies. All MUs had a written evidence-based guideline, such as GAIN [20], for women and birthing people's suitability for midwifery-led care apart and have a sufficient number of core staff to ensure continuous presence in labour and one-to-one care apart from Unit 4.

Most units stated they had a written public philosophy of care document apart from Unit 3; however, there were variations in the extent to which this document included all of the elements of this philosophy as recommended by the *Midwifery Unit Standards*, when the sub-questions for the indicator and proceeding indicators were explored further. This was similar occurrence for the indicator 25, which concerns training. While most of the MUs maintained a policy that training is required at least yearly, the sub-questions revealed that there were recurrent gaps in specific training on physiological birth, communication and supporting women and birthing people's decision-making,

Only Units 4 and 6 had a multidisciplinary and service user advisory group, including midwives, obstetricians, paediatricians, senior management, general practitioners, in place during their first self-assessment.

Interviews

Three main themes were identified during analysis: Generative and reflexive process, "Room for improvement" and Structural barriers, and the dimensions of each will be discussed.

Generative and reflexive process

In general, feedback from participants about the self-assessment tool was positive, focusing on how it is generative as a process. The tool not only reflects MUs' philosophy of care and how they operate in practice but also generates credibility and quality standards:

> "[T]he amount of credibility it's given, the kind of things that I feel in my bones, what I talk about all the time, you know, about kindness, compassion, respect, dignity, the language that we use, the environments that we create, you know why it's important. I feel like the tool really gives us credibility. And I just think if we have that as our standard – so this is the tool that we use and this is the standard that we want for all of our health providers. I just think it gives you even more credibility. I just can only see it being helpful and strengthening what we've already got." (P007, Unit 6)

The tool and wider improvement process was also generative in the sense that it spurred action, often action that the units' themselves were conscious needed to be taken. Moreover, this was equally reflexive, allowing MUs to take account of their functioning, priorities and goals as a unit:

> I think the stakeholders' group and trying to advertise the unit, trying to look at the human rights aspects and things like that, those were all things that we were already very much aware that we need to do. So I think that was a great way to consolidate where we are, where do we want to go on from this. And gave us the evidence base to say, 'You're on the right track.'… I find it useful to centralise where we are, give us a good basis of where we are, what we are doing well, and hopefully then that's a stimulus for that change." (P006, Unit 3)

As this midwife from Unit 3 highlights, the generative and reflexive dimensions of the self-assessment and improvement process are connected and iterative, with one reinforcing the other.

Several midwives highlighted the tool's capacity to support them in (re)focusing and reflecting on what was important for identifying and implementing improvement:

> "There'll never, ever be a time within midwifery where you'll just sit still and say that that's where we should be. There's always room for improvement. There's always something that we could do better. And I think it's giving us the platform to actually help us identify where we need to improve and what we need to focus on." (P003, Unit 5)

The generative and reflexive process of continuous improvement also matched this midwife's own attitude towards her profession, that it is dynamic, never "still" when it comes to providing better quality care.

"Room for improvement"

This "room for improvement" cannot only be applied to the units themselves, but also to the tool itself.

> "I wondered if there would be some hierarchy in the importance of these different things, like the of questions being able to paint the walls different colours to have the space be more pleasant. Is everything on the same level? We got lots of green points for environment, but then we don't have an advisory group." (P004, Unit 1)

A midwife highlighted that the scale and depth of the generative, reflexive process and of the different elements contributing a well-functioning, safe MU, as captured within the tool, could be potentially "overwhelming":

> "I like the emphasis on autonomy, women's autonomy, midwives' autonomy. But my only concerns are if you weren't a very well-established midwife that it could become quite overwhelming. You realise the magnitude of the work that you would have to do to actually set-up a successful functioning, safe unit." (P002, Unit 5)

Midwives' experiences also revealed the limits of the tool as a benchmarking exercise and of the aforementioned generative dimension of this self-assessment process:

> "It did cover a good range… maybe what I was looking out of it was about how to get a change culture, sort of more practical elements on how did people try things like that, so it was a very retrospective like, 'What have you been doing?' What has worked and everything… Because we are in a huge process of change within our own midwifery-led unit with the introduction coming down the road of continuity of carer, and so we have loads of change coming. It's about managing that change." (P006, Unit 3)

Structural barriers

Our analysis identified several structural barriers affecting the full implementation of improvement plans. Lack of material and immaterial resources (time, money, staff) was a significant obstacle to actualising the improvement ideas generated by the MUs' self-assessment:

> "[W]e now started thinking about post birth care. We want to open some consultation with midwives after the birth, so the woman after the birth can come back and talk to us, tell us about the birth, about breastfeeding, about the well-being of her and the baby. But of course, now it's only our idea. Nothing has happened because we have to find the money. The money is the problem and the lack of staff." (P001, Unit 4)

The midwife working in Unit 3 elaborated further on this tension between this generative process that stems from the self-assessment and the limitations that are structurally imposed on MUs, often through legal regulation:

> "[B]ecause of these really hard legal regulations. Maybe it is possible to change completely the health system and to put all these things you use in the tool in the health system. But now it's very difficult for us to change anything. Every step we are taking is very hard to do it because we have to fight almost with everybody." (P001, Unit 4)

Autonomy issues were linked in part to how midwifery and maternity care are conceived in the medical milieu, and touch on deeper socio-cultural inequalities, especially those related to gender:

> "It's definitely the more medicalized model, and maybe in other European countries, if that's the barrier, then it's the very heavily medicalized model that you have to go through a really patriarchal, and all of this before you get back to that women-centred care. I think that's very difficult with that. I don't know how long that's going to take to breakdown because that's such an established machine." (P006, Unit 3)

Midwives' autonomy issues within the healthcare services manifested in several different ways that ultimately dovetailed and hindered implementation of improvement plans. Legal regulation of practice and power differentials between professionals limited their capacity for full

actualisation of the self-assessment tool recommendations, but also made them hesitant to engage with some actions, such as the multidisciplinary stakeholder group and cross-boundary working, in order to retain their autonomy within the healthcare system.

Discussion

This is one of the first studies detailing the use of a benchmarking and quality improvement framework specifically designed for use in MUs. There were limitations; two of the sites taking part were located in non-English speaking countries, meaning local midwives had to translate the improvement process to stakeholders, as well as discussions between the research team and stakeholders. The short timeframe of the study meant there was a limited period for follow-up with MUs about their improvement plans and implementation of their high-impact actions; however, our findings do indicate that the framework confers improvement even in the short-term. Our study demonstrates the benefits and potential feasibility of a benchmarking process involving self-assessment for MUs located in Europe and the UK. While only half of the participating MUs completed a second self-assessment, the three that did all demonstrated improvement between their first and second assessments.

One of the key outcomes of this study is that MUs require a *framework* to guide and support their implementation, improvement and scale-up. The depth of the work entails more than the self-assessment tool, which is just one element in a wider generative, reflexive process of continuous improvement. Given the "magnitude" of the tool, a framework model takes into account the processes beyond the self-assessment activity, including stakeholder engagement, co-production of an improvement plan and reassessment. Another important outcome is the identification of key indicators on the self-assessment tool. While conceptual features of well-functioning MUs, such as philosophy of care, relationships and trust, have been discussed, little has been developed on practical features of safety for MUs similar to those to the seven features of safety in maternity units [21]. The eight self-assessment tool indicators not only further develop understandings about which features contribute to a well-functioning MUs but also signal where units are most likely to have areas for improvement, in this care yearly training and multidisciplinary stakeholder engagement.

Most of the MUs in this study did not have a multidisciplinary stakeholder group in place at the time of their first self-assessment, suggesting that this is an area often overlooked or under-prioritised by maternity services. Given that co-production and cross-boundary working are increasingly important in maternity services, it is crucial that these groups become more normalised, especially for facilitating the interdisciplinary operating between healthcare professionals. However, our study identified issues around professional autonomy can make a multidisciplinary stakeholder group a complex and delicate undertaking. While MUs foster professional autonomy, this can be challenged by relationships with other units, particularly in AMUs where their boundary working is closely situated to OUs [22]. Midwives identified hierarchical and patriarchal structures as contributing to this, and to the boarder dynamics shaping MU implementation and integration [14]. Some participants were hesitant to develop a stakeholder group in order to protect their autonomy, which subsequently hampered the development of multidisciplinary, cross-boundary engagement.

Our study emphasises the benefits of MUs participating in a benchmarking process that encompasses the bio-psycho-social model of care as core to the well-functioning of MUs. These are twofold: not only does this process facilitate improvement and contribute to care safety but also works to strengthen midwives' autonomy and visibility within their healthcare service. The findings also show the importance of focusing on philosophy of care within MUs and achieving shared goals via multidisciplinary collaboration, which correlates with suggestions proposed by Batinelli, et al. [14] in their systemic review of strategies for implementing MUs internationally. Moreover, this multidisciplinary collaboration and co-production emphasises the importance of relationship-based care, which extends beyond the interaction between care provider and service user. This relationality has been emphasised as one of the key features fostered in well-functioning MUs [4]. This is particularly crucial for FMUs, whose development and integration with the wider health services can present challenges due to negative attitudes regarding their perceived efficacy [12,13].

The structural barriers discussed by midwives reflect the issues also identified by Batinelli et al's, including "gendered power dynamics, hierarchy in the health system and the hegemonic production logic in healthcare" [14, page 8]. Medicalisation of pregnancy and birth have long been interconnected with gender, in that women's bodies were pathologized in opposition to men's, resulting in reproduction being constructed as a process that must be technologically surveilled and medically managed in an obstetric-led setting [23,24]. Midwifery-led care and MUs may resist or even subvert the 'too much too soon' approach to maternity care [25]; however, it remains a prominent feature of Western maternity care and shapes assumptions about which birth settings are safe and efficient within health services. The material and immaterial constraints speak to obstacles observed in implementation of complex interventions or innovative care models in maternity, such as group antenatal care [13,26]. The difficulties related to midwives' autonomy, particularly in European countries, highlight the importance of building in mechanisms for facilitating this into improvement processes for MUs, especially if they are to be sustainable. Our findings highlight the need for more consideration of how macro-level barriers, encompassing social, legal and political dimensions of maternity care, factor locally in the implementation and scale-up of MUs.

Conclusion

Given the internationally recognised importance of midwifery-led care to public health and well-being for women and birthing people and their families, MUs will continue to be vital places where this care is delivered, meaning support and operationalisation of evidence-based practice are essential for their safe and optimal functioning. More research is needed further evaluating the feasibility and outcomes of implementing a self-assessment and continuous improvement programmes in MUs across Europe and the UK, and the extent to which the eight key indicators identified by this study are also features of safety in MUs. Future implementation work involving multiple European settings should take into account the complexities of translating healthcare terminology across different service contexts.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

We would like to thank the midwives, stakeholders and midwifery units who took part in and supported this research.

Funding

This work was supported by City, University of London's School of Health and Psychological Sciences HEIF Fund.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.srhc.2023.100819.

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