

## ORIGINAL ARTICLE

# Barriers to optimal breastfeeding of medically complex children in the UK paediatric setting: a mixed methods survey of healthcare professionals

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None

**Abstract**

**Background:** Breastfeeding is indisputably significant for infants and children, as well as their mothers. However, when breastfed children are admitted to the paediatric ward, they may experience breastfeeding modification due to clinical challenges, lack of staff training and institutional barriers. Although previous research has identified multiple barriers to optimal feeding within the maternity, neonatal and community settings, we know less about the barriers that exist in paediatrics. Paediatric healthcare staff attitudes, training and awareness as well as ward culture are likely to have an impact on the experiences of families but are relatively unresearched in the paediatric setting, especially with regard to the multidisciplinary nature of clinical paediatric care. The aim of this study was to explore the attitudes, awareness and perceived barriers to effective breastfeeding support provision, as well as healthcare professional perception of barriers for families.

**Methods:** This was a mixed methods study utilising a questionnaire which was completed by 409 healthcare professionals who identified as working within the paediatric setting. It included responses from paediatricians of all training grades, nurses, healthcare assistants and allied health professionals. Qualitative data from professionals were analysed to develop themes around professional and perceived parent barriers to optimal breastfeeding.

**Results:** This study explored the barriers experienced by staff, as well as professionals' perception of parent barriers. These included lack of knowledge of how to help, a default formula culture, the pressure of maintaining strict fluid balance and breastfeeding being a low priority in the face of critical illness. Of the paediatric departments represented by this sample of healthcare professionals, most had a relatively poor culture of supporting breastfeeding, with multiple institutional barriers identified. Most professionals felt that there was not enough support for breastfeeding families on an average shift, and a large proportion identified as being one of just a few breastfeeding advocates on their ward.

**Conclusion:** In this relatively motivated and experienced sample of healthcare professionals, there were many identified barriers to optimal breastfeeding which could potentially be addressed by training that is carefully nuanced for the paediatric population. Ensuring that paediatric multidisciplinary healthcare professionals have sufficient skills and knowledge would address the identified challenge of poor awareness of breastfeeding and of how to

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overcome clinical lactation obstacles. Further improvements at policy level need to address the systemic lack of resourcing in paediatrics, as well as the lack of embedded breastfeeding-friendly organisational structures.

#### KEYWORDS

breastfeeding, breastfeeding barriers, healthcare professional, medically complex child, paediatrics

#### Key points

- Among this relatively invested sample of paediatric healthcare professionals, a major identified barrier to breastfeeding is lack of both basic and more complex lactation knowledge.
- The barriers to breastfeeding in paediatrics include challenges common to neonatal and maternity settings, but also distinct to this population, such as lack of expressing rooms, appropriate chairs and paediatric-focused lactation knowledge.
- Numerous barriers for families were identified, including inaccurate advice and being asked to give nonphysiologic milk volumes.
- Future mandatory breastfeeding training should address the widespread cultural barriers to breastfeeding in the paediatric environment.

## INTRODUCTION

Breastfeeding is justifiably a global public health priority,<sup>1</sup> yet it is also a learned skill<sup>2</sup> that requires support from multiple sources<sup>3</sup> at key times.<sup>4</sup> There are many factors that facilitate optimal breastfeeding, and failure to provide these may create barriers that lead to premature breastfeeding cessation.<sup>5</sup> Some of the known positive influences include antenatal education,<sup>6</sup> more breastfeeding knowledge,<sup>7</sup> realistic expectations of infant behaviour,<sup>8</sup> motivation to breastfeed,<sup>9</sup> peer support<sup>10</sup> and a positive culture of breastfeeding among healthcare professionals.<sup>11</sup> Community support is well known to have a positive impact, and this should be universally offered but individually tailored.<sup>12</sup>

There are also many recognised supportive factors surrounding birth and immediate postpartum. Being born in a Baby Friendly Initiative (BFI) accredited hospital has been found to increase rates of breastfeeding initiation.<sup>13</sup> Training health visitors has been found to reduce breastfeeding cessation.<sup>14</sup> Keeping mothers and infants together<sup>15</sup> and early skin-to-skin contact have long been known to facilitate breastfeeding, as well as optimise infant physiology.<sup>16–18</sup>

Although there is a significant amount of research exploring the impact of the hospital environment on breastfeeding in terms of neonatal and maternity care, there is a clear gap in the literature about the specific barriers encountered by staff and families when a child is admitted to the paediatric ward. The knowledge and skills of midwives, health visitors and general practitioners have been studied,<sup>19</sup> but there are limited data relating specifically to paediatric staff.

There may be many distinct reasons why the paediatric setting differs from neonatal or maternity

environments. Children admitted to paediatrics are a heterogeneous group, presenting at multiple ages, with different conditions. The limited research relating to paediatrics suggests that there are clinical breastfeeding challenges, as well as practical problems, lack of resources and psychological challenges.<sup>20</sup> Both children and parents can experience shock, sadness and anger<sup>21</sup> as well as stress, trauma and anxiety.<sup>22–24</sup> There are also practical problems, such as needing time off work,<sup>25</sup> and financial difficulty.<sup>26</sup> Some parents cannot obtain enough food<sup>27</sup> and are unable to access usual sources of support, entertainment and exercise. It is also complex for siblings – causing parents to choose which child to have most contact with.<sup>28–30</sup>

Barriers may also be caused by lactation difficulties exacerbated by illness. To overcome the practical and clinical lactation barriers, support from healthcare professionals during hospital admission is necessary. However, unlike midwifery, at present, no oral feeding competencies are included within paediatric nursing, medical or allied health professional training. Meanwhile, BFI accreditation and training are not yet established within paediatrics. The lack of undergraduate infant feeding training means that professionals are dependent on postgraduate training opportunities – accessed either privately or via their healthcare organisation. These training opportunities are optional and variable in terms of breadth and depth of content<sup>31,32</sup> and may be funded by the formula industry which is a potential conflict of interest.<sup>33</sup> In addition, access to training is often dependent on the discretion of managers and budget holders.

A further complication within paediatrics is that at present, training is not tailored to the unique challenges experienced by medically complex children, but towards

establishing breastfeeding in healthy newborns, or sick neonates. The specific gaps in clinical knowledge are not widely known, and there are many unanswered questions about who accesses training, whether training is fit for purpose and what knowledge and skill gaps remain even *after* training. A recent study found that even among a generally motivated sample of paediatric multidisciplinary professionals, there were many skill gaps.<sup>34</sup>

There are also problems with resources, with a recent systematic review<sup>35</sup> finding that lack of access to breast pumps and other equipment made breastfeeding harder. However, given that many of the studies reviewed were dated, and largely from the United States, it was necessary to establish whether these practical barriers exist in the United Kingdom, to form conclusions about where to prioritise training.

This study aimed to elucidate the perceived challenges and institutional barriers in relation to breastfeeding for healthcare professionals working in the paediatric setting. In addition, the study sought to understand, from the healthcare professionals' perspective, what resource and equipment barriers to breastfeeding exist.

## METHODS

### Study design

This was a large self-reported online survey that explored staff attitudes, skills and confidence level in relation to supporting breastfeeding on the paediatric ward.<sup>34</sup> The survey used closed and open questions to explore ward culture, attitudes and healthcare professional barriers as well as their perceptions of barriers for families.

### Participants

This survey was open to all healthcare professionals working in the UK paediatric setting and recruited participants from November 2020 to March 2021, who met the following inclusion criteria:

- participant aged 18 or over;
- resident and working in the United Kingdom;
- able to complete the questionnaire in English;
- medical, nursing or allied health professional currently working within paediatrics (not neonatal/maternity unit);
- able to give informed consent.

Even if they were working on a paediatric ward, midwives, neonatal nurses and health visitors were excluded, because midwives receive breastfeeding education as part of their core training, and all these professionals may have received postqualification ongoing breastfeeding training because health visiting,

maternity and neonatal services have long-established BFI accreditation pathways.

Ethical approval was sought and granted by Swansea University School of Health and Social Care Ethics Committee. All participants gave consent prior to completing the survey. Ethical considerations were made with respect to the principles for research on human subjects as outlined in the Declaration of Helsinki.<sup>36</sup>

### Measures

As well as demographic questions, this part of the survey was developed to ask healthcare professionals working in the paediatric setting a range of questions relating to their attitudes towards breastfeeding, as well as the general ward environment where they work. Themes around ward culture were explored, as well as organisational structures using five-point Likert scales. The questions (Appendix) in the survey included

- (1) experience and attitudes towards breastfeeding;
- (2) perceived barriers to breastfeeding for parents;
- (3) organisational structures that affected the ability to give breastfeeding support;
- (4) ward culture.

Responses to culture questions were summed to give an overall culture score, and responses to Likert questions were collected via tickboxes, with 1 = strongly agree and 5 = strongly disagree, with an option for free text for some of the questions.

### Procedure

Potential participants were invited to take part in the study via a social media post with brief details on Facebook, Instagram and Twitter. The advertisement included a link to the questionnaire which was hosted on Qualtrics and shared on several groups used by health professionals. The authors have a large combined social media following of over 200,000, mostly in the United Kingdom, and the post was shared more than 170 times during the recruitment phase. If professionals were interested, they clicked on the link in the post, which contained further details as well as the inclusion criteria.

### Data analysis

Descriptive and inferential statistical analysis was performed using IBM Statistical Package for the Social Sciences (SPSS) 28.0. Demographic data, including gender, ethnicity, profession and postqualification

years of experience, were reported. Correlations between variables were calculated using Spearman's and Pearson's correlation coefficients, as well as one-way analysis of variance, multivariate analysis of variance (MANOVA) and  $\chi^2$  tests to establish whether there were statistically significant differences between groups.

Total professional and parent barrier scores were calculated for each participant by adding the number of barriers identified by each participant. This gave a possible score of 0–7 for professional barriers and 0–9 for parent barriers. To explore whether perceived barriers differed between professional groups, a MANOVA was conducted for the four main professional groups (paediatricians, paediatric nurses, allied health professionals and healthcare assistants [HCA]). The 'other' group was excluded from this analysis due to small group sample size.

The qualitative data collected in the free text boxes were analysed using a descriptive thematic analysis.<sup>37</sup> The first author read through all the responses in the free text boxes. The responses were then reread to identify subthemes which were then grouped into larger themes.<sup>38</sup> The initial coding was completed by the first author, and to enhance trustworthiness, the second author reviewed all proposed themes.

### Reliability and validity

Due to the limited research in this setting, there was no pre-existing validated tool which measured attitudes, culture and barriers. Previous surveys of healthcare professionals have used a pre- and posttest measurement after training,<sup>39</sup> or have measured specific breastfeeding knowledge,<sup>40</sup> neither of which was suitable for this study. The questions were designed to expand on themes from a systematic review which found that among other challenges, a lack of specific skilled lactation support and lack of resources were identified barriers to breastfeeding in paediatrics.<sup>35</sup> Broader themes from breastfeeding barriers in other clinical settings such as neonatal and maternity units were also included if relevant to paediatric settings. To improve the content validity of the survey tool, the questions were reviewed by a nurse, an International Board Certified Lactation Consultant colleague, a paediatrician, two senior academics and three parents of sick children, and their feedback was used to refine the questions. The interpretative validity of the qualitative data analysis was enhanced by both authors reviewing codes and themes, and any ambiguity relating to meaning and interpretation of the data was resolved through discussion until consensus was reached.<sup>41,42</sup> To test the reliability of the combined culture score in the survey, a Cronbach's  $\alpha$  was performed and found to have excellent internal consistency.

## RESULTS

### Participant demographics and location

After excluding three participants who did not meet the inclusion criteria and a further 83 who completed only the initial nonclinical questions, 409 professionals were included in the analysis. Overall, there was a varied spread of clinical environment which is important because although breastfed children are more likely to have significant input from a general ward or paediatric intensive care unit (PICU), they may be seen in other environments such as the emergency department, theatre and recovery and outpatients. Further demographic data are presented in Table 1.

### Experience and attitudes towards working with breastfed infants and children

Table 2 indicates that most of the professionals in this sample felt that breastfeeding was important for all children and that supporting parents to achieve their breastfeeding goals was an important part of their job.

### Perceived barriers to breastfeeding for professionals and parents

Professionals were asked about their perception of barriers to maintaining or facilitating breastfeeding on the ward via a multiple-choice tickbox in which they could select zero, one or multiple options. There was an optional free text box to record additional professional barriers to supporting optimal breastfeeding, as well as what they thought the barriers might be for parents. They were also asked what they thought would help them to be able to support more families (see Table 3).

Participants who selected 'other' as an option for perceived professional barriers were given opportunity to expand on this. Fifty participants did so, providing description of additional barriers which were thematically analysed. Seven themes were identified, which are presented in Table 4.

Similarly, for the perceived parent barriers, participants who selected 'other' were given the opportunity to expand in an open-ended box. Twenty-nine participants provided a response, with ideas thematically analysed into nine additional barriers (see Table 5).

Mean score for professional barriers identified was 2.15 (standard deviation [SD]: 1.92), and that for parent barriers identified was 3.42 (SD: 2.95).

A significant difference was found for professional barriers ( $F[3, 401] = 14.977, p = <0.003$ ). Post hoc Bonferroni tests found that HCAs identified significantly fewer professional barriers than paediatric nurses ( $p = 0.008$ ) and paediatricians ( $p = 0.003$ ). No further

TABLE 1 Participant demographic data.

Variable	n	%
<i>Gender</i>		
Female	386	94.1
Male	15	3.7
Nonbinary	1	0.2
Prefer not to say	8	2.0
<i>Ethnicity</i>		
White/White British	360	87.8
White/White Irish	10	2.4
Gypsy/traveller	1	0.2
Asian/Asian British (Bangladeshi)	1	0.2
Asian/Asian British (Indian)	10	2.4
Asian/Asian British (Pakistani)	3	0.7
Asian/Asian British (Chinese)	1	0.2
Asian/Asian British (Other)	2	0.5
Black/Black British	2	0.5
Mixed race	9	2.2
Other self-defined	8	2.0
Prefer not to say	3	0.7
<i>Profession</i>		
Paediatric nurse	245	59.9
Doctor	103	25.2
Allied health professional	45	11.0
Healthcare assistant	12	2.9
Other	4	1.0
<i>Do you have any breastfeeding credentials?</i>		
IBCLC	8	1.9
BFC	20	4.9
PS	47	11.49
None	334	81.6
<i>Have you attended any breastfeeding training?</i>		
Extensive (PS and above)	75	18.3
Some	71	17.3
None	263	64.3

Abbreviations: BFC, breastfeeding counsellor; IBCLC, International Board Certified Lactation Consultant; PS, peer supporter.

significant differences were found. A significant difference was also found for parent barriers ( $F[3, 401] = 42.167, p < 0.001$ ). Post hoc Bonferroni tests found that HCAs identified significantly fewer parent barriers than paediatric nurses ( $p = 0.047$ ) and paediatricians ( $p = 0.002$ ). Paediatricians also identified significantly more barriers than paediatric nurses ( $p = 0.036$ ).

Spearman's correlations were conducted between years of experience and perceived barriers. A significant negative association was found between years of experience and parent barriers ( $r[407] = -0.101, p = 0.042$ ). The more experience a professional had, the fewer barriers they identified. However, when professional role was controlled for, this significance disappeared ( $p = 0.123$ ). No significant association was found between years of experience and professional barriers ( $r[407] = -0.088, p = 0.077$ ).

## Ward culture and organisational structures

Participants were then asked a range of questions relating to the general attitudes and culture on the ward (Table 6). To test the internal consistency of these items as a combined scale, a Cronbach's  $\alpha$  was computed ( $\alpha = 0.89$ ), demonstrating good internal consistency across these items.

An aggregate ward culture score was calculated by adding responses to each of the statements together (where strongly disagree = 1 and strongly agree = 5) to give a possible score ranging from 6 to 30. All the variables apart from the last ('I am one of just a few people on my unit who advocate for breastfeeding') were collated to create an overall score for the ward or unit represented by each respondent. This last statement was omitted from the ward culture score as it may be just the individuals completing the survey who felt they were lone advocates for breastfeeding, within an otherwise less supportive environment. A lower score indicated a culture where support, training, collaboration and positivity for breastfeeding were low, with a high score representing a more supportive environment. Complete ward culture scores were present for 339 participants due to skipped responses. Mean ward culture score was 19.37 (SD: 4.51) with a range from 6 to 30.

No significant difference was found in perceived ward culture score among professional groups ( $F[3, 333] = 0.788, p = 0.507$ ). No significant association was found between perceived ward culture and years of experience ( $r[407] = -0.084, p = 0.125$ ). However, ward culture score was significantly negatively correlated with perceived professional ( $r[339] = -0.277, p = 0.001$ ) and parent ( $r[339] = 0.250, p = 0.001$ ) barriers to breastfeeding.

## Organisational systems and structures

Finally, in most paediatric units there will not be a designated paediatric infant feeding team, but there is likely to be an infant feeding team for the maternity or neonatal unit, who may provide ad hoc cover for paediatrics. Participants were asked if they knew who their infant feeding lead was (response options: yes, no, there is not one for paediatrics and not sure). They were also asked whether there was an infant feeding policy and whether it was available for families to read (response options: yes, no, not sure).

Just under half of the professionals (45%,  $n = 154$ ) knew who the infant feeding lead was. Just over half (52.9%,  $n = 181$ ) of the sample knew where the breastfeeding policy was, but only a minority of units represented reported the breastfeeding policy was part of their orientation to the ward (10.9%,  $n = 37$ ) or was accessible to families (10%,  $n = 35$ ).

TABLE 2 Experience working with breastfed infants and children on the ward.

Question	Response	n	%
How often do you care for children <2 years?	Every shift	233	57.1
	Nearly every shift	136	33.3
	Sometimes	33	8.1
	Rarely	5	1.2
	Never	1	0.2
In an average week, how often do you provide clinical care to a breastfed child?	Every shift	23	6.2
	Most shifts	126	34.0
	Sometimes	161	43.4
	Rarely	51	13.7
	Never	10	2.7
I believe that breastfeeding is important for all children, whether healthy or medically complex	Strongly agree/agree	339	95.7
	Strongly disagree/disagree	1	0.3
I believe that supporting parents to meet their breastfeeding goals is an important part of my job	Strongly agree/agree	335	94.3
	Strongly disagree/disagree	6	1.7
On an average shift, there is enough support for families trying to breastfeed	Strongly agree/agree	80	23.3
	Strongly disagree/disagree	168	49.0

TABLE 3 Professional and parent barriers and potential solutions.

Question	Possible barriers	n	%
Perceived professional barriers to being able to support breastfeeding	Lack of knowledge of how to help	275	55.8
	Need to measure fluid balance	176	35.7
	No time to support	167	33.9
	Infant instability	157	31.8
	Adaptations required to manage child's condition	115	23.3
	Pressure from healthcare professionals to stop	104	21.1
	Critical care is more important than feeding choices	70	14.2
	Other	50	10.1
Perceived barriers for parents trying to breastfeed their sick child	Stress	292	59.2
	Not enough support	242	49.1
	Need to tube feed	211	42.8
	Fluid restricted, or needing additional fluid/calories	185	37.5
	Need to care for other children at home	167	33.9
	Scared to breastfeed their sick child	154	31.2
	Lack of privacy	131	26.6
	Cannot stay with their child	106	21.5
	Cannot find a breast pump	103	20.9
	Advised not to breastfeed by HCP	96	19.5
	Other	29	5.8
What would help you to be able to support more families on the ward?	Specific training relating to sick children	292	59.2
	Having a designated paediatric infant feeding team	206	41.8
	Better undergraduate training	172	34.9
	Leaflets or handouts to give parents	167	33.9
	A breastfeeding policy	129	26.2
	Better facilities for families	65	13.2
	Other ideas	49	10.0
	Not sure	10	2.0

Abbreviation: HCP, healthcare professional.

A  $\chi^2$  test found a significant association between awareness of the infant feeding lead and professional group ( $\chi^2 = 14.067$ ,  $p = 0.048$ ). Allied health professionals were the most aware (77.8%), followed by paediatricians (61.8%), paediatric nurses (51.4%) and finally HCAs (50.0%). For knowledge of availability of breastfeeding policy, there was a significant association ( $\chi^2 = 16.384$ ,

$p = 0.012$ ), with paediatric nurses (59.6%) and allied health professionals (58.3%) having greater awareness than paediatricians (37.1%) and HCAs (33.3%). No significant association was found for it being accessible ( $\chi^2 = 4.667$ ,  $p = 0.770$ ).

No significant association was found between years of experience and knowledge of infant feeding lead

TABLE 4 Perceived professional barriers.

Examples	
1. Staff deferring to their own negative experiences of breastfeeding	‘Some think it's not important and bring their own negative experiences with them’ (Paediatric nurse) ‘Staff potentially dealing with their own breastfeeding grief and the “I used formula, it was fine” mindset’ (Paediatrician)
2. Not prioritised	‘It is low priority and undermined by health professional – BMS industry links and lack of code <sup>a</sup> adherence/awareness’ (AHP) ‘Little to no thought given to maintaining lactation amongst other goals of treating a sick child’ (Paediatrician)
3. Lack of understanding	‘Not understanding how breastfeeding works’ (Paediatric nurse) ‘Lack of basic knowledge about breastfeeding and we seem to always compare breastfeeding and formula as though formula is the default and breastfeeding is an inherent risk’ (Paediatrician)
4. Interplay between other clinical settings	‘Lack of community support before they present’ (Paediatrician) ‘In an emergency department we are only with the family for a shorter time. Sometimes the child can be beyond help by the time they reach us very low BM, severe jaundice as the mother has not had enough support before they reach us’ (Paediatric nurse)
5. No general paediatric infant feeding team	‘We are not specifically funded to support BF when there isn't a dysphagia concern’ (AHP) ‘No designated team on paediatrics and the maternity staff don't have time to visit the ward’ (Paediatric nurse)
6. Strict fluid intake	‘Dr insistence on fluid intake measurement rather than looking at output and growth’ (Paediatric nurse) ‘Strict fluid intake for faltering growth is a main issue’ (Paediatric nurse)
7. Intrusive ward routines	‘Ward routines e.g., obs, <sup>b</sup> ward rounds etc. not supporting responsive feeding’ (AHP)

Abbreviations: AHP, allied health professional; BF, breastfeeding; BMS, breast milk substitutes.

<sup>a</sup>Code, WHO International Code of Marketing of Breast Milk Substitutes.

<sup>b</sup>Obs, clinical observations such as temperature, blood pressure, oxygen saturations, respiratory rate, capillary refill time, pain score, level of consciousness, blood sugar and fluid balance.

( $\chi^2 = 14.067$ ,  $p = 0.296$ ). However, a significant association was found between knowledge of there being a breastfeeding policy and years of experience ( $\chi^2 = 22.713$ ,  $p = 0.004$ ). As experience grew, participants were more likely to know that there was a breastfeeding policy, with 33.3% of those with less than 5 years' experience knowing about a policy compared to 67.0% of those with 10 or more years' experience. No significant association was found however in accessibility of the policy to families ( $\chi^2 = 4.837$ ,  $p = 0.775$ ).

## DISCUSSION

This study explored the barriers of professionals working in in-patient paediatric wards and units in the United Kingdom. It recruited over 400 healthcare professionals, including paediatric nurses; doctors at all grades; and allied health professionals such as dietitians, speech and language therapists and physiotherapists. There was clear evidence of institutional and cultural barriers, as well as some negative attitudes and assumptions among some staff. Although almost all staff agreed that breastfeeding is important for all children, and that supporting parents to meet their breastfeeding goals is an important part of their job, many experienced significant individual and institutional barriers in providing that

support. These findings are reflective of parents' broader breastfeeding experiences; although many parents are motivated to breastfeed, barriers at the social, cultural and public health levels often prevent them from meeting those goals.<sup>43</sup> The findings have important implications for training and development in paediatric care.

## Barriers to breastfeeding

We know that health professional support of breastfeeding is highly influential on breastfeeding outcomes<sup>44,45</sup> and therefore an important element of supporting breastfeeding upon the paediatric ward. However, we also know that positive knowledge and attitudes alone are not sufficient to create an ideal environment for breastfeeding in clinical settings. Barriers to supporting breastfeeding such as lack of knowledge,<sup>7,46</sup> accurate fluid balance management,<sup>47</sup> conflicting information,<sup>48</sup> inconsistencies with medication advice,<sup>49</sup> time constraints,<sup>50</sup> breastfeeding not being a clinical priority<sup>51</sup> and lack of knowledge of wider resources and sources of support<sup>52</sup> have previously been highlighted in the literature within the maternity and neonatal settings. Whether the same issues are more problematic within paediatrics is not possible to confirm, but given the lack of training within this clinical environment, this is likely.

TABLE 5 Perceived barriers for parents.

Examples	
1. Rest/sleep prioritised for parents	'Parents are often encouraged to rest, and nurses give formula instead' (Paediatric nurse)
2. Implication that bottle feeding is easier	'Not explicitly told not to breastfeed, but rather implied that it is easier/less time consuming/able to tell how much an infant is taking when you don't breastfeed' (Paediatrician)
3. Medication confusion	'Medications the mothers may be on and medical/pharmacy confusion surrounding this' (AHP) 'Inadequate analgesia for mothers' (Paediatrician)
4. Large volumes of bottle/tube feeds prescribed	'Often told to offer 150 mL/kg first, meaning the infant isn't hungry and doesn't want to take the breast after' (Paediatric nurse)
5. Struggling to express	'Being told their child is dehydrated, being told they need to top up after a feed with EBM or formula, struggling to get anything on expressing and then having to give formula, becoming obsessed with how much they are taking as this is what the doctors focus on' (Paediatric nurse)
6. Professional advice	'Pressure from professionals to switch to formula for a variety of reasons' (Paediatric nurse) 'I feel doctors often suggest topping up and bottle feeding' (Paediatric nurse)
7. Assumptions	'The implication that if the baby can't exclusively breastfeed there is no point doing it at all' (Paediatrician) 'I think when a parent has a sick child in PICU, despite their best efforts this can impact the milk supply. It's important not to make the mother feel more stressed or guilty for the lack of milk' (Paediatric nurse)
8. Perception that bottle feeding promotes rapid discharge	'Often professionals think bottle feeding is easier and will get the family home quicker' (AHP)
9. Lack of knowledge about specific clinical scenarios	'Advised against breastfeeding patients who have received chemotherapy as can be excreted in saliva putting mum at risk.' (Paediatric nurse) 'Their child being temporarily unable to directly breastfeed and no support to get them back to the breast as they recover' (Paediatrician)

Abbreviations: AHP, allied health professional; EBM, Expressed breast milk; PICU, pediatric intensive care unit.

Our findings highlight many of these similar barriers within paediatrics, suggesting a need for both more general knowledge of breastfeeding and specific clinical teaching – such as how to ensure safe fluid balance while also prioritising responsive breastfeeding.

Alongside their own perceived barriers, professionals were asked to speculate about what they felt the barriers for parents were, based on their clinical experience. Whereas there is copious research now highlighting the challenges and barriers of breastfeeding healthy term infants, or preterm infants in the neonatal intensive care unit (NICU), paediatric settings have been under-researched. This matters because although some similarities underlie breastfeeding in any setting, the needs of infants and children with medical complexity present different challenges, especially in a clinical area which has less investment in breastfeeding training. Indeed, some challenges such as rest being prioritised, challenges with pain, perceived low milk supply or staff subtly or directly promoting bottle feeding as 'easier' have been identified in maternity and neonatal settings.<sup>53–58</sup> It could be argued that staff working within paediatrics need more intense and specific training in breastfeeding support to cover both basic and more complex support.

Other common breastfeeding issues are made more complicated by the experience of being admitted to the paediatric ward. For example, struggling with expressing milk is a common challenge cited by mothers, with

exclusive expressing a risk factor for early cessation<sup>59</sup> due to challenges around volume and comfort.<sup>60</sup> Indeed, trying to maintain lactation for a preterm infant in the neonatal unit is a common challenge,<sup>61,62</sup> even though the NICU environment is typically seen as one that supports and encourages breastfeeding and expressing.<sup>61</sup> However, in a paediatric unit breastfeeding mothers may receive less support, be in the minority compared to other parents and potentially be expressing larger volumes for the first time. Another issue that might be more challenging for mothers with older babies is the need to balance their child's admission with older children or work. Whereas mothers of newborns commonly have the protection of maternity leave in the United Kingdom, parents with older children may find this more difficult to balance. Finally, although health professionals are commonly encouraging and supportive of younger babies, some parents still perceive criticism for breastfeeding older children, sometimes trying to conceal their breastfeeding status from healthcare professionals.<sup>63,64</sup> Perceived or direct criticism of breastfeeding an older child would likely increase the complexity of maintaining feeding.

Indeed, many of the perceived parent barriers in this study were not related to the physical challenges of breastfeeding but were mostly about the wider difficulties in maintaining milk production in the context of hospitalisation. For example, lack of support was the



TABLE 6 Perceptions of ward culture that may influence breastfeeding support provision.

Statement	Strongly agree/agree		Strongly disagree/disagree	
	N	%	N	%
Our unit values breastfeeding for its nutritional, immunological, relational and psychological impacts	207	60.5	50	14.7
Supporting families to reach their goals is something we try to do	222	64.9	46	13.5
The staff on our unit are adequately trained to support most breastfeeding challenges	66	19.3	169	49.5
Breastfeeding families generally have a good experience on our unit	139	40.8	51	15.0
The multi-disciplinary team generally work together to find solutions that enable breastfeeding to continue alongside clinical care	146	42.7	89	26.0
Our unit is a good example of how to support breastfeeding in challenging circumstances	90	26.3	109	31.9
I am one of just a few people on my unit who advocate for breastfeeding	150	43.8	88	25.8

most commonly suggested barrier, as well as enteral feeding, fear, lack of privacy and inability to locate a breast pump. In the limited literature, which is mostly related to very young infants, reported barriers include inadequate healthcare professional knowledge,<sup>65</sup> child critical illness and instability, parent psychological challenges and physical adaptations due to a chronic condition.<sup>66–68</sup> A more recent study found that the most commonly reported barriers by mothers were clinical breastfeeding challenges, as well as lack of specialised healthcare staff knowledge and challenges around the acceptance of bedsharing.<sup>20</sup>

When the number of barriers identified by staff was compared for the health professional group, some differences emerged. HCAs identified fewer barriers than paediatricians or paediatric nurses, with paediatricians identifying the highest number. This may be related to which professionals are carrying out ongoing care or developing management plans for children on the ward, or through paediatricians and paediatric nurses working with children who were more acutely unwell, given that HCAs would not be expected to care for unstable children. The perception of parent barriers to breastfeeding was negatively correlated with years of experience, which may suggest that as professionals develop more clinical experience, they realise that many of the perceived barriers can be overcome.

A further complication that was identified was the lack of a ward-specific infant feeding lead, with many participants not sure who the infant feeding lead was. This presents several complications. Most obviously, if staff do not know who the infant feeding lead is, they will be less likely to bring in specialist infant feeding support if needed. It may also mean that neonatal or maternity infant feeding leads see infants on the paediatric ward as a favour to their paediatric colleagues, rather than part of their role, although this has not been studied. It is also likely that these staff need to be specially called upon,

with limited time and resources, rather than having someone present on the unit.

However, an additional complication is that although maternity-/neonatal-focused infant feeding leads will have specialist infant feeding knowledge, they may not have specialist paediatric knowledge. A nonpaediatric professional may not have the required skill and experience to effectively support a lactation challenge in the paediatric ward if a child has a complex health issue. For example, both midwives and neonatal nurses will have experience supporting infants with jaundice. A neonatal nurse will have experience with respiratory support needs. However, neither midwives nor neonatal nurses necessarily have experience with older infants and toddlers, or indeed many conditions that usually present beyond the neonatal period. A logical next step would be to repeat this study with both a nonclinical lactation advocate population and a clinical nonpaediatric population, to establish whether these individuals have more or different areas of skill deficit. It is likely that these findings would also support the need for specialist infant feeding roles dedicated to the paediatric setting.

## Ward culture

Cultural and societal influences on breastfeeding are significant,<sup>69,70</sup> especially in areas where breastfeeding has been under-represented.<sup>71</sup> It is known that it is more difficult to overcome breastfeeding problems when there is no surrounding culture of breastfeeding, which may be equally true for many paediatric settings.<sup>43,72</sup>

In terms of the breastfeeding support culture on the paediatric ward, there is very little research. However, there are many studies on healthcare professional attitudes towards breastfeeding, and some literature points towards the impact of personally held beliefs on patient interactions.<sup>73–75</sup> Negative personal experiences can lead to a denial of the positive aspects of

breastfeeding, which may be evident in healthcare professionals' interactions with parents.<sup>76</sup> Equally, a positive attitude can be a supportive influence on a mother's feeding experience, though this may not compensate for lack of knowledge.<sup>52</sup> From a clinical perspective, whether a parent encounters a positive or negative culture of breastfeeding on the ward remains something of a postcode lottery, and her experience is additionally impacted by external factors outside the hospital's influence, such as intrinsic motivation to breastfeed, and wider sources of support.

In this study, several questions were asked that attempted to gain a sense of ward culture, as this has not been widely explored. Part of the rationale for these questions was that the study was anticipated to have an overrepresentation of breastfeeding advocates. However, anecdotally, these advocates are often isolated, and their views may not be widely held by their colleagues across the entire department. This means that families on the ward are likely to have a mixed experience depending on who they see. Additionally, feeling like a lone advocate within a generally unsupportive culture is likely to have a negative impact on the well-being of those professionals.<sup>77</sup>

Six ward culture descriptors were combined to give an aggregate ward culture score out of 30, and very few of the 340 departments represented received a score at the extremes of positive or negative culture. Most of the units represented by the participants could therefore improve the culture and attitudes towards breastfeeding support. Having an improvement in the general support on the ward or unit is likely to have a positive impact on the experiences of families who are hospitalised, though attitude and culture alone will not be enough to overcome some of the clinical lactation challenges experienced by sick children. In this sample, there was no difference in perceived ward culture between professional groups or years of postqualification experience. However, identification of more barriers was strongly associated with lower perceived ward culture. This may suggest that the barriers identified on a particular ward are an intrinsic part of a less-supportive ward culture, whereas an environment where there is a more positive culture of breastfeeding support may be one where barriers are reduced or overcome.

## STRENGTHS AND LIMITATIONS

The main limitation of this study is that it recruited healthcare professionals via an online advertisement. This was a pragmatic option during the COVID-19 pandemic and a simple way to reach a large sample of professionals from around the United Kingdom. Nevertheless, there are inherent problems with studies that recruit participants in this way, namely that there was likely to be an overrepresentation of breastfeeding

advocates. To overcome potential sampling bias, several strategies were considered. First, the survey was sent to a large defined population of interest – in this case currently practicing paediatric healthcare professionals within related social media support groups. Second, the survey was sent to infant feeding network leads and link lecturers at 57 UK universities that provide undergraduate nursing training to try to avoid oversampling in one region or interest group. Third, although this has limitations, the survey was developed in line with the recommendations in the Checklist for Reporting Results of Internet E-Surveys to improve validity.<sup>78</sup> Finally, in anticipation that this survey would be likely to have an overrepresentation of committed individuals, general questions were included in the survey which attempted to differentiate between the skills and attitudes of the respondent and the skills and attitudes of the wider unit in which the respondent worked. Questions were also asked about the parent experience to gauge the wider culture of the setting. Importantly, even though this was a relatively motivated and knowledgeable sample, there were many barriers, so these data may underestimate the true extent of the breastfeeding barriers on many paediatric wards.

Despite the identified limitations, there were also many strengths of this study. These include the fact that it is the largest sample of UK healthcare professionals to date, with a specific paediatric focus, and includes the responses of multidisciplinary professionals. The study is further enhanced by having a wide geographical spread of participants, meaning that representation from across the United Kingdom was included, suggesting that the identified issues are not limited to one hospital, or region, but are systemic barriers and challenges throughout many paediatric wards in the United Kingdom.

## CONCLUSION

This study has found that there is considerable room for improvement in ward culture, with most units represented by the survey having a ward culture score that suggested multiple challenges. Some environmental and resourcing barriers were identified by professionals, such as lack of expressing rooms, inadequate supplies of pillows and inappropriate chairs. Additionally, professionals identified deficits in support to reestablish breastfeeding after procedures and lack of designated paediatric unit breast pumps.

About half the sample indicated that they were one of just a few breastfeeding advocates. This may suggest that professionals feel like they are unsupported by colleagues on their unit. Anecdotally, many breastfeeding advocates feel demoralised by the sense that they alone speak up for breastfeeding families in a wider, less supportive culture. Concerningly, given that this was a relatively invested sample, the barriers are likely to be much more

widespread and problematic in a more representative sample.

It is likely that the provision of training to increase levels of awareness of breastfeeding among paediatric professionals would improve experiences for families. Support that blends clinical priorities with improved breastfeeding care would address negative attitudes and reduce some of the institutional barriers that families may face, thus improving access to breastmilk for children with medical complexity.

### AUTHOR CONTRIBUTIONS

Lyndsey Hookway and Amy Brown were responsible for study conception. Lyndsey Hookway was responsible for data collection, analysis and draft manuscript completion. Amy Brown was involved in supervision of statistical analysis. Lyndsey Hookway and Amy Brown were both involved in critical revisions.

### ACKNOWLEDGEMENTS

The authors express their sincere thanks to the healthcare professionals who took part in this study. The authors declare no funding was received for this study.

### CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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### PEER REVIEW

The peer review history for this article is available at <https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/jhn.13202>.

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**How to cite this article:** Hookway L, Brown A. Barriers to optimal breastfeeding of medically complex children in the UK paediatric setting: a mixed methods survey of healthcare professionals. *J Hum Nutr Diet.* 2023;1–17. <https://doi.org/10.1111/jhn.13202>

## APPENDIX: HEALTHCARE PROFESSIONAL SURVEY QUESTIONS

### Section 1: About your clinical experience and where you work

#### 1.1 What is your ethnicity?

White/White British	White/White Irish	Gypsy/traveller	Asian or Asian British: Bangladeshi	Asian or Asian British: Indian	Asian or Asian British: Pakistani
Asian or Asian British: Chinese	Asian or Asian British: Other	Black or Black British	Mixed or multiple	Other	Prefer not to say

#### 1.2 What is your gender?

- Female
- Male
- Trans male
- Trans female
- Gender nonbinary
- Self-defined (please state)
- Prefer not to say

#### 1.3 What is your profession? (Choose one)

- Paediatric nurse
- Healthcare assistant working in paediatrics
- Paediatrician (consultant)
- Paediatrician (clinical fellow)
- Paediatrician (ST 1-6)
- Physiotherapist

- Occupational therapist
- Speech and language therapist
- Dietitian
- Other

1.4 How long have you been qualified? (Choose one)

- Less than 2 years
- 2–5 years
- 5–10 years
- 10–15 years
- 15+ years

1.5 Do you work in a specialist (tertiary) paediatric referral centre or a local hospital? (Choose one)

- Specialist centre
- Local hospital

1.6 Which region best describes where you work?

- England – North
- England – South
- England – East
- England – South West
- England – Central
- England – London
- Wales
- Scotland
- Northern Ireland
- Ireland

1.7 Within your hospital, what kind of environment(s) do you work in? (Allow more than one)

- General paediatric medical/surgical ward
- Ambulatory care/rapid assessment unit
- Emergency department
- PICU
- Cardiac intensive care unit
- Children's outpatients
- Theatre/recovery
- Other

## Section 2: Attitudes and beliefs

2.1 In your opinion, what would help you to be better able to support breastfeeding families on the ward or department where you work? (Allow more than one)

- A breastfeeding policy
- Better undergraduate training
- Specific breastfeeding training that relates to the care of sick children
- Leaflets and handouts available to give to parents on the ward
- A designated paediatric infant feeding team
- Something else?
- I'm not sure

2.2 I believe that breastfeeding is important for children, whether they are unwell or healthy

- Strongly agree

- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

2.3 I believe that supporting parents to reach their breastfeeding goals is an important part of my job

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

### Section 3: Barriers to providing breastfeeding support on the ward/department

3.1 On an average shift, in my ward/department there is enough support for families who are trying to breastfeed

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

3.2 Knowing how busy and stressful it can be on the ward, what do you think are the main barriers to professionals being able to support breastfeeding? (Allow more than one)

- Pressure from healthcare professionals to stop breastfeeding
- Lack of knowledge of how to help
- The need to be able to measure fluid balance
- Infant instability affecting their ability to effectively feed
- Adaptations required to breastfeed due to the child's condition
- Critical care takes precedence
- We don't have the time to support breastfeeding
- Something else?

3.3 What do you think are the main barriers for families who are trying to breastfeed their sick or medically complex child? (Allow more than one)

- Needing to tube feed
- Stress
- Lack of privacy
- Cannot find a breast pump
- Unable to stay with their child
- Need to look after other children
- They feel scared to breastfeed their sick child
- They don't get enough support
- They are advised not to breastfeed
- Something else

**3.4 Thinking about the general attitude towards breastfeeding in your ward or department, how strongly would you agree with the following statements? (Choose one for each statement)**

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
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Our unit values breastfeeding for the nutritional, immunological and psychological impacts it has. Supporting families to meet their breastfeeding goals is something we try to do.

(Continues)

3.4 Thinking about the general attitude towards breastfeeding in your ward or department, how strongly would you agree with the following statements? (Choose one for each statement)	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
The staff on our unit are adequately trained and are able to support most breastfeeding challenges.					
Breastfeeding families generally have a good experience on our unit.					
The multidisciplinary team all work together to try to find solutions that enable breastfeeding to continue alongside clinical care.					
Our unit is a good example of how to support and protect breastfeeding in challenging circumstances.					
I am one of just a few people who advocate for breastfeeding.					

#### Section 4: The organisational structures relating to breastfeeding

4.1 Do you know who the infant feeding lead is? (Choose one)

- Yes
- No
- I'm not sure

4.2 Do you know of any helplines you could refer families to? (Choose one)

- Yes
- No
- I'm not sure

4.3 Are you aware of any websites or resources you could share with families or colleagues? (Choose one)

- Yes
- No
- I'm not sure

4.4 Do you know where the breastfeeding policy is? (Choose one)

- Yes
- No
- I'm not sure

4.5 Was the breastfeeding policy part of your orientation to the ward or unit where you work? (Choose one)

- Yes
- No
- I can't remember

4.6 Is the breastfeeding policy somewhere that is accessible to families wishing to read it? (Choose one)

- Yes
- No
- I'm not sure

Thank you, this is the end of the questionnaire. Thank you for your time, your responses are very much appreciated.

If as a result of taking part you have any questions or concerns about your well-being, we encourage you to contact your midwife, health visitor or GP who can provide you with further information and support. If you have questions about the support or training provision in your department, you can ask your manager.



If you have any questions about your own personal feeding experience, you can also contact one of the breastfeeding organisations:

- National Breastfeeding Helpline 0300 100 0212.
- Association of Breastfeeding Mothers 0300 330 5453.
- La Leche League 0345 120 2918.
- National Childbirth Trust (NCT) 0300 330 0700.
- The Breastfeeding Network Supporter line in Bengali and Sylheti: 0300 456 2421.

## AUTHOR BIOGRAPHIES

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