Level 1 Neonatal Nursing Staff Perceptions of their Role: A qualitative Framework Analysis study investigating the complex and diverse workload undertaken by nurses in special care baby units

Deanna Gibbs **1 PhD**

Deanna.gibbs1@nhs.net

Director of Clinical Research for Neonates and Children (Nursing & AHP)

Nassreen Odeh **2 BSc**

Nassreen.odeh@nhs.net

Senior Sister

Marice Theron **2 MbchB M.Med**

Marice.theron@nhs.net

Consultant Neonatologist

Celia Harding **2,3 PhD; MSc; BSc (Hons); FRCSLT**

C.Harding@city.ac.uk

Honorary professor /Speech and Language Therapist - **Corresponding Author**

1. Barts Health NHS Trust; Corporate Nursing Directorate, 31 -43, Ashfield Street, Whitechapel, London, E1 1RF
2. Neonatal Unit, 6WB, Royal Free Hospitals NHS Foundation Trust, Pond Street, London, NW3 2QG
3. Division of LCS, City, University of London, Northampton Square, London, EC1V 0HB

Abstract

This study investigated Level 1 Special Care Bay Unit (SCBU) nurses' perceptions of the skills required for their role. Eight nurses from a UK inner city Level 1 neonatal unit participated in qualitative interviews about their role. Analyses were based on

data collected from semi -structured interviews supported by open -ended questions and use of a topic guide. The SRQR (Standards for Reporting Qualitative Research) checklist was used as a framework to support the qualitative analytical methods undertaken. Level 1 neonatal nurses reported use of a wide range of skills with a high level of parent – infant engagement. Analysis of the participant interviews revealed six themes: a) balancing nursing workload and demands; b) delivering nursing care in a Level 1 SCBU; c) managing clinical risk and emergencies; d) function and sustainability of a SCBU neonatal team; e) delivering family-centered care; and f) external perceptions of Level 1 nursing care. Work on a Level 1 unit consists of a broad range of skills, possibly greater in scope in comparison with skills used by neonatal nurses on Level 2 and Level 3 units. Further in - depth analysis of this role would be useful for the development of practice skills and for recruitment and retention.

Key words: *Nursing; Level 1 unit; Nursing care; Neonatal care*

1. Introduction

For many parents, learning to care for and cope with a preterm infant on a neonatal unit is challenging (Gallagher et al, 2018). Neonatal settings can be difficult for families to navigate due to changing staff shift patterns of work and understanding the complex medical interventions required (Ionio et al, 2018). Neonatal units vary in the types of care they provide depending on the gestational birth age, and the medical needs of the infant (Bliss,2020; Milligan et al, 2008) (Table 1). Few studies have investigated the depth and

range of nursing skills required in a Level 1 Special Care Baby Unit (SCBU) where nurses use a wider range of interactive skills to support family confidence and independent care for their infant prior to discharge home.

Table 1 : Levels of UK Neonatal Provision (Bliss, 2020)

Level of unit	Type of provision
Level 3 Neonatal Intensive Care Units (NICU)	NICUs provide a high level of support, with infants either being those born below 28 weeks gestation, or infants who have a high medical support requirement, e.g. ventilation, continuous positive airway pressure (CPAP) or other respiratory support to help with breathing; surgery, etc.
Level 2 Local Neonatal Unit (LNU)	LNUs support infants of gestational birth ages of 28 -32 weeks. These infants may still require a high level of medical support, including parenteral nutrition; short - term intensive care; respiratory support needs, some problems which may require n CPAP or high flow nasal cannula oxygen support; cooling treatments; supporting infants from maternity who may become very unwell post birth.
Level 1 Special Care Bay Units (SCBU)	Special Care Baby Units treat infants born at 32 weeks gestation or above. These infants may still require some medical support, but most interventions will be encouraging parental independence and confidence with infant care.

*For nursing skill mix for each unit type see BAPM (2020) Service Standards: https://www.bapm.org/resources/32-service-standards-for-hospitals-providing-neonatal-care-3rd-edition-2010
**For nursing Bands within the profession, see RCN (2020) summary: https://www.rcn.org.uk/

Some studies have considered essential component skills that nurses rate as important within their neonatal roles but most papers have tended to focus on Level 3 units (Abeyazadan et al, 2014; Heinemann et al, 2013; Monterosso et al, 2005; Turner et al, 2014), or considered more than one type of neonatal unit (Rowe et al, 2007; Sheeran et al, 2013). Nurse reports from Level 3 units state that their role includes advocacy for families and participation in clinical and ethical decision – making (Heinemann et al, 2013; Monterosso et al, 2005), as well as providing support, empowerment and education (Abeyazadan et al,

2014; Heinemann et al, 2013; Turner et al, 2014). Reducing parent stress and increasing maternal confidence through practical nurse led support and education (Abeyazadan et al, 2014; Heinemann et al, 2013; Turner et al, 2014) and making environmental adjustments to maximise effective infant care are also considered important elements of daily care (Heinemann et al, 2013; Turner et al, 2014).

Nurse roles across all levels of neonatal unit require parent support and interaction, and given that units are typically stressful settings, parents have perceived inconsistent advice from nurses, poor communication and fewer supported opportunities to develop independent infant care skills (Blomqvist et al, 2012; Flacking et al, 2006; Sheeran et al, 2016; Turner et al, 2014). Studies which specifically investigated Level 1 neonatal care highlighted skills such as reassurance, in particular after transition from another unit, providing guidance and advice, encouraging and reassuring parents as they decrease dependence on nursing care and a reduction in a focus on and use of technology to support infants (Rowe et al, 2007; Sheeran et al, 2013). Interestingly, some studies report core skills evident across all levels of neonatal unit such as providing advice and support to parents, enabling independent parenting skills to develop and coping with transition from a Level 3-unit environment to a different level of unit or home (Abeyazdan et al, 2014; Heinemann et al, 2013; Sheeran et al, 2013).

This study sought to investigate the following:

1. How do neonatal nurses describe their role on a Level 1 unit?
2. How do nurses feel that their role differs from nurses on other levels of neonatal unit (i.e. Level 2 and Level 3 units)?

2.Methods

2.1 Study Design

A qualitative interview approach using Framework Analysis, (Richie & Spencer, 1994) was undertaken to investigate the range of nurse working practices on a Level 1 neonatal unit. Nurse participants were interviewed by a researcher unknown to them, and who had no previous involvement with the unit or care provided to infants and families. Data were collected through qualitative interviews using open-ended questions based on the core areas of; perceptions of the role of a nurse on a Level 1 neonatal unit; skills required for Level 1 neonatal nursing; the challenges relevant to work on a Level 1 neonatal unit, and nurse perceptions of the differences in skills between different levels of neonatal unit. The semi-structured topic guide consisted of questions which were designed in consultation with the senior nursing team.

2.2 Participants

The Level 1 neonatal unit participating in this study is in an inner - city area in the UK. It has close links to both a Level 3 and a Level 2 unit, and regularly receives repatriations from both settings as infants and their parents prepare for discharge home. It has a total of 16 cots, comprising of 14 special care cots, with two emergency care cots. To support infants in the unit, 19 nurses currently work on rota (the work schedule detailing the nurses allocated to specific shifts each week). All nurses were eligible to participate in this study. A self - selecting sample of eight neonatal nursing participants were recruited. Participants were all skilled nursing practitioners who had between 7 - 36 years (mean 20.9 years) work experience as nurses in a variety of medical environments. Participants reported that they had worked from 7 to 31 years in a range of neonatal unit settings. All were female, and two

nurses had spent all of their nursing experiences in neonatal units (P2; P3). No nurses withdrew from the study.

2.3 Ethical Considerations

Potential participants were informed of the study at a staff meeting, provided with Participant Information Sheets about the study and were given a week to decide to take part. They were reassured that they were under no obligation to participate. Staff were given an external contact if they had any concerns about the conduct of the study.

The study protocol was approved by the NHS IRAS ethics committee (IRAS number 249615) and the City, University of London ethics committee. Written consent was obtained from participants prior to participation and data collection. All interview transcripts were assigned a code. The Standards for Reporting Qualitative Research (SPQR) checklist was used to guide the study protocol.

2.4 Data Collection

The interviews were approximately 25 - 55 minutes in length and were conducted in a quiet room on the neonatal unit. The same researcher undertook each interview. A Tascam DR-40 linear PCM recorder was used to audio record interviews.

2.5 Analysis

Data were assigned a code so that participants were not identifiable. Recordings were then transcribed orthographically and thematically analysed using a Framework Approach (Ritchie & Spencer, 1994). NVivo-12 (NVivo for Windows, 2012) software was used to manage data and support the analytical process. The lead researchers became familiarised with data through repeated readings and consideration of the transcripts. Core topics noted within the data were sorted into a set of themes and subthemes (Strauss, 1985). To

corroborate identification of themes and to increase reliability of the coding procedure, a co-author re-coded a sample (25%) of interview transcripts selected at random. There was a high level of agreement in coding and final themes were agreed by consensus.

3.Results

Analysis of the participant interviews revealed six themes pertaining to neonatal nursing in a Level one setting: a) balancing nursing workload and demands: "a jack of all trades"; b) delivering nursing care in SCBU; c) managing clinical risk and emergencies; d) function and sustainability of a SCBU neonatal team; e) 'crucial moments': delivering family-centered care; and f) 'We sit around and feed babies all day': external perceptions of Level 1 nursing care. Data are summarized in Table 2 (contact C.Harding@city.ac.uk for complete table).

-Put Table 2 here -

3.1 Theme 1: Balancing nursing workload and demands: 'A jack of all trades'

This theme explicated the variety of demands required of the nursing workforce providing care for infants and their families in a SCBU. Nurses described needing the clinical skills and experience as well as positive benefits when working with medically stable infants preparing for discharge home, while also providing individualised and supportive intensive care immediately post-delivery for fragile infants. This balance between supporting infants towards discharge and the requirement to care for very sick and fragile infants could leave them feeling overwhelmed at times. This SCBU has less access to a neonatal consultant thereby increasing autonomy and responsibility unlike other units.

3.2 Theme 2: Delivering nursing care in a Level 1 SCBU

This theme focused on the specific nursing skills required and acquisition of skills needed to work on a Level 1 unit. Data were collapsed into three sub-themes: a) Nursing skills and competencies; b) Education and professional development pathways; and c) Becoming a Level 1 neonatal nurse: forced or chosen transitions.

a) Nursing skills and competencies

To deliver safe and effective care on the SCBU, nurses valued the retention of intensive care nursing skills in order to provide care for infants in emergent delivery situations while awaiting transfer. There was a perception that all of the nursing workforce required an equivalent level of intensive care training as nurses working in a Level 3 NICU (neonatal intensive care unit).

Others commented on the requirement for Level 1 SCBU nurses to provide the majority of cannulations and blood sampling required for infant care (as opposed to being performed by medical staff in other settings). Communication with families was also identified as an essential skill by the nurse participants, incorporating empathic listening and ensuring sufficient time for sensitive communication.

b) Education and professional development pathways

Nurses described the requirement to undertake a speciality neonatal qualification, and that a rotational programme with the linked Level 2 neonatal unit enabled their completion of the HDU (high dependency unit) and ITU (Intensive Therapy Unit) aspects of their training, along with shadowing more experienced colleagues. Others mentioned specific course training they had undertaken in relation to breast-feeding and developmental care. However, the predominant thread in their narratives was the necessity of learning from experience. This was linked with both the variation in case presentation and acuity in the Level 1 unit, but also

their perception that some essential nursing qualities were not attributes that are easily taught in a traditional skills or knowledge based approach.

c) Becoming a Level 1 neonatal nurse: forced or chosen transitions

Participants had some experience of working in a Level 2 or level 3 unit. They identified this as helping to equip them with the core clinical skills and experience required to care for infants requiring respiratory support. Transition to working in a SCBU was varied. A number of nurses had worked at the study setting for many years, commencing work in the unit when it was classified as a level 2 unit. These nurses initially felt that their role had been 'downgraded' and they would be dissatisfied with the new model of working.

However, for other nurses, it was a definite choice to move to a SCBU setting. One participant described that it was as a result of working in a level 3 unit and bearing witness to parent distress that had promoted her interest in working in a level 1 unit and provide a model of care that positioned parental support as a central component of care.

There was pragmatic recognition that recruitment and retention of nursing staff to a level 1 unit remained a challenge. Participants acknowledged that some nurses viewed their role as a means of gaining experience before transitioning to a Level 2 or 3 unit. Senior nursing staff also acknowledged that filling some nursing posts as a rotational arrangement from a linked Level 2 unit could assist by giving nurses a taste of work practices in a SCBU , which may spark a previously unknown interest in working in this aspect of the neonatal pathway.

3.3 Theme 3: Managing clinical risk

Nurses described having access to one neonatal consultant, and being supported by more generalist paediatric staff when the consultant was not available. Consequently, nurses were conscious that this significantly raised their responsibility for clinical decision making.

They contrasted the ready availability of consultant, specialist registrar and junior grade doctors who work in Level 2 and 3 units, with their own situation where they were often in a position of trying to call doctors from other paediatric clinical areas to the unit in emergent situations who may be less familiar with the standard clinical guidelines for neonatal caregiving.

They felt that they were placed in a position of having to either educate or advocate for a type of caregiving that was different to that suggested by their medical colleague. Overall, this perception of additional clinical risk could leave nurses with a sense of isolation and increased responsibility that their nursing counterparts in higher intensity units did not have to face.

3.4 Theme 4: Team function and sustainability of a Level 1 Unit neonatal team

a) Managing team dynamics

Shifts typically were covered by three nurses with an evident requirement for the nurses to work collaboratively together. Managing staff resources was further exacerbated if one of the nurses was called to the delivery suite and then required for 1:1 nursing of a high-risk infant awaiting transfer, leaving the remaining two nurses to plan and deliver care for all of the remaining infants on the unit. Nurses described the need to be flexible and organised.

A further layer of complexity was identified in ensuring that there was an adequate skill mix of nursing staff available on each shift. Due to the potential for emergency admissions, the nurses were cognisant of the need for at least two staff who had specialist training and experience in nursing infants with high dependency or intensive care support needs. However, they recognised that their neonatal nursing establishment also incorporated nurses who may not have had that specialist level of expertise. Nurses gave the impression that the success of team working was something that needed to be considered at every shift

given the make-up of the staff establishment and the complexity of infant care being provided.

b) Recruitment and retention

Difficulties in recruitment were focused on the appetite of neonatal nurses to work in a stand-alone SCBU. Participants perceived that neonatal nurses would prefer to seek employment in higher-intensity care settings due to the training and experience involved.

Second was the geographical location of the unit in the centre of a high-density, urban area of a major city and the transitional nature of the workforce. It was recognised that some nurses might work for a few years in this type of locality following graduation before transitioning to a different part of the country. As a result, they felt that nurses are more focused on gaining a range of clinical expertise during this period. There was also a reflection that it was equally as difficult to recruit senior and more experienced staff due to the unit's location, with these individuals being less likely to want to travel into a major urban centre for work. This could impact on the necessary mix of nursing skills as recommended by the British Association of Perinatal Medicine (BAPM ; 2020).

3.5 Theme 5: Crucial Moments: delivering family-centred care

a) Relationship-based care: time to care

Nurses reflected that the model of care they provided gave them additional time to focus on the delivery of relationship-based care. All participants recognised the importance of collaborating with and supporting the infant's parents and family emotionally and educationally as they came towards the end of the SCBU admission. For some nurses, there was recognition that earlier parent experience may have been negatively impacted by the care required by their infant in an intensive care setting, and they saw transition through the SCBU as a time of recovery for both parents and their relationship with their infant.

b) Impact on parents

Providing a family-centred approach heightened nurse sensitivity to psychological factors that were impacting on parent well-being. While they felt confident and competent in providing the clinical care infants required, they noted that supporting parent emotional and psychological well-being was harder. Establishing a supportive communication relationship with families often meant that parents were more trusting to share their emotions and impact with nurses.

c) Preparing for home

Participants described preparing families for home was less technical and more practical in terms of establishing what was needed for a successful discharge. They described the use of an individualised approach for each infant and family as nurses assessed the infants' progression, what needed to be enabled in order for discharge to occur, and how the care plan would be delivered to support the best outcomes.

3.6 Theme 6: "We sit around and feed babies all day": External perceptions of level one nursing care

All participants expressed the perspective that their contribution to care was perceived negatively by their nursing colleagues who work in Level 2 and 3 units. They felt that the complexity of providing emergency and high-intensity care alongside a family-centred approach for discharge was not acknowledged by their colleagues, and this was perceived as unfair and frustrating. As a small 16 cot unit, one of the participants also identified that the SCBU lacked visibility in terms of the broader hospital management structure.

4.Discussion

This study sought to investigate how neonatal nurses described their role working on a Level 1 neonatal unit, including how this was perceived to be different from neonatal nurse roles on other units.

Themes in both the literature and our SCBU study were relevant to all levels of neonatal care. Specifically, participants reported infant stability pre-transfer (Rowe et al, 2007), diversity of clinical work (Turner et al, 2014) and parent advocacy and support (Monterosso et al, 2005; Abdeyazdan et al, 2014). In contrast with studies which report increased nursing time spent on equipment related tasks as in Level 3 units (Milligan et al, 2008; Turner et al, 2014), participants in this study appreciated what they felt was the increase in time for more parent and infant support within a Level 1-unit setting, reporting that this "time to care" was in contrast with having to complete more direct equipment monitoring and checking tasks which would reduce interaction opportunities (Rowe et al, 2007 ; Sheeran et al, 2013). Interestingly, none of the nurse participants interviewed for this study referred to any problems experienced on shifts with lack of relevant team skills to manage the neonatal caseload (BAPM, 2020).

Developmental care can support and minimise many environmental challenges in the neonatal setting (Altimier, et al, 2015). Participants mentioned that environmental management and developmental care were essential and that as nurses on a Level 1 unit they had the resources and skills to do this. Interestingly, comments did not focus on details of developmental care approaches, but more on the importance of experience in relation to interpreting and supporting the parent – infant dyad. Although some research identifies that nurses are in a good position to provide support and reduce stress, it is challenging to identify and quantify clearly what these actual skills are (Aagaard & Hall, 2008; Smith et al, 2011).

There has been an underlying difficulty with recruitment to neonatal units in the UK, and participants in this study also discussed recruitment to their Level 1 unit. The Advanced Neonatal Nurse Practitioner (ANNP) role in neonatal care was evolved to enhance the quality of neonatal nursing, reduce fluctuations in care and support workforce provision (Smith & Hall, 2011). Understaffing can alter priorities given to managing the workload on neonatal units and lead to less interaction with families and increased focus on other necessary tasks (Turner et al, 2014; Pillay et al, 2012). Maintaining a wide range of nursing skills, including resourcing less frequently used clinical knowledge for supporting fragile infants in an emergency context could be a risk factor that may prohibit some nurses for deciding to work on a SCBU.

The perceived type and range of clinical activities involving greater parent – nurse interaction is important, as participants in this study rated their abilities to spend time with parents and infants highly. Some reported that when they first went to work on a Level 1 unit, they expected to be "bored", but were actually stimulated by the change of work. Participants felt strongly that nurses in Level 2 and Level 3 units did not value the type of work that involved a high level of direct parent support. Subsequently, it was felt that this perception impacted on recruitment along with the unique medical team mix and requirement to support emergencies on maternity. Some approaches to resolve this problem such as rotation opportunities with a Level 2 unit in the same trust have not resolved the issue. Considerations to raise the profile of the importance of the Level 1 unit to other potential nursing staff, alongside maintaining the value and visibility of the unique work and skill set needed to senior management colleagues within the institution remains essential.

The findings from this study are based on a small single - centre sample of nurses, and therefore it is difficult to make generalisations. In addition, it would be useful to include managers within hospital trusts in future studies to understand the neonatal workforce and

consider funding priorities and decision making. Managers may consider the issues raised in this study from an alternative perspective with different priorities, such as maternity leave or overseas recruitment (Paterson et al, 2020). Similar investigations across a greater number of Level 1 neonatal units to identify key skills in more depth would be useful.

5.Conclusions

Participants reported that they had an important role in supporting parents, carers and infants to gain confidence in developing care skills so that a successful transition to the home setting can take place as described by Rowe et al (2007) and Sheeran et al (2013). Level 1 neonatal units have a vital role in the support of these families, with a different weighting of skills required to achieve these outcomes in comparison with Level 2 and Level 3 units. Because interactive and supportive skills are difficult to quantify and measure, they are often under-rated. Some skills associated more with Level 2 or 3 units such as emergency management of infants from maternity are required, but on a less regular basis. This could be a clinical risk factor, along with the different medical team composition compared to other Level 2 and 3 units, but equally, it could also be indicative of the necessary, diverse and unique skills mix needed for a Level 1 unit, indicating a highly specialist clinical profile. Future studies which carefully investigate accurate quantification of specific attributes of SCBU nursing would be beneficial. Education and learning opportunities tailored for Level 1 settings may increase interest and thus potentially reduce some of the recruitment challenges experienced.

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