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Fathers' perceptions of the barriers and facilitators to their involvement with their newborn hospitalised in the neonatal intensive care unit

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Aims and objectives. To explore what fathers perceive to be facilitators or barriers to their involvement with their infants.
Background. Fathers make unique and important contributions to the development of their infants. Fathers of infants in the neonatal intensive care unit often feel that they have a limited role to play in their infant's care, and surveys suggest that they are not typically involved in infant caregiving. Paradoxically, qualitative studies have found that fathers do want to be involved, and their lack of involvement is an important source of stress.
Design. Qualitative descriptive.
Methods. Eighteen fathers of infants, in the neonatal intensive care unit for at least one week, were interviewed and asked to describe what they perceived to be the barriers and facilitators to their involvement. Interviews were audio taped and transcribed, and the data was content analysed.
Results. Three major categories of barriers/facilitators were identified: (1) infant factors (size and health status, twin birth and infant feedback), (2) interpersonal factors (the rewards of and attitudes and beliefs regarding fatherhood; family management; previous experiences) and (3) neonatal intensive care unit environmental factors (physical and social). These factors could often be a barrier or facilitator to involvement depending on the context.
Conclusions. This study provides insights into what factors influence involvement, and how nursing staff can support involvement and best meet fathers' needs.
Relevance to clinical practice. Nurses should explore the forms of involvement that a father desires, as well as the demands on their time, and determine what might be done to promote involvement. Fathers should be assisted to maximise the time that they do have with the infant. Nurses must provide clear and consistent information about whether and when caregiving is advisable, and they can explain and demonstrate how fathers can care for their infant.

Key words: barriers, facilitators, father, involvement, neonatal intensive care unit

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Introduction

Most infants admitted to the neonatal intensive care unit (NICU) are born prematurely and have low birthweight or a medical condition that requires intensive medical and nursing care, sometimes for several months following birth. During this hospitalisation, parents are unable to assume the role of primary caregiver for their infant. Having a newborn hospitalised in critical care is stressful for both mothers and fathers. A unique source of stress for fathers is their need to manage

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the demands of their employment, their spouse and other children, at the same time as they wish to devote time to their newborn (Lundqvist & Jakobsson 2003, Pohlman 2005).

Many NICUs have adopted a family-centred approach to care, whereby mothers, fathers, siblings and extended family are considered to be the recipients of care (Saunders *et al.* 2003). Family-centred care involves supporting collaboration between staff and parents, providing care that supports families, incorporating the needs of both the children and their parents into care and care delivery and promoting the involvement of parents in their child's care (Bruce *et al.* 2002). One critical indicator of family-centred care is whether parents feel they are able to participate in their infant's care to the level they desire (Saunders *et al.* 2003). Despite the prevalence of family-centred care, parents may feel that they play a limited role in the care of their infant. An American national survey of 500 parents of preterm infants requiring NICU hospitalisation by the March of Dimes found that 78% of parents felt that they were as involved in the NICU with their infant's care as they wanted to be, but 22% wished to be more involved (Berns *et al.* 2007). Studies have found that the most stressful aspect of the NICU hospitalisation, for both mothers and fathers, is the disruption to their parental role and their relationship with their infant (Hughes & McCollum 1994, Dudek-Shriber 2004, Joseph *et al.* 2007). Particularly, stressful for some fathers is the separation from the infant and their inability to comfort or hold their infant (Joseph *et al.* 2007). They may feel ignored by staff (Lindberg *et al.* 2007), and some find it difficult when they are not able to participate in their infant's care (Lundqvist & Jakobsson 2003, Pohlman 2005). Fathers have also indicated that they wish to be involved in decisions about care (Lindberg *et al.* 2007).

Lamb (1987) proposed that there are three aspects of fathers' involvement: (1) interaction (e.g. direct caregiving), (2) availability (e.g. presence) and (3) responsibility (e.g. ensuring the child is cared for). Although fathers' involvement may be quantitatively different from mothers', fathers make unique and important contributions to the social, emotional and cognitive development of their children beginning in infancy (Horn 2000). In healthy children, father involvement has been associated with enhanced social skills, cognitive development, self-confidence, exploration and educational performance, and fewer behavioural problems (Palkovitz 2002, Sarkadi *et al.* 2008). To date, only a very few studies have examined the effects of fathers' involvement on children requiring NICU hospitalisation. There is some beginning evidence that fathers' involvement in the NICU may have positive outcomes for former NICU infants, including later positive patterns of interacting with the infant, and better infant cognitive development at eight and 18 months and at three years (Levy-Shiff *et al.* 1990, Yogman *et al.* 1995). Thus, given the evidence that fathers' involvement is important for the healthy development of children, it would be important to understand the factors that facilitate or impede involvement during the NICU hospitalisation.

Background

Surveys reveal that fathers do visit their infant in the NICU; however, they visit less frequently and for shorter periods than mothers (Franck & Spencer 2003, Latva *et al.* 2007). Fathers who visit more often are more likely to be involved in caregiving (Levy-Shiff *et al.* 1990). Evidence indicates that almost all fathers participate in social activities during NICU visitation, such as touching, talking or holding, yet only 20% engage in feeding and bathing compared to 75% of mothers (Franck & Spencer 2003). Studies of American and Taiwanese fathers suggest that this pattern continues following discharge. Fathers of former NICU infants prefer to do household chores rather than direct infant care such as feeding or bathing (Lee *et al.* 2009), and they are more likely to perform chores compared to fathers of non-hospitalised infants, who engage in both chores and infant care (Boukydis *et al.* 1987). Taiwanese fathers often described their role as the assistant to the infant's mother and were reluctant to touch their child because of fear of infection and concerns about the infant's fragility (Lee *et al.* 2009). Paradoxically, touching and holding the infant are particularly salient for paternal identity. Before they are able to touch or hold their infant or have physical or eye contact, fathers of infants requiring NICU hospitalisation have reported that they do not feel like fathers (Sullivan 1999, Jackson *et al.* 2003, Lindberg *et al.* 2007, Lee *et al.* 2009). It is unclear as to why, despite wishing to be involved in the infant's care, fathers of NICU infants may be less involved than fathers of their non-hospitalised counterparts. NICU staff have been reported to deter fathers from holding their infant (Lee *et al.* 2009). Researchers have also speculated about possible barriers to involvement, and these include nurses' beliefs about fathers' role (Franck & Spencer 2003), nurses' beliefs about what is stressful for immature infants (e.g. if nurses believe that social interaction and handling of the infant by parents is stressful for the infant, then they will limit parent's involvement) (Miller & Holditch-Davis 1992), and fathers' own belief that nurses and mothers provide the best care (Lee *et al.* 2009). Evidence points to support as a possible facilitator of involvement. A study of Israeli fathers found that fathers with greater overall support were more involved in infant care in the NICU (Auslander *et al.* 2003).

To summarise, current evidence suggests that fathers do visit their newborn but may not be involved in providing infant care. Many fathers want to be involved in infant care, and their lack of involvement is often a source of stress. Studies are needed that provide insight into what factors influence involvement, and how nursing staff can support involvement. Fathers' involvement is important for the healthy development of their young children. Parke *et al.* (2005) argued that studies must explore men's own reports of their perspectives on their role. Thus, the purpose of this study was to describe fathers' perceptions of the facilitators and barriers to their involvement with their infant.

Methods

A qualitative descriptive design was used to examine the barriers and facilitators to involvement. Qualitative descriptive studies provide a straightforward description of an event, process or experience in common language and are effective for shedding light on poorly understood events or experiences (Sandelowski 2000). Minimally to moderately structured interviews are typically employed to collect data, and content analysis with little interpretation is often employed for data analysis (Sullivan-Bolyai *et al.* 2005). The researcher summarises the data gathered in a way that remains close to the descriptions provided by the participants. Hence, this design can provide answers to clinically relevant questions, and important data about how nursing practice can be improved and is suitable to explore fathers' views of the factors that shape involvement.

Fathers were recruited from two open-space design NICUs (i.e. one large open room) in a major Canadian urban centre that have a policy advocating family-centred nursing care and parent involvement in infant care. Fathers were included if: (1) they were the infant's biological father and lived with the infant's mother, (2) their infant had been hospitalised for at least seven days, (3) their infant's medical condition was stable and (4) they could communicate in English or French. Fathers were excluded if: (1) they had a previous child hospitalised in the NICU as previous experience may affect involvement and (2) the infant had a grade 3 or 4 intraventricular haemorrhage or a major congenital anomaly, as these conditions present special challenges.

After obtaining approval from the Institutional Review Board at both study sites, fathers meeting the inclusion criteria were identified. Eligible fathers were first approached by a member of the clinical staff to obtain their permission for research staff to contact them about the study. Interested fathers were then contacted by research staff, the study was explained, and if verbal consent was given, an appointment was made for the interview to take place. At that appointment, written informed consent was obtained, and semi-structured interviews were conducted by a female interviewer in a private room adjacent to the NICU with no other persons present. The main guiding interview questions were as follows: 'What helps you to be involved with your baby at this time, and how? What makes it difficult for you to be involved, and how?' Interviews were audio recorded and lasted between 45–90 minutes. Participants completed a demographic questionnaire, and data pertaining to the infant's condition were gathered from the medical record. The interview data were subjected to inductive content analysis (Sandelowski 2000). Analysis and interviews occurred concurrently. First, transcripts of the interviews were verified for accuracy, and notes recorded following the interview were inserted into the transcripts. Transcripts were read thoroughly, statements relating to barriers and facilitators to involvement were identified, and preliminary codes were assigned with NVIVO software (QSR International Pty Ltd, Doncaster, Victoria, Australia). These codes were further examined and compared between transcripts as data collection continued. Related codes were eventually collapsed into broader categories. The research team met on several occasions during data collection to review transcripts discuss coding and the development of categories. After 18 interviews, data saturation was achieved as no new categories of barriers and facilitators of involvement were identified. Descriptive statistics were used to describe the characteristics of the participants and their infants.

Three aspects of rigour relevant to a qualitative inquiry were addressed. To assure credibility, participants guided the interview process, representative quotes from the interviews are included in this report, and the research team discussed the analyses until consensus was achieved (Graneheim & Lundman 2004). Confirmability was addressed through the maintenance of an audit trail (i.e. notes about the interviews and decision-making during the analytic process) (Tobin & Begley 2004). A thorough description of the study's methodology, the setting and the participants will allow readers to ascertain the transferability of the findings (Thomas & Magilvy 2011).

Results

Participant characteristics

The characteristics of the 18 men who participated and their infants are outlined in Tables 1 and 2. Fathers were on average 37·7 years old (SD = 5·0). Eight (44·4%) were currently on paternity leave, and 10 (55·5%) were working. Fifteen fathers had a singleton newborn hospitalised (one a

Table 1 Father demographic characteristics (n = 18)

Characteristic	n (%)
Education	
Junior college or less	10 (55·6)
University	8 (44·4)
Currently employed	
Yes	18 (100·0)
No	0 (0·0)
Country of birth	
Canada	12 (66·7)
Other	6 (33·3)
Language spoken	
English	4 (22·8)
French	9 (50·0)
Other	5 (27·8)

Table 2 Infant characteristics (n = 21)

Characteristics	n (%)
Reason for admission	
Prematurity	21 (100·0)
Mode of birth	
Spontaneous vaginal delivery	4 (19·0)
Caesarean section	16 (76·2)
Missing data	1 (5·2)
Weight at time of interview	2103 g (461·6)*
Mode of feeding	
Breast	19 (90·5)
Mixed	2 (9·5)
Medical treatments	
Mechanical ventilation/high-frequency ventilation	15 (71·4)
CPAP/HFNC	18 (85·7)
Intravenous or central line	21 (100·0)
Isolation	0 (0·0)
Chest tube	1 (4·8)
Gavage/TPN	18 (85·7)

*Mean (SD).
CPAP, continuous positive airway pressure; HFNC, high-flow nasal cannula; TPN, total parenteral nutrition.
All values presented as n (%) unless otherwise indicated.

surviving twin), and three had twins. Nine (50%) were first-time fathers. The infants' mean gestational age at birth was 202·3 days (SD = 20·9), and the mean birthweight was 1172·8 g (SD = 484·5). At the time of the interviews, the infants were on average 55 days old (SD = 30·2).

Three major categories of barriers or facilitators to involvement in the NICU were identified: (1) infant factors, (2) interpersonal factors and (3) environmental factors (Table 3). Most factors could act as either a barrier or facilitator, depending on the context.

Table 3 Factors influencing fathers involvement

Categories	Subcategories
Infant factors	Size and health status of the infant
	Twin birth
	Feedback from the infant
Interpersonal factors	Rewards of, and attitudes and beliefs concerning fatherhood
	Family management and finding balance
	Previous experience
Environmental factors	The physical environment of the NICU
	The social environment of the NICU

NICU, neonatal intensive care unit.

Infant factors influencing involvement

Fathers reported that their involvement was influenced by several infant-related factors: the infant's size and health status, twin birth as well as feedback from the infant.

Size and health status of the infant

Fathers described being fearful of harming their small, fragile infant and were reluctant to touch, hold and care for them. 'When I did not want to change the diaper, it was because the baby only weighed two or three pounds' (Father 1-09). Some even feared that they might harm their child by providing care. One father attributed his fear to the infant's fragile skin and size, stating 'Our baby was born at 640 g; his skin was very, very thin. You were scared to touch him' (Father 1-12). Fathers tended to become more involved with time as the health status of their infant improved, as indicated by the infant's weight, 'It is with time as he grew that we became more comfortable to act' (Father 1-03).

Twin birth

Fathers of twins noted that having two infants facilitated involvement because there was often an obvious need for more than one caregiver. They noted that there was so much caregiving required with two infants that both mother and father needed to be involved. These fathers described the routines and roles that they and their partner had developed around various caregiving activities, such as feeding. Both the mother and father could both participate in caregiving activities with an infant, with each having their designated role. For example, the father might burp one twin, while the mother fed the other. Or while the mother was breastfeeding one twin, the father could prepare the other infant for feeding by changing the diaper.

Feedback from the infant

Involvement could be reinforced by positive feedback from the child, while negative feedback served as a barrier. Fathers looked for and often enjoyed the response of their infants to their involvement. 'I just wanted to stay there. She doesn't have control over her smiles, but she had her two eyes on me, and she was making little smiles' (Father 2-05). Fathers remained in the NICU for longer periods of time as the infant became more responsive and began to exhibit new behaviours. In turn, increased presence allowed for greater and more varied forms of involvement. Fathers actively attempted to elicit infant responses by engaging in playful interactions. 'It makes the babies laugh, it makes them react, and then Dad is happy!' (Father 1-03). When the father perceived the infant's response to be positive, this led fathers to be more involved. On the other hand, negative infant responses could curtail involvement. As one father explained, 'I don't give him his bath because he cries the whole time. I don't like that' (Father 1-09).

Interpersonal factors influencing involvement

Fathers perceived that a range of interpersonal factors played a role in their ability to be involved. These included the rewards of and their attitudes and beliefs concerning fatherhood, family responsibilities, support and previous personal experiences.

Rewards of and attitudes and beliefs concerning fatherhood

Fathers experienced many benefits from having physical contact with their infant. One father stated, 'Holding [his baby] is just out of this world' (Father 1-02) and reported that his stress was diminished afterwards. Also, strong feelings were evoked when they were able to be involved. These feelings reinforced and motivated further involvement. Fathers felt love for their infants and missed them when they were not able to spend time with them. 'If I don't come one day I feel like I'm missing her, and need to be with her' (Father 1-04). Another factor that motivated fathers to be involved was their desire to develop an attachment to and have their child recognise them as their parent. This desire motivated fathers to speak to their child, tell stories or engage in one-sided conversations. As one participant explained, 'To sit down and say a few words. I know the kid hears. I know the child understands. I want to make sure that he realizes that voice is me' (Father 1-05).

Fathers held differing beliefs regarding their influence on the infant and their role in care. Some believed that their presence had an important and positive effect on the child. 'I think it has a really big impact on the baby, me being around all the time' (Father 1-06). These fathers visited as much as possible, allowing for greater involvement. One father explained, 'I became a father because I have things to teach, values to impart' (Father 1-01). He chose to be very involved while his child was hospitalised to fulfil the role that he envisioned for himself. Fathers who believed that their involvement affected the child's development and well-being engaged in activities, such as feeding and bathing. In contrast, fathers who believed that mothers' involvement was of greater importance were less involved as they envisioned their role as a support to mothers' caregiving. 'When a child is born, the mother is very important to the child. The time that I have should be spent providing things – in the background, making sure everything is there. The infrastructure' (Father 1-05).

Family management and balancing demands

Fathers' involvement could be adversely affected by the numerous conflicting demands they confronted. In contrast, paternity leave and instrumental support contributed to greater involvement. Some fathers' time with their infant was limited owing to multiple demands. They juggled housework, employment, supporting their spouse and caring for siblings, along with their desire to be involved with their infant. One father explained, 'Trying to manage everything together has an impact. Work, come home, do laundry, clean the house, take care of my son, go to the internet, work, wake up. It's just a continuous cycle' (Father 1-02). Paternity or other types of employment leaves allowed for greater presence, contributing to greater involvement. As the same father noted, 'When my company gave me two weeks off, I was here Monday to Friday' (Father 1-02).

Mothers affected paternal involvement both directly and indirectly. Mothers facilitated involvement by encouraging fathers to engage in caregiving. Some couples developed a routine around a caregiving activity, carving out a specific role for the father. For example, in preparation for a feeding, the father would hold the infant while his partner pumped milk from her breasts. Nonetheless, some mothers overtly discouraged fathers' involvement. One father described his spouse as 'nervous about me holding the baby' (Father 2-02). She opposed his handling of the infant and panicked when he did so. Her response thus deterred his involvement.

Mothers also affected involvement indirectly. They were typically implicated in decision-making concerning the timing of a paternity leave, and fathers often deferred to mothers' preferences. Fathers who took their leave during the hospitalisation were more available, while those taking their leave following discharge continued to work, and hence, the time they had to spend with their infant was more limited.

Mothers' physical and emotional well-being following childbirth also played a role, but the effects were variable depending on the circumstances. When a mother was unwell following birth, and not able to be present in the NICU, her partner often spent much time with the infant, and this greatly facilitated involvement. For others whose partner was unwell, they had to divide their time between caring for their partner and spending time with the infant. When the mother was well again and able to visit, fathers felt the need to step back to allow for their partner to be involved, and this was often difficult.

Support

Instrumental support from family and friends, including meal preparation and assistance with household tasks and childcare diminished demands, and this in turn provided time for fathers' involvement. 'I have my in-laws…they are always there, whether it be for moral or practical support' (Father 1-09). The men greatly appreciated any form of support that allowed them to spend more time with their infant. Some fathers turned to online chat rooms dedicated to parents experiencing their infant's hospitalisation and used the concrete advice acquired there to guide their involvement.

Previous experiences

Previous childcare, hospital and life experiences influenced involvement. In spite of having other children, many fathers perceived that this experience did not facilitate involvement. They felt uncomfortable and uncertain as to how to be involved with their hospitalised newborn, because their other children had not been born premature. In contrast, previous hospital experience was perceived as beneficial. Fathers who experienced the hospitalisation of an older child or another family member believed that their familiarity with the hospital setting and medical terminology helped them to feel less overwhelmed. This in turn allowed them to focus on their infant and be involved. For the same reasons, participation in a tour of the NICU prior to the birth of the infant also facilitated involvement. Learning from negative life experiences and having a positive outlook were described as indirectly facilitating involvement by helping fathers feel less overwhelmed by their infant's health status and hospitalisation. Fathers who felt less overwhelmed were better able to be involved with their infants.

NICU environmental factors influencing involvement

Both the concrete, physical aspects of the critical care environment and the social context shaped fathers' involvement.

The physical environment

The infant's hospitalisation limited the types of activities that fathers could engage in with their child. Activities that they anticipated to engage in were now impossible because of the circumstances. As one father stated, 'I can't bring her to the park, or bring her out for a walk… You're in a controlled environment' (Father 2-02). Moreover, isolettes and other types of equipment presented obvious physical barriers to involvement. One father described how the 'tubes' and 'wires' made him reluctant to provide care for his infant, stating 'I was always afraid, you know… I tried once, she started desaturating and the nurse said ''Let me take her from your arms.'' I didn't feel comfortable, really' (Father 1-02). Furthermore, fathers felt that because the appearance of the NICU did not resemble the home environment, this deterred their involvement. One father thought that this was particularly important in the step-down unit and explained, 'More space and more chairs and nice decor – so there is a bit of soul would help' (Father 1-11).

Fathers of twins described the special challenges that arose when their infants were located in different areas of the NICU. The physical separation of the infants made it difficult to be involved with both infants. In contrast, when twins were located in close physical proximity to one another, fathers took advantage of this opportunity to have contact with both infants simultaneously.

The social environment

A number of aspects of the social context of the NICU promoted involvement. In the two open-spaced NICUs where this study took place, fathers saw other parents holding or diapering their infants, and this led to the realisation that involvement was possible and permitted. Observing other parents also motivated fathers to become involved. Both study sites have open visiting policies that allowed fathers unlimited access to the NICU. Busy fathers could spend time with their infant whenever it was possible. Many visited in the evening or at night. As one father noted, 'I can come here whenever I want – 24 hours' (Father 1-08).

The medical jargon used by staff served as a barrier to involvement. When fathers did not understand what was said to them about their infants' medical condition or care, this deterred involvement as they were anxious about handling the infant. Moreover, healthcare professionals, nurses in particular, acted as gatekeepers. In some cases, nurses explicitly stated that they could not handle or provide care to the infant. 'One nurse told us ''The baby does not like to be touched,'' so we did not touch her' (Father 2-01). Fathers also received mixed messages from staff. 'Some said ''you should touch him.'' Some said ''you shouldn't touch him''' (Father

1-08). Mixed messages created confusion and a reluctance to be involved until a clear message was provided. Some fathers waited for staff to invite them to become involved before doing so. This led to delays in their initiation of caregiving activities.

Conversely, when nurses provided information, encouragement to become involved and coaching, involvement was fostered. Fathers were involved in decision-making about the infant's care when staff shared information and provided the opportunity to ask questions. 'Yeah, getting involved in the decision process was easier at night. I could talk and ask questions' (Father 1-02). Fathers required information regarding the infant's health status and would begin participating in caregiving when told that their infant was stable enough to be handled. One father stated, 'I don't know what else I can do' (Father 2-02). His involvement at the time was limited to providing 'moral support' to his wife. Fathers who were unable to conceive of how they could be involved looked to nurses to provide guidance as to when and how they could be. Even when they were aware that they could engage in infant care, they still looked for encouragement and support from nurses to begin to do so.

Fathers also described how nurses acted as role models. They carefully observed nurses providing care to their infant and learned how to do so, thus facilitating their involvement. Explicit verbal encouragement from nursing staff or their partner helped fathers to begin to partake in caregiving activities. Once they began to engage in activities, such as holding and feeding, continued coaching and feedback was appreciated. One father explained, 'If the nurses were passing by and there was any improvement needed, then they would make suggestions' (Father 1-07). Fathers who felt unsure gained confidence from the feedback they received. This allowed them to eventually become more independently involved.

Discussion

The study findings indicate that a range of infant, interpersonal and environmental factors appear to act as barriers or facilitators to fathers' involvement with their infant during the NICU hospitalisation. Fathers perceived that the infant's physical attributes affect their involvement, and this finding is consistent with a study of Taiwanese fathers who found that fears of harming the infant prevented men from engaging in physical contact (Lee *et al.* 2009). However, while few Taiwanese fathers had touched or held their infant prior to discharge, all of the fathers in the current study had already done so. Nonetheless, many did describe their hesitancy to hold or care for their infant before they reached a particular weight.

Feedback from the infant played a role in shaping involvement, and this finding echoes that of a meta-synthesis of studies of fathers of healthy newborns who found that men experience rewards for their involvement when they receive positive feedback from their infant (Goodman 2005). When fathers observed what they perceived to be a positive response from their infant, this acted as an important motivator for further involvement. A biological mechanism for paternal behaviour may exist (Feldman *et al.* 2010). Evidence indicates that eye contact, one specific but common form of infant feedback, is highly salient to fathers of NICU infants (Sullivan 1999, Lundqvist *et al.* 2007, Lee *et al.* 2009). Mothers shown images of their infant's face have activation of dopaminergic pathways that are associated with motivation and reinforcement of behaviour (Strathearn *et al.* 2008). Thus, feedback from the infant may activate a biological mechanism for paternal involvement. In the current study, some fathers understood that their infant might not be capable of providing feedback at the time because of their immaturity. However, others mistakenly interpreted the infant's lack of responsiveness to some failure on their part, hindering involvement. Nurses should help fathers to develop realistic expectations of their infant's behaviour and help them to learn, observe and interpret the subtle cues that infants emit. This may be important to motivate involvement. The Newborn Behavioral Observations tool would be useful to assist nurses to help fathers learn to interpret infant cues (Nugent 2007). This tool was designed to facilitate the relationship between parents and their newborns and can be used with infants and their parents in the NICU.

Researchers have speculated as to why some fathers are more involved with their children than others. Our findings support the assertion that fathers' beliefs and the specific demands of the family situation can affect involvement (Jia & Schoppe-Sullivan 2011). In the current study, a variety of different beliefs about the fathering role and the impact of fathers on child development motivated involvement in the context of an infant's intensive care hospitalisation. Previous studies have described the multiple, competing demands that fathers must manage during the NICU hospitalisation (Lundqvist & Jakobsson 2003) and identified that these demands pose a barrier to visitation (Wigert *et al.* 2010). Our study extends knowledge by indicating how these demands also influence involvement. One key factor that could ease demands was paternity leave. In the Canadian province where this study was conducted, a parental insurance plan is in place to support new parents so they can devote time to

their newborns. Many of our study participants were currently on paid leave, and this could be a major factor influencing their involvement. Sweden also has parental leave for fathers, and the availability of paternity leave has also been found to facilitate paternal involvement in the NICU there by diminishing the need to return to work and providing time with the infant (Lundqvist *et al.* 2007, Lindberg *et al.* 2008).

Our findings support the notion that the social context influences involvement and identify the varied types and sources of support that impact on involvement, including encouragement from the spouse and instrumental or emotional support from extended family. Mothers played a critical role in either promoting or constraining fathers' involvement, and this is consistent with the studies of parents of healthy newborns (Goodman 2005). Their impact on their partners' involvement took many forms, both direct and indirect.

Nurses had a key role to play in fathers' involvement. They served as role models, and thus fostered involvement. In contrast, mixed messages from staff and overt prohibition of contact deterred involvement. It is possible that fathers receive mixed messages from nurses because beliefs or knowledge about the effects of contact and handling on the infant may vary among nurses. This would be an interesting topic for further research. The role of the NICU nurse as a 'gatekeeper' has been described (Corlett & Twycross 2006, Wigert *et al.* 2008). Nurses sometimes perceive that the infant 'belongs' to them (Wigert *et al.* 2008). In contrast, other studies have found that the welcoming attitude of staff and invitations to participate in infant care influenced Swedish parents' visitation (Wigert *et al.* 2010). Our study extends this knowledge by revealing particular nurse behaviours that are influential. Involvement was fostered by encouragement, modelling and coaching. When nurses encouraged fathers to have contact with or care for their infant, provided fathers with opportunities to care for their infant or taught them specific infant care skills, involvement was fostered. Once fathers were involved, coaching or feedback from nursing staff while they engaged in caregiving enhanced their self-efficacy and motivated continued involvement. Thomas *et al.* (2009) found that coaching from NICU nurses during caregiving activities increased fathers' self-efficacy. These same behaviours have been found by others to foster the development of the relationship between nurses and parents in the NICU (Reis *et al.* 2010). Taken together, these studies highlight the importance of encouragement, modelling and coaching by nurses and suggest that these behaviours can have positive effects on parent involvement and self-efficacy, as well as the nurse–parent relationship.

One important limitation of this study is that the interviews were conducted by a female interviewer. Different information may have been shared with a male interviewer, as fathers appreciate speaking with a male staff in the NICU regarding their baby (Arockiasamy *et al.* 2008). Fathers who were available to be recruited to the study and who participated are likely to be those who visit more often and are more involved with their infant during the hospitalisation. The study took place in a country where paternity leave is available and policies allow parents to visit at any time. Many of the previous studies of fathers of NICU infants have been conducted in Sweden, where parental leave is also available for fathers of newborns. Fathers in different settings may experience barriers and facilitators to involvement other than those described in the current study. Moreover, in this study, infants were hospitalised in open-space NICUs, and empirical evidence points to the effects that NICU design may have on parents' roles (Beck *et al.* 2009). The extent to which the findings of this study apply to fathers in other types of NICU's (e.g. single patient rooms) is not known. Lastly, our sample was multicultural and urban, from a broad range of educational and ethnic backgrounds.

Relevance to practice and research

This study fills a gap in the literature by providing insight into what factors influence involvement, and how nurses can support involvement during the NICU hospitalisation. Nurses should explore the forms of involvement that a father desires, as well as the demands on their time. Barriers and facilitators to involvement will vary among fathers, requiring different approaches to promote involvement.

Appropriate resources should be provided to allow fathers to spend time with their infant. When fathers are present in the NICU, they should be assisted to maximise the time that they do have with the infant. Nurses must provide clear and consistent information to fathers about whether and when they can be involved in infant caregiving activities such as touching, holding, bathing and feeding. When involvement is not advisable owing to the infant's medical condition, an explanation should be provided to fathers. Nurses should avoid giving mixed messages to fathers as to when and how they might hold or touch or provide care to the infants. Many fathers require encouragement from nursing staff to begin to become involved in infant caregiving. Teaching concerning the behaviour and handling of the infant is needed, so that fathers can understand their infant's responses and interpret these correctly so as not to over-stimulate the infant and in turn discourage their continued involvement. Fathers learn from observing nurses. Thus, nurses should be cognisant that

fathers observe nurses' caregiving behaviour as a model for how to care for their infant. Fathers appreciate nurses' demonstrations of caregiving activities. Nurses should act as coaches to facilitate paternal involvement when fathers do engage in caregiving activities. Coaching involves being available when fathers engaged in new caregiving skills, providing feedback, advice and reassurance.

Directions for future research include the exploration of the relationship between the level of infant responsiveness and the level of paternal involvement. Knowledge of premature infant cues may positively influence involvement with infants, in spite of low responsiveness. Little is known regarding how mothers influence paternal involvement in the NICU context. It may be beneficial to ask fathers specifically how their partners impact their own involvement, and to interview their partners concerning their view of fathers' involvement.

Conclusion

The study findings suggest that a range of infant-related, interpersonal and environmental factors influence father involvement during the NICU hospitalisation. Nurses can play an important role in facilitating fathers' involvement through teaching, encouragement, modelling and coaching. This is important for the healthy growth and development of infants requiring NICU care.

Contributions

Study design: NF, EW, KS; data analysis: EW, NF, KS, LB, PZ and manuscript preparation: NF, EW.

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