


REGULAR ARTICLE

Neonatologists can impede or support parents' participation in decision-making during medical rounds in neonatal intensive care units

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ABSTRACT

Aim: We explored the dynamics of neonatologist–parent communication and decision-making during medical rounds in a level three neonatal intensive care unit.

Methods: This was a qualitative study, with an ethnographic approach, that was conducted at Turku University Hospital, Finland, from 2013 to 2014. We recruited eight mothers and seven couples, their 11 singletons and four sets of twins and two neonatologists and observed and video recorded 15 medical rounds. The infants were born at 23 + 5 to 40 + 1 weeks, and the parents were aged 24–47. The neonatologists and parents were interviewed separately after the rounds.

Results: Four patterns of interaction emerged. The collaborative pattern was most consistent, with the ideal of shared decision-making, as the parents' preferences were genuinely and visibly integrated into the treatment decisions. In the neonatologist-led interactional pattern, the decision-making process was only somewhat inclusive of the parents' observations and preferences. The remaining two patterns, emergency and disconnected, were characterised by a paternalistic decision-making model where the parents' observations and preferences had minimal to no influence on the communication or decision-making.

Conclusion: The neonatologists played a central role in facilitating parental participation and their interaction during medical rounds were characterised by the level of parent participation in decision-making.

INTRODUCTION

In paediatrics, shared decision-making is defined as a collaborative communication process between patients, or their parents and legal guardians, and healthcare professionals. The aim of this communication was to ensure that any decisions are of value to the patient and to put preference-based treatment decisions in place (1). Shared decision-making is an important element of the implementation of evidence-based medicine in a neonatal intensive care unit (NICU). It optimises treatment decisions and caregiving, based on the medical information provided by neonatologists and the healthcare team and the observations and preferences of the infant's family (2–4). Daily medical rounds, during which the infant's medical care is planned and decided, provide an important opportunity for communication and shared decision-making by parents and the paediatric healthcare team. Parents can provide their expertise on their infant's daily care and family situation

(5,6) and contribute to treatment decisions (7). Active participation in medical rounds enhances the parents' understanding of medical information and increases the amount and quality of their participation in care plan discussions (5). Being present during medical rounds has also been reported to improve parents' overall satisfaction with the hospital care their child receives (8). Studies

Abbreviation

NICU, Neonatal intensive care unit.

Key notes

- This study explored neonatologist–parent communication and decision-making during medical rounds in a level three neonatal intensive care unit from 2013 to 2014.
- We observed the parents of 11 singletons and four sets of twins and how they interacted with two neonatologists during 15 medical rounds.
- The neonatologists played a central role in facilitating parental participation and their interaction during medical rounds were characterised by the level of parent participation in decision-making.

suggest that 85–100% of parents are willing to participate in medical rounds (9), but it has been reported that this is not allowed in almost 50% of European NICUs (10). This finding suggests that healthcare professionals may not fully recognise the value of parents' contributions to clinical decision-making.

Professional-centred care cultures, the expertise required for medical care and parental stress are a few of the factors that may limit parental engagement in shared decision-making (4). Healthcare professionals working in neonatal and paediatric hospital settings have expressed concerns that the parents being present may limit their own clinical discussions, curtail resident teaching, unduly lengthen rounds and compromise patient confidentiality (5,11,12). In addition, participation in medical rounds may increase parents' confusion and anxiety (9). However, previous research lacked in-depth observation and analysis of the interpersonal interactions during NICU medical rounds. Therefore, this qualitative study aimed to explore the dynamics of attending neonatologist–parent communication and decision-making during medical rounds and examine how decisions about the infant's care were achieved.

PATIENTS AND METHODS

Design

An ethnographic approach was used to explore the interaction between two neonatologists and 22 parents in the particular social context of NICU medical rounds. The method comprised social constructionism analysis of video-recorded observations and individual interviews (13).

Setting

Data collection was conducted from January 2013 to April 2014 in a level three NICU at the Turku University Hospital in Finland, which has 18 beds and approximately 600 admissions per year. The unit did not have facilities for parents to stay overnight and the rooms had limited privacy. There were seven patient rooms with two to four beds each.

Before the study, the whole multi-professional NICU team, including attending neonatologists, had been trained in the Close Collaboration with Parents programme for strengthening the implementation of family-centred care (14). The daily medical rounds routinely include an attending neonatologist, trainee doctors and the infant's nurse. The infant's parent or parents participated in approximately 60% of the medical rounds. The usual structure of the medical rounds is described in Table 1. The study protocol was approved by the Ethics Committee of the Hospital District of Southwest Finland and the Turku University Hospital administration.

Participants

Purposive sampling was used to sample patients with varying length of NICU stays, namely less than or more than one week, and infants at different stages of NICU care, either acute care, stable condition or ready for discharge. The inclusion criteria were that the parents had to be native Finnish or Swedish speakers and were able to provide informed consent. There were no exclusion criteria for the infants. After the study was explained to the parents, and informed consent was obtained, a member of the study team asked the parent when they were next planning to participate in medical rounds for their infant. The neonatologist leading the rounds, and the rest of the healthcare team working that day, were then approached and invited to participate in the study. The data collection was only conducted if all healthcare team members participating in the medical rounds that day consented.

Data collection

Data were collected from 15 medical rounds and these were video recorded to enable detailed analysis of the social interaction in its context. After the medical rounds, the attending neonatologists and parents were interviewed separately and the interviews were audio recorded. The interview questions asked for the participants' perceptions about how the round progressed and how decisions were achieved. In addition, participants were asked about their preparation, agenda setting and communication during the medical round.

Table 1 The structure of the medical rounds when parents were participating

- (1) Neonatologist
 - begins the round
 - asks the infant's parent(s), How is your baby doing today?
 - asks the infant's nurse what information s/he would like to add
 - asks the doctors in training what information they would like to add
 - sums up the information from the medical perspective
- (2) Doctors discuss the infant's diagnoses and clinical condition amongst themselves, includes the education of doctors in training (*often a passive moment for parents, nurse discusses with parents or/and participate in doctors' discussion*)
- (3) Neonatologist explains to parents what was discussed amongst the doctors (*parents are invited back to interaction*)
- (4) Open discussion with doctors, nurse and parents about decisions to be made during the round
- (5) Neonatologist concludes the round and the summary of the discussion/decisions is documented in the medical record by the doctors in training

Data analysis

The video and audio data were transcribed verbatim and any nonverbal interaction, such as nodding, eye contact and gazing, were noted on the video transcriptions. Three researchers (AA, JO and KL) familiarised themselves with the data by reading the transcripts and watching the videos and, after this familiarisation phase, each medical round was coded separately with inductive thematic analysis (13,15). The coding of the observational video data focused on describing the contribution of the attending neonatologists and parents to the discussions and decision-making. The content of the discussions and the ways that participants encouraged, sustained, blocked or evaded mutual interaction, such as questions, confirmation and signs of agreement or disagreement, were coded from the video transcripts. In addition, the features of the physical surrounding and interpersonal atmosphere during each round were described. The audio interview data were used to gain insights into how interactions during the medical round were perceived by the neonatologists and parents. The codes from the video and audio data from each medical round were compared to identify where there were similar or different patterns and understanding about the communication and decision-making during the rounds. The codes were then merged into subthemes.

To explore possible patterns across the medical rounds, a case-ordered descriptive matrix was generated for the subthemes of the 15 medical rounds (16). For example, the subthemes related to the decision-making and understanding those decisions formed a continuum of the subthemes. These were there was collaborative decision-making and shared understanding; the parents agreed with the decisions and there was shared understanding; the parents were unable to participate in the decision-making and had a vague understanding and the neonatologists made the decisions and there were different understandings. Based on this descriptive matrix, four different interactional patterns were identified and named. To highlight the clinical implications of the findings, the interactive practices of the neonatologist and clinical team that supported or impeded parent participation in the communication and decision-making were extracted from each interactional pattern. Those that supported the parents are presented in underlined italic text and those that impeded them are presented in underlined roman text. To evaluate the face validity of our findings, we presented them separately to the healthcare teams of five Finnish NICUs as part of a presentation on the topic of family-centred medical rounds. During the discussions, all the participants agreed that the findings of the four different interactional patterns of communication and decision-making were in line with their own experiences. The healthcare teams also recognised many of the influencing factors, such as the infant's condition, disruptions during rounds, presumptions about the family and providing opportunities for parents to share their observations.

RESULTS

The participating families comprised 22 parents—eight mothers and seven couples—of 11 singletons and four sets of twins. Two families and two healthcare teams refused to take part. The parents' ages ranged from 24 to 47 years, and the infants were born at a gestational age of 23 + 5 to 40 + 1 weeks. At the time of the study, their postnatal age varied from one day to two months. The infants' medical condition varied from acute care to ready for discharge. The parents, infants, and the characteristic of the medical rounds are shown in Table 2. The medical rounds were led by one of two attending neonatologists: 12 by one neonatologist and the remaining three by the other neonatologist. Each had over 20 years of experience, had practiced in a family-centred care model and had participated in the Close Collaboration with Parents training programme.

The descriptive matrix analysis of video and interview data yielded four different interactional patterns of communication and decision-making during medical rounds: collaborative, neonatologist-led, emergency and disconnected. The collaborative pattern represented the strongest characteristics of reciprocal communication and shared decision-making, whereas the disconnected pattern contained the most distinct elements of mismatch in communication and decision-making. The neonatologists' interactive practices that supported or impeded parent participation in communication and decision-making are presented in Figure 1. The four interactional patterns, as well as the main influencing factors of the physical environment, interpersonal atmosphere and the perceptions of participants, are described in detail below and referred to in Table S1.

Collaborative communication and decision-making

This pattern of communication was only identified in one of the medical rounds. The mother was an active participant in the discussion during the medical rounds and had prepared for the round in advance. She had participated actively in her infant's care during the previous 24 hours and had discussed the infant condition with the nurse in the morning. She was confident in her interactions with the healthcare team during the medical round. The mother's report during the medical round was comprehensive and provided direct information for the medical decision-making, such as rich and detailed descriptions of her observations about the infant's breathing pattern, oxygenation and bowel movements. The mother was able to explain cause-effect relationships, for example the relation between the amount of feedings and its effect on the infant's breathing. She showed an understanding of medical terms and used them when communicating her observations.

The mother's participation was supported by reciprocal communication. The neonatologist opened the medical round by asking the mother how she perceived the infant's condition. Then, the neonatologist listened attentively to the mother's account and confirmed her agreement and understanding verbally, but also with nonverbal

Table 2 The characteristics of the medical rounds, parents and infants

Variable/Interactional pattern	Duration of the medical round (min)	Parent/s talked~ min (% of time)	Participating parent	Parent/s age (year)	Infant GA at birth (week)	Infant PNA	Parity	Infant condition, treatment/diagnosis
Collaborative communication and decision-making	15	5 (31)	Mother	31–35	<28	1 month 2 weeks	Singleton	Stable, nasal cannula
Neonatologist-led communication and decision-making	9	2 (20)	Mother Father	25–30 25–30	29–31	1 week	Singleton	Stable, in CPAP
	9	1 (15)	Mother	25–30	29–31	1 month	Twins	Close to discharge, prematurity
	11	3 (24)	Mother Father	31–35 31–35	32–36	1 week	Singleton	Stable, antibiotic treatment
	11	1 (9)	Mother Father	25–30 25–30	32–36	3 weeks 5 days	Singleton	Stable, nasal cannula
	12	2 (18)	Mother Father	25–30 >35	29–31	1 month	Twins	Stable, apnoea monitoring
	12	3 (25)	Mother Father	>35 >35	32–36	1 week	Singleton	Close to discharge, prematurity
	13	2 (16)	Mother Father	–	32–36	4 days	Singleton	Close to discharge, intestinal obstruction
	14	2 (14)	Mother	<25	32–36	3 weeks	Singleton	Stable, in CPAP
	26	3 (13)	Mother Father	31–35 25–30	<28	2 months	Twins	Stable, in CPAP, ostomy
Emergency communication and decision-making	24	3 (11)	Mother	–	32–36	1 week	Singleton	Acute, metabolic disease suspect
	29	1 (5)	Mother	31–35	<28	2 weeks	Singleton	Acute, septic infection
Disconnected communication and decision-making	7	3 (40)	Mother	31–35	>36	3 weeks	Singleton	Stable, withdrawal symptoms
	10	2 (23)	Mother	31–35	>36	1 day	Singleton	Stable, infection suspect
	13	2 (12)	Mother	>35	32–36	1 week	Twins	Stable, apnoea monitoring

communication, such as nodding and smiling. Taking the mother's account as a starting point, the neonatologist then carefully *explained her thoughts about the infant's care* and asked *follow-up questions* to elicit more information from the mother. The other members of the healthcare team were attentive, but had little direct participation during the discussion between the neonatologist and mother, mainly to confirm the mother's observations.

The physical environment supported open communication. All the participants, the neonatologist, mother, nurse and trainee doctors, sat in a circle, with the mother holding the infant on her lap, and everyone was able to have eye contact with each other. The infant's stable condition, the mother's content mood and the *attention of the healthcare team solely on the medical round* of this infant, contributed to a *calm atmosphere* and focused interaction among the participants.

The *reciprocal communication* led to collaborative decision-making, where it was difficult to tell who made the final decisions. The neonatologist engaged in a practice of *reflecting aloud the options* and *seeking consensus on decisions*. These reflections were based on the information offered by the mother and various members of the healthcare team. In this way, the neonatologist made the collaborative decision-making visible to everyone. The decision about respiratory support for the infant provided a clear example of this consensus approach (Table S1).

During the interview, the mother reported that she felt comfortable during the round and knew the structure of the rounds in detail. The mother felt that her observations of her infant's condition were regarded as meaningful with regard to the medical decision-making. The participation and open information sharing provided the mother with a sense of control over her infant's care, making her feel confident. The neonatologist said in her interview that she agreed on *the importance of the mother's observations for medical decision-making*. The neonatologist also highlighted that the mother's *unique and accurate knowledge about the infant's condition* made this collaborative approach feasible.

Neonatologist-led communication and decision-making

The governing role of the neonatologist in medical rounds was typical for this pattern of communication. The majority of the medical rounds, nine out of 15, presented this pattern. The parents waited for the round and were prepared for it by planning topics to discuss during the round based on their own observations, the patient charts and discussions with the nurses. The parents' diffuse and, or, insecure reports seemed to lead the neonatologists to ask parents more *closed questions*. This in turn led to the parents' playing a more passive role in the communication. After explaining their observations of the infant's condition, the parents mainly communicated nonverbally by nodding and agreeing with the neonatologists' views. The parents

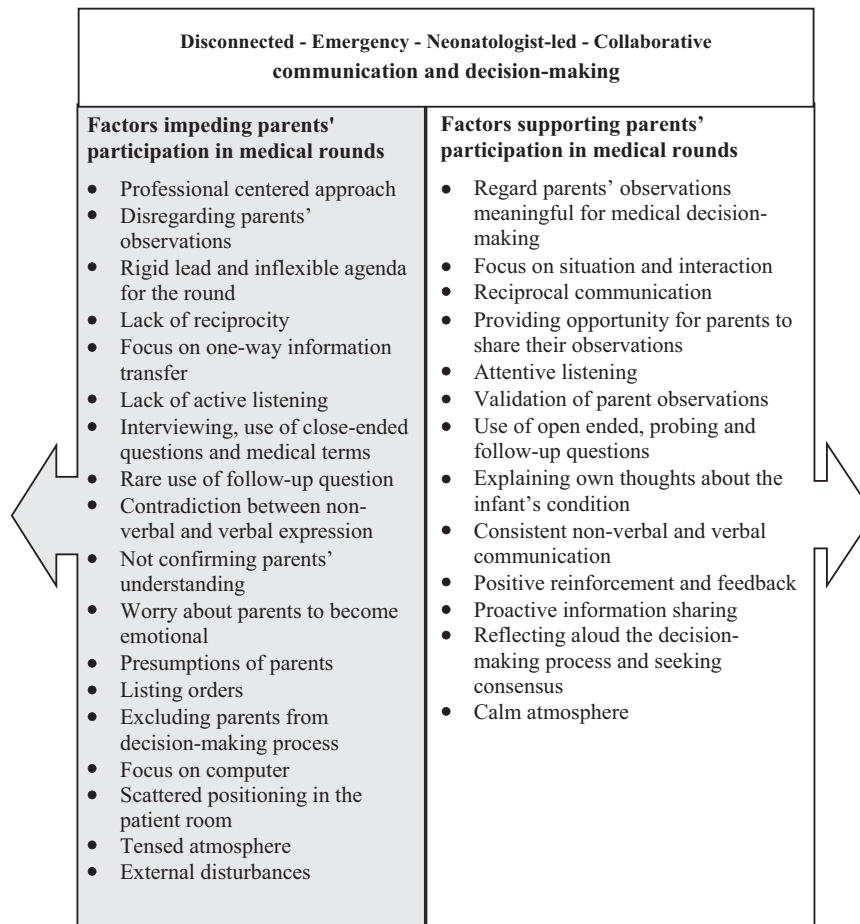


Figure 1 The interactive practices of the neonatologists' that impeded or supported parents' participation in medical rounds.

occasionally asked one or two questions to confirm their own understanding about the treatments. In some cases, their less active role during the medical rounds stemmed from their inability to provide any, or only a few, observations about their infant's condition.

Correspondingly, the attending neonatologists approached the communication from the perspective of one-way information transfer. When parents asked questions, they promptly answered with detailed information about the infant's condition, development and treatment. They involved the parents in the discussions by interviewing them for specific information on the infant's condition. However, they rarely asked follow-up questions. The neonatologists appeared to value information they solicited from the parents and provided positive feedback on the parents' observations. This practice engaged the parents in the communication, but not to the extent of shared decision-making. An example of the neonatologist-led decision-making was the discussion about the providing sufficient breast milk for an infant (Table S1).

The physical environment did not always support reciprocal communication and shared decision-making. The healthcare team often stood behind the computer, while parents sat next to the infant and tried to establish eye

contact from this inferior position. The nurses and trainee doctors provided most of the information about the infants' condition. In some rounds, there were interruptions from other members of staff seeking consultation on other matters. The interpersonal atmosphere did not fully support the parents' engagement, due to these interruptions and the governing role of the healthcare team in communication.

The decision-making was led by the attending neonatologists, although the parents contributed in a limited way as the neonatologists based some decisions on the information provided by the parents. For example, the amount of milk was titrated based on the parent's observations of the infant's hunger or a discharge date was set because the parents said they were ready to take the infant home. In some cases, the neonatologists explained that information solicited or offered by the parents did not require any action. Usually, the neonatologists did not engage in a practice of reflecting the decision-making process aloud.

During the interviews, parents revealed that they did not always understand the importance of their observations in the decision-making process. Instead, they emphasised their sense of being heard and respected and described the process of developing their expertise in the infant care. Many parents perceived themselves as not having

competence to participate in decision-making and preferred to rely on the neonatologists' expertise. The neonatologists perceived that the more experienced parents had unique and important information to share during the rounds, since they spent the most time with the infant. In some interviews, the neonatologists explained how the information provided by the parents influenced their decisions. Both the neonatologists and parents highlighted the importance and satisfaction of parent participation in the medical rounds.

Emergency communication and decision-making

The infant's critical condition characterised this pattern of communication in two of the medical rounds. The parents were in a state of shock because of the infant's life-threatening or unstable condition and could not contribute to the discussions or decision-making during the rounds due to distress, worry and perceived lack of expertise. When they were asked questions, they reported fragmented observations and explicitly redirected the question to the infant's nurse. During the rounds, the parents often looked distant and lost in their thoughts. At times, they appeared to re-engage and begin to follow the discussions and to ask questions.

From the attending neonatologists' point of view, the infant's medical care was extremely demanding. Due to the infant's unstable condition, care decisions needed to be made rapidly and be re-evaluated frequently. After the first question inviting the parents to share their observations, the neonatologists communicated mainly with the nurses and the other doctors. However, before the medical rounds concluded, they all spent time thoroughly explaining the infant's condition to the parents using medical terminology.

The physical environment was dominated by the presence of medical equipment and the participants were physically divided into two groups. The neonatologists and other doctors stood around a computer, while the mothers and nurses positioned themselves close to the infants. The atmosphere was tense, due to the infants' critical condition and stress about deciding the best possible treatment for the infants. This contributed to the cautious communication between the neonatologists and the parents.

The decision-making was carried out by collaboration between the healthcare team. The nurses and doctors explained their observations about the infant in detail and the attending neonatologists integrated this information and governed the decision-making with a consensus approach among the healthcare team. The parents did not contribute to the decision-making and it seemed difficult for them to follow the decision-making process.

The interviews with the parents indicated that they had mixed feelings about their participation in the medical rounds. The situation was difficult for them because they had repeatedly received bad news about their infant's condition and prognosis during previous medical rounds. The parents were afraid to think about the infant's future and they did not feel competent to contribute to the

discussions during the rounds and felt stressed by the questions the neonatologists asked them. However, the medical rounds were an important time for eliciting information about their infant's condition. Both sets of parents had asked the nurses to advocate for them during the round in case they were unable to express themselves. Despite this concern, the parents were able to explain their concerns and ask about various issues that they had planned in advance, such as the potential factors that contributed to the infant's condition. The neonatologists said during the interviews that they were not satisfied with how they were able to integrate the parents into the discussion during the rounds when infants were very acutely ill. The neonatologists were also unsure about how much the parents understood about their infant's condition. In addition, they were concerned about whether the parents would become emotional and break down during the medical rounds, which they felt could lead to chaos.

Disconnected communication and decision-making

Disconnected communication between the parents and the attending neonatologists, as well as different understanding about the infant's care and decisions, were characteristic of this pattern of communication in three cases. The infants' medical condition was stable, but the psychosocial situation of the family had raised concerns among the staff in two cases. An important common feature in this type of communication was that the parents did not ask any direct questions and their replies or comments had very little influence on the course of the discussions. The parents either replied to the neonatologists' questions with rich description or just briefly and nonverbally by nodding their agreement. Analysis of the video data showed that the parents were not fully engaged in the communication with the neonatologists and divided their attention between different events, such as the infant's examination or discussions between the other members of the healthcare team during the rounds. The parents' body language signalled stress, involving restless movements, walking around the patient's room, avoiding eye contact, worried expressions or high energy levels. However, on occasion, the parents unsuccessfully sought eye contact with the neonatologists.

The neonatologists led the rounds in a very rigid manner and appeared to have a fixed, inflexible agenda for rounds with these families. The parents' role was mainly to be present and approve the decisions. The neonatologists did not seek verbal or nonverbal confirmation of the parents' understanding about the given information or infant care. It was noticeable that the neonatologists' body language was not in harmony with their verbal communication. This became evident, for example, when they asked the parent a question, but focused on the patient's chart instead of looking at the parent. Insensitivity or lack of focused interaction was also visible when the neonatologists did not actively listen to the parents' observations, but continued their own communication agenda. On occasions, the healthcare team also examined the infants and discussed

care decisions as if the parents were not present. Lack of reciprocity led to disconnection in communication between the neonatologists and parents.

The physical setting created challenges, such as malfunctions with computers, removing the intravenous line or a large group of students attending the rounds. These factors further complicated communication between the healthcare team and the parents. In two of three cases, the family was the only one staying in that patient room. The participants were scattered around the patient's room or changed their places multiple times during the medical rounds, requiring a change in focus for the parents and the attending neonatologists. This sense of an inflexible agenda created a pressing and busy atmosphere, which did not create possibilities for genuine interaction between the neonatologists and parents.

The neonatologists made the decisions related to the infant care independently, based on the information received from other members of the healthcare team and rarely from the parents. They listed the medical orders for the day without further discussion. The parents did not oppose the decisions, but sometimes indicated agreement with nonverbal signs, such as nodding.

In the interviews, the neonatologists and the parents had different understandings about some of the decisions. In general, the parents seemed confused about their participation in the rounds. They expressed feelings such as being under interrogation and worried about 'asking stupid questions'. Despite these feelings, the parents did not oppose their participation in the medical rounds. The neonatologists expressed some concerns or presumptions about the parents, such as concern for the parents' apparent lack of commitment and attachment towards the infant or the possibility of hostile behaviour. The fixed agenda for the rounds appeared to be related to the neonatologists' need to confirm the infant diagnosis or their strong view about the best treatment. Concern for the infant's future with the family due to psychosocial problems also appeared to impede the neonatologists in engaging the parents in the discussions.

DISCUSSION

Our study presents the first in-depth analysis of neonatal-parent communication and decision-making during daily medical rounds. Of the four patterns of interactions, the collaborative pattern was most consistent with the ideal of shared decision-making (1), as the parents' preferences were authentically and visibly integrated into the treatment decisions. In the neonatologist-led pattern, the parents' preferences guided the decision-making process less and indistinctly. The two remaining patterns that were identified, emergency and disconnected, were both characterised by a paternalistic decision-making model (3) wherein the parents' observations and preferences had minimal if any influence on the course of communication or decision-making. However, the context or influencing factors leading to the lack of communication and shared decision-making differed between the two patterns.

The neonatologist, parents, infant, the other members of the healthcare team, the physical environment and the interpersonal atmosphere all played a role in these very complex social interactions. The decision-making process was shaped by the level of participants' relevant knowledge and how that knowledge applied to medical decision-making, preferences, communication skills and actions. Despite the interplay between all the parties, the neonatologist had the most essential role in impeding or supporting parental participation in the communication and decision-making process.

In our study setting, all parents were invited to provide their observations about the infant, which signalled that the neonatologists placed value on the parental perspective for medical decision-making. After this initial invitation for parental interaction, the choice of communication approach by the neonatologist led to different trajectories of parental participation in decision-making. Shaw et al. (17) suggested that, in the context of end-of-life care, it reduced parents' opportunities to ask questions and collaborate when neonatologist provided parents with recommendations. Correspondingly, when neonatologists provide options, it gave parents greater opportunities to ask questions and participate. The collaborative pattern found in our study suggests that, in the context of everyday care, a more equitable, partnered approach between the parties is possible. A collaborative approach requires the neonatologist to actively seek information from the parents at the same time as being flexible in tailoring the care based on the parents' observations and preferences.

The parents' ability to observe the infant's behaviour and to verbalise their observations to a group of healthcare professionals are prerequisites for their participation in communication and contribution to decision-making. This highlights the importance of the parents' active participation in the infant's daily care. Parents have expressed that making decisions about their infant's care allows them to feel closer to the infant (6), which makes it an important element of family-centred care (18). Parents want to participate in decisions related to high perceived risks for the infant, decisions in which they have personal experience and in decisions that they perceive as part of the normal parental role (19). In our study, parents contributed to decisions regarding respiratory support, infant feeding and discharge planning. Our finding that parents were not able to participate in the decision-making process, especially in emergency situations, was echoed by another study that suggested that parents do not want to make decisions about their infant's care when the degree of urgency or required medical expertise is high (19). If this association is confirmed in future studies, healthcare teams will need to ensure that they respect the parents' choices to defer from shared decision-making in these situations. However, it is also possible that the parents' passive role in urgent medical situations reflects a professional-centred, decision-making practice, as presented in our disconnected pattern. Further research is needed to better understand the dynamics of communication and decision-making across the range of different clinical situations in NICUs.

In addition to the neonatologist and the parents' own attitudes and preferences, several other factors played a role in communication and decision-making during medical rounds. The infant's critical condition was an important influencing factor that set the stage for the discussion and it made it very difficult for the parents to participate in discussions. On the other hand, if the infant was close to discharge, the discussions were of special interest to the parents, as they were eager to get the infant home. The degree of teamwork within the healthcare team also influenced the communication during medical rounds. Teamwork has been shown to be a precondition for parents' participation in infant pain management (20), and, in our study, strong teamwork seemed to enable consistent support for parents' participation during medical rounds. In contrast, when teamwork was not coordinated and other staff members interrupted rounds, it impeded parental participation and shared decision-making. Our findings on the influence of the physical environment were consistent with previous findings and promoted environmental strategies, such as gathering beside the infant's bedside or sitting down with the parents in a circle, which have been perceived to support parental participation (21).

The strength of our study lays in the methods that allowed us to observe the real-time medical rounds and made it possible to analyse verbal and nonverbal communication in that context. The follow-up interviews provided deeper understanding and confirmed our observations. The purposive sampling resulted in wide variations in parent and infant characteristics, which increases the transferability of the findings to other NICU settings. However, the credibility of the findings was limited, as only one case presented the collaborative pattern and there were only two participating neonatologists in the study, with one neonatologist leading 12 of the 15 rounds. Other limitations included focusing on the neonatologist and parent interaction without interviewing the other healthcare team members, such as nurses. The findings of the study may have limited transferability due to the varying practices of medical rounds in different NICUs and countries. However, the method can be readily applied to other settings, allowing for further research on the topic.

CONCLUSION

This study found that patterns of interaction between neonatologists and parents during medical rounds were characterised by the level of parent participation in decision-making. The collaborative pattern of interaction between neonatologists and parents during medical rounds suggests that parents can have a meaningful and partnering role in medical decision-making. However, we observed that intervening factors related to neonatologists, parents, the healthcare team, environment and the interpersonal atmosphere strongly influenced the pattern of interaction and led to diminished parental participation and shared decision-making. Neonatologists can influence some of these impeding factors, since they have a central role in facilitating parents' participation in communication and decision-

making during medical rounds. Collaborative communication and decision-making is more likely to be realised when the infant is in a stable condition. Research is needed on interventions to promote greater shared decision-making in paediatrics (22) and to determine if a collaborative approach to interaction between neonatologists and parents during medical rounds results in better infant care.

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CONFLICT OF INTEREST

The authors have no conflict of interests to declare.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article:

Table S1 Extracts of dialogues representing the four different interactional patterns of communication and decision-making during medical rounds.