



Improving Family-Centered Care through High-Reliability Interprofessional Collaboration in the NICU

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INTRODUCTION

Healthcare has become increasingly collaborative, and the shift towards team-based care has been especially important in the neonatal intensive care unit (NICU). Prematurity, which the Centers for Disease Control and Prevention (CDC) defines as birth before 37 weeks' gestation, is the leading cause of death in newborns and can cause severe disabilities such as developmental delays, problems with hearing and vision, and chronic health problems (Institute of Medicine 2007; Baron et al. 2012). Babies born prematurely are typically required to stay in the NICU without a certain estimate of how long they will need to be admitted. Intensive care is notoriously difficult because of the sheer number of critical decisions and actions required of providers. Making errors in the ICU can have dangerous consequences (Donchin et al. 2003). Premature infants can experience significant changes in health day-to-day and hour-to-hour, and, coupled with the unfamiliar environment of the NICU, parents often experience stress, anxiety, and uncertainty (Charchuk and Simpson 2005). The intensive care required makes team-based care more challenging and at the same time more necessary.

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NICUs AS HIGH-RELIABILITY ORGANIZATIONS

The NICU context demands difficult, complex, high-reliability, interprofessional communication. High-reliability organizing prioritizes the prevention of errors and safe operations as much as, or more than, efficiency and productivity (Weick and Sutcliffe 2015; Harrison et al. 2020). The communication involved requires speaking out about problems regardless of status, rank, or domain (Jahn and Black 2017), the difficulties of which are well-known in medicine (Carmack and Harville 2020; Watson et al. 2016). Nurses, physicians, occupational therapists, physical therapists, feeding specialists, and lactation consultants all bring differing frames and scripts for problem-solving, anchored to their training, experiences, and institutionalized professional practice. The NICU requires constant, detailed record keeping, including logging feedings, medications, diaper weights, and so forth that burden already fragile handoffs, making them more frequent and more difficult (Apker et al. 2016).

The kind of high-reliability organizing called for in the NICU depends on dynamic learning through vigilance and reflection, what scholarship has called “mindful” organizing (Weick and Sutcliffe 2015; Myers and McPhee 2006). A key challenge for practitioners is translating the ideal of “mindful” organizing into specific communication practices that they can monitor, train, and enact. Practices that encourage reliability include asking questions that prompt the necessary reflexivity and situational awareness (Barbour and Gill 2017), sharing concerns among team members despite power differences (Jahn and Black 2017), and discussing past problems in ways that foster learning and adaptation (Dunn et al. 2016; Williams and Ishak 2017). In care teams, interpersonal and interprofessional relationships further complicate the communication needed (Carmack and Harville 2020; Fox et al. 2023).

Communication, Sensemaking, and Sensegiving

A key communication principle of reliable organizing is getting the right message to the right person at the same time. Put another way, the transmission model of communication, defined in Chap. 1, is an important, if incomplete, view of communication for reliable organizing. At the same time, the constitutive process, also defined in Chap. 1, identifies who the right people are, when the right time is, and how the right message should be framed. Sensemaking is a constitutive communication process (Barbour and Gill 2017). Sensemaking occurs as organizational members attribute meaning to events and behaviors as they emerge; through the processes of interpretation and communication, people “[talk] events and organizations into existence” (Weick et al. 2005, 413). Sensemaking as a concept is important in the NICU because, before teams of providers and parents can make decisions, they must make sense of how newborns are doing, predict what will happen next, and decide how to intervene. (For more on sensemaking, see Chap. 5).

Just as sensemaking is a vital element of high-reliability organizations (HROs), so is sensegiving. Sensegiving is a communicative process in which one individual helps another make sense of an equivocal situation (Gioia and Chittipeddi 1991). “HROs take deliberate steps to create more complete and nuanced pictures” (Weick and Sutcliffe 2015, 8). Not only do HROs need to be able to make sense of the situation in the midst of uncertainty, but they also need to create processes to operate in these ambiguous situations. In the context of the NICU, where parents play an important role as collaborators in these interprofessional teams, sensegiving is key. NICUs, as HROs, need to make sense of these high-risk situations, and they also need to assist parents in making sense of what is happening. When parents are able to make sense in the NICU, they can better contribute to the care of their child. We see sensegiving as an essential but often unstated need in interprofessional and NICU-focused interventions, which we discuss later in the chapter (Callout 12.1).

Callout 12.1 High-Reliability Organizations

High-reliability organizations (HROs) are more concerned with avoiding errors than with being more efficient or profitable. Unlike most for-profit firms, HROs try to avoid failure because the consequences are especially dire. Classic examples of HROs include nuclear power plants (Barbour and Gill 2017), aircraft carriers (Weick and Roberts 1993), fire-fighting (Jahn and Black 2017; Williams and Ishak 2017), and healthcare organizations and NICUs in particular (Vogus and Sutcliffe 2007; Harrison et al. 2020). For example, Weick et al. (2005) drew on multiple examples from pediatric nursing to describe the sort of disciplined sensemaking that goes into high-reliability organizing. Drawing on the work of Benner (1994), they argued that sensemaking is about crafting order in chaos. They wrote of a nurse who noticed an infant’s condition had changed for the worse and intervened:

The nurse’s sensemaking does not begin *de novo*, but like all organizing occurs amidst a stream of potential antecedents and consequences. Presumably within the 24-hour period surrounding the critical noticing, the nurse slept, awoke, prepared for work, observed and tended to other babies, completed paperwork and charts, drank coffee, spoke with doctors and fellow nurses, stared at an elevator door as she moved between hospital floors, and performed a variety of formal and impromptu observations. (Weick et al. 2005, 411)

In the NICU, high-reliability organizing requires focusing on the potential for catastrophic change and avoiding errors—a preoccupation with failure. Viewing the NICU as an HRO would emphasize the need to grapple with the complexity that this caregiving involves, avoiding

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simplification. That organizing must focus on resilience and processes to mitigate and minimize the effects of errors. Ideally, high-reliability organizing prioritizes the expertise of team members rather than their status, which can be difficult, especially in hierarchical healthcare environments. Harrison et al. (2020) highlighted handoff protocols, checklists, and pre-operative interprofessional team briefings as “three types of designed communicative interventions to reduce medical errors and improve patient safety” (290–291). These communication interventions attempt to ensure team members engage in sensegiving and cultivate the sense-making that produces high-reliability organizing.

FOCUS ON FAMILY-CENTERED CARE

The NICU context also involves greater engagement with the family. Prior research has found that patient-centered and family-centered communication with healthcare providers has positive health benefits for patients and their families (Craig et al. 2015; Street et al. 2009). Family-centered care (FCC) is “the planning, delivery, and evaluation of health care that is grounded in mutually beneficial partnerships among health care providers, patients, and families” (Institute for Patient- and Family-Centered Care 2023, 1). Four fundamental principles should guide FCC: (a) maintaining family dignity and respect, (b) information exchange, (c) family participation in care, and (d) collaboration between the family and medical team (Ramezani et al. 2014; Griffin, 2006). Implementing FCC in NICUs can lead to decreased parental stress, increased self-esteem (specifically for mothers), and a sense of control for the parents, and it has benefits for infants: shorter hospitalization, more effective pain relief, better sleep, greater success at breastfeeding, and positive impacts on behavior and learning in the long-term (Craig et al. 2015; Ramezani et al. 2014). Healthcare organizations benefit from FCC as well by reduced therapy expenses, increased interprofessional cooperation, greater professional satisfaction, and increased knowledge about care (Callout 12.2).

Callout 12.2 Family-Centered Care

The gold standard for communication in the NICU, family-centered care (FCC) emphasizes the need to care for not only the patient but also for the family caregivers. In FCC, healthcare professionals strive to minimize stress for the parents in the NICU. Parents experience extreme stress, anxiety, and even post-traumatic stress disorder (PTSD) following the birth of a premature child who requires time in the NICU. FCC is an intervention based on theoretical and empirical evidence that encourages

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person-centered communication with parents and involves parents in decisions regarding their child's healthcare (Weis et al. 2013). Hospitals now implement FCC training for healthcare professionals including workshops, evaluations, and even certifications. FCC is not contextually limited to the NICU. FCC is also a widely accepted practice in pediatrics. Five guiding principles of FCC are: (1) information sharing, (2) respect for differences, (3) collaboration, (4) negotiation, and (5) care in the context of family and community (Kuo et al. 2012). This intervention considers a more holistic view of a child's health care and acknowledges the important role that families play in providing care for a patient.

COMMUNICATION CHALLENGES IN THE NICU

NICUs are sites of high-reliability interprofessional communication intertwined with family communication. The varied professions and families bring different beliefs and mental models for what effective communication should involve. That is, communication in the NICU must not only navigate the complexities of intensive care for newborns and interprofessional dynamics associated with the multiple, overlapping institutions present but also family norms and legal and regulatory frameworks that define family (Rauscher et al. 2017; Campbell-Salome and Barbour 2022). Put another way, NICU communication is challenging because it involves multiple, overlapping institutionalized ideas about what is effective and what action should be undertaken. The ideas are institutionalized in the norms, standards, and training of implicated professions; hospitals' policies, procedures, and regulatory requirements; and legal and cultural definitions of family and caregiving. Although all offer different conceptions of what the goals of NICU communication should be and what it means to do it well, the ideas transcend any one NICU, but nonetheless frame and influence the communication that takes place.

In this section, we review how communication interventions in the NICU take into account the institutional, organizational, and familial dynamics that make high-reliability interprofessional collaboration more challenging. Then, we review insights from healthcare communication interventions guided by two questions: (1) What NICU-specific communication interventions exist? (2) How do they address the difficulties of communication in the NICU? Lastly, we will conclude with a vignette that illustrates how these interventions may be implemented in practice in ways that integrate concern for more effective communication in the NICU among different professions and families.

Challenges to Interprofessional Communication in NICUs

Three facets of the NICU contribute to distinctive challenges for interprofessional communication. First, the NICU involves multiple professions working together. The NICU is interdisciplinary. Due to the unique nature of the healthcare needs of the premature infant, several highly specialized healthcare professionals work in tandem to access and care for the infant's medical needs. For example, a premature infant may require a primary nurse assigned to their general care including overseeing feedings, hygiene, and vital signs, such as oxygen levels and heartbeat. However, since these infants require round-the-clock care, the nurses take shifts to monitor the baby. So, an infant may be cared for by a team of 4–6 rotating nurses throughout the week. The infant may also be visited by a neonatologist, a doctor who specializes in the care of a premature baby and oversees the infant's overall progress and diagnosis. The doctor may prescribe treatments, medicine, and other medical interventions that the nurses then carry out. Additionally, the infant may require visits from occupational therapists to ensure they are learning how to eat properly, physical therapists who make sure the infant's motor skills are developing, and cardiologists who monitor the function of the infant's heart. This is just a small sample of the healthcare team involved in the infant's care. Depending on the health of the infant, that team could include upwards of 10–15 healthcare providers.

Second, the NICU involves distinctive challenges due to how it is organized. The complex healthcare team of providers faces a host of issues including conflicting schedules and differences in training and experience, which in turn create organizational challenges such as the synchronization of health monitoring and communication with the parents. Healthcare teams in the NICU seldom get to meet in person to discuss the overall health of the infant, due to the challenges of scheduling a meeting that would accommodate the schedules of so many team members. Instead, these teams rely on written reports that are saved in a universal patient chart. This creates room for miscommunication and ambiguity about the meanings of certain notes. It also means that various professionals are communicating with parents at different points of the day, and sometimes this leads to conflicting information. Additionally, because each member of the healthcare team is so highly specialized, there often is no consistency in training. So, while nurses might receive standardized training in how to communicate with parents, neonatologists may not, creating an uneven range of communication skills. This leads us to consider the challenges of communicating with families.

Third, the NICU also involves distinctive challenges due to the difficulties that parents experience such as uncertainty, the constraints associated with the NICU environment, and communication with staff (Ichijima et al. 2011). Uncertainty can be connected to a lack of information provided to parents by healthcare workers. The unfamiliar environment of the NICU imposes many restrictions on parents, such as limiting access to their child and preventing potential support providers from visiting. Parents reported communication

with staff as stressful due to frequent changes in nursing staff, conflicting information or advice from staff members, and dismissive attitudes or comments from nurses who had busy workloads. To address some of these challenges, we present and evaluate current communication interventions in the NICU.

COMMUNICATION INTERVENTIONS IN THE NICU

Although several communication interventions in the NICU exist, few specifically address the delicate question of family-centered team communication. Interventions that do take families into account fall into two broad categories: (1) those involving parents as collaborators in the interprofessional care of the child and (2) those addressing the training and education of healthcare workers in the NICU. Most fall into the first category, focusing on fostering a healthy bond between parent and child, providing support and sensemaking resources for parents, or encouraging effective patient-provider relationships. These interventions seldom consider how interprofessional relationships may enhance or limit their effectiveness. On the other hand, interventions aimed specifically at interprofessional relationships or communication tend not to deal with the NICU specifically; however, the most widely adopted interprofessional interventions have been tested in the NICU context. We describe some of these interventions next.

Focus on Involving Family

The majority of interventions specific to the NICU focus on involving parents to promote the health of the child. One example is the mother-infant transaction program (MITP, Milgrom et al. 2013). This NICU-specific intervention involves training parents how to recognize a premature infant's cues to minimize stress both in the NICU and at home. Parents are encouraged to intervene (e.g., pick up, touch, and talk to the baby) to comfort the baby when stressed. This intervention is similar to family nurture (Welch et al. 2013), which encourages parents to comfort the infant through calming practices such as scent cloths, touch, skin-to-skin, eye contact, and vocal reassurances. In these interventions, parents take on an active role as care providers.

Focus on Training Healthcare Teams

Buljac-Samardzic et al.'s (2020) review of team training interventions identified four types: (1) training interventions such as TeamSTEPPS (team strategies and tools to enhance performance and patient safety), (2) tools such as the SBAR protocol for patient handoffs (situation, background, assessment, and recommendation), (3) organizational interventions aimed at improving team-based healthcare in particular settings, and (4) programs that combine elements of the others. Sawyer et al. (2013) tested TeamSTEPPS in neonatal intensive care. The intervention aimed to foster nurses' ability to detect and

challenge errors such as incorrect medication dosages and ineffective chest compressions during care. The intervention improved perceptions of teamwork skills and increased the odds that nurses would challenge incorrect medication doses. When Brodsky et al. (2013) tested the TeamSTEPPS in neonatal intensive care, their results were similar. Their study also documented improvements in job satisfaction and fulfillment.

The TeamSTEPPS intervention stands out for its holistic approach to interprofessional communication and attempts to address the difficulties of team-based, collaborative care through training focused on team structures, communication, and so forth. Other interventions focus on more specific strategies such as structuring communication processes like rounds to emphasize the need for communication across professional boundaries (Genet et al. 2015). Bender et al. (2014) tested a simulation intervention's effects on improving procedural skills (e.g., intubations and resuscitations) and team behaviors, demonstrating that repeated, deliberate practice could improve the procedural skills and teamwork needed for treating critically ill neonates. Debriefing videos of recent resuscitations may have similar benefits (Nadler et al. 2011). TeamSTEPPS and the simulation and debriefing interventions create space for deliberation about communication itself. That meta-communication can help participants understand how their interaction is doing more than just conveying information (see Chap. 10 on shared communication competence). These interventions are focused on getting the right information to the right person at the right time, but they also make space for understanding the dynamics around status differences and the different occupational models for problem-solving that can make this kind of healthcare work more communicatively challenging. However, all of the interprofessional interventions applied in the neonatal context tend to overlook the family as a distinctively important factor in interprofessional communication.

Focus on Both Families and Healthcare Teams

The family adjustment and adaptation response (FAAR) intervention stands out among the other interventions because it integrates a concern for interprofessional dynamics and the distinct needs of the NICU (Starks et al. 2016). This intervention involves training an interprofessional team of nurses, social workers, chaplains, and a child life specialist to provide communication and support to family caregivers. This intervention was initially implemented in a pediatric setting that resembles a NICU context in which the parents of the hospitalized child are considered essential team members in the child's care. In the FAAR intervention, the care team sits down with the parents to understand their values, understanding of their child's condition, and support and information needs. The care team then documents the notes from this assessment using a standardized template and checks in with the parents, multiple times a week. The team's role is to facilitate communication between healthcare providers and the parents, convene "care conferences" with the healthcare

providers and the parents, and provide informational and emotional support to the parents during this difficult time. Informational support entails providing information or advice whereas emotional support is an expression of concern or empathy (Cutrona and Suhr 1992). Having a dedicated team like this could resolve many of the problematic interprofessional issues that exist in the NICU including miscommunication amongst healthcare team members and lack of involvement of family members in decision-making. Most importantly, the FAAR intervention team acts as sensegivers and provides parents with space to make sense of their experiences. In doing so, the intervention may overcome a challenge that many NICU healthcare providers face: not having the bandwidth to facilitate sensemaking due to their demanding job responsibilities.

SUMMARY

NICUs are sites of high-reliability organizing. In these HROs, team members must be able to make sense of the situation and act quickly under pressure. In the NICU, parents act as collaborators in these interdisciplinary healthcare teams and play a vital role in the care of the infant. Therefore, it is essential that healthcare professionals act as sensegivers to help parents make sense of the NICU environment so that they can participate in their child's care. Reviewing interventions related to interprofessional teamwork in the NICU, interventions tend to be geared towards educating the parents to be more involved in the care of their infant or focused on just the healthcare professionals—few combined elements of both. Only the FAAR intervention empowered an interprofessional team to facilitate communication between the parents and healthcare professionals while also offering support to the parents who had to make decisions regarding their child's healthcare. To illustrate these concepts, we conclude with a vignette of one parent's NICU experience, weaving these concepts throughout the story.

A NICU STORY

I lay on the exam table in the early labor ward, and the nurse said, "You're going to have a baby today." It was 4 a.m. and six weeks away from my due date. My husband and I were in a state of shock and disbelief. During each of my prenatal doctor visits, we were told that the baby was healthy and growing. I had no predispositions to being at risk for a premature birth. Having not prepared for this outcome, we had so many questions. We were told a neonatologist would come to talk to us about what to expect. Hours later, when he finally arrived, he quickly went over some general information about the NICU. He was interrupted midway due to an incoming emergency delivery. He ran out and we were left to wonder about what life would look like with a child in the NICU. Would she be healthy? How long would she have to stay? Was she at risk for chronic health issues? When the moment arrived to deliver our daughter, the room filled up with about a dozen providers: Providers

assigned to help with delivery hovered around me. Another small group of doctors and nurses stood by with an incubator to take our daughter to the NICU.

Five pounds and seven ounces. That's how much my daughter weighed—a “big” baby they said. When you are expecting a seven-pound baby, five pounds doesn't seem like a “big” baby. In fact, she looked like the smallest baby I had ever seen. They let me hold her and after a quick photo, they placed her in the incubator and wheeled her out of the room and up to the NICU. I had to wait four hours before I could see my baby again.

A nurse pushed me in a wheelchair up to the NICU. It was the early hours of the morning, and I hadn't slept in 36 hours. When you enter the NICU, you have to scrub your hands for three minutes. The digital countdown clock on the wall above the wash basins is activated when you turn on the water. After that, you are required to sign in at the front desk. You are only buzzed through the heavy metal doors after showing your hospital band as identification. The moment you enter the NICU, the environment changes. There are rows of incubators with dozens of wires coming out of them, hooked up to multiple glowing monitors. The incubators are covered by fleece blankets in various prints and patterns. The fluorescent overhead lights are dimmed way down. It's quiet. The layout is open, with no real walls: Each baby station is separated by a linen curtain. Most of the curtains are pulled back and only used when parents are there and want some privacy. I scanned each station, searching for a sign of my child. Finally, I found her in station 24. There was a laminated paper with her name, the name of her nurse, a contact phone number, and my daughter's goals. On that day, her goals were listed as “feed and grow.” I remember thinking that was a strange phrase, more appropriate for a houseplant than a baby. We later learned that this meant she had no immediate health concerns. Her small, fragile body just needed more time to develop. We also learned that these goals were fluid and could change by the day.

Premature infants often go through what healthcare professionals call a “honeymoon phase.” Right after birth, infants appear to be healthy. Usually, after the first 24–48 hours, problems begin. In our daughter's case, she developed trouble maintaining her blood sugar levels. She also developed jaundice and had difficulties eating. She needed a feeding tube. For parents, the NICU is a lot like falling down a rabbit hole into Wonderland. Nothing quite makes sense. On Day 1, you are told that your baby is healthy and just needs some time to grow. On Day 3, you arrive and there is a feeding tube going down your baby's nose. Each day we arrived at the NICU, we were met with some health update, usually linked to a negative event that occurred during the night. By Day 5, we went from thinking our daughter would be home in a matter of days to being told she could be there for a month or more. The hardest part about the NICU is the conflicting information.

While visiting the NICU, we met countless doctors, nurses, and specialists, but never at the same time. We would have one primary nurse assigned to our

baby during the day and then a night nurse would take over around 7 p.m. These nurses also did shift work so we would rotate through 2–3 sets of day and night nurses. We didn't always know who we would see again. We had our favorite nurses and our not-so-favorite nurses. The nurse assigned to a baby was the primary contact for the baby's parents. They were the ones who had the most knowledge of our child's care. Then we met neonatologists, who would pop in very infrequently, and speak with us for approximately two minutes before moving on to the next family. Once, we were sitting in our daughter's station and a small group of four doctors were going through what appeared to be rounds. They spoke only to the other doctors in the group and rattled off a bunch of medical terminology. No one acknowledged that we, the parents, were even present, let alone stopped and gave us an update. Then there were the specialists: occupational therapists, physical therapists, lactation consultants, and speech therapists. They came on specific days during specific timeframes. If you wanted to speak with them directly, you had to be there when they rounded on your child, but due to emergencies, you could be left waiting for hours. On Day 3, a professional we hadn't met before came around to check in with our nurse. She looked surprised when I spoke to her directly. I asked about the most pressing question on our minds: When could we expect to bring our baby home? She told us to expect to be here until our due date which was still six weeks away. I was taken aback. Until then, no one had given us such a long estimation. I felt crushed by the weight of her answer.

On Day 6, I broke down. The uncertainty of the future got to me. I just needed answers. No one seemed to be able or willing to give them to me. Every answer I received was qualified with "Every baby is different." That day, one of our favorite nurses was on duty. She was a favorite because she had an upbeat and cheery personality. She seemed to understand what we were going through, and we just connected. While she stopped by to do her hourly check-in, I couldn't help myself and begged her to give me some indication of my daughter's timeline. I assured her I understood she wouldn't be giving me a guarantee. There are no guarantees in the NICU. I imagine that the last thing you want to do as a healthcare professional is give false hope. I watched as her eyes softened and I saw the pity in them. She quietly told me that if things kept progressing the way they were, it would probably only be another week. When we arrived the next day, we were met by yet another healthcare professional we hadn't seen before, a nurse practitioner. After a brief update on our daughter's health, she casually mentioned that our daughter would be discharged the next day.

It's been two years since our stay in the NICU. I often reflect on our time there, and I can still feel those emotions: anxiety caused by the uncertainty of our daughter's outlook; feeling overwhelmed by the need to learn the NICU's "language"; and fear that the monitor hooked up to my daughter might sound and indicate a drop in her vitals. Despite these emotions, I am also grateful to the doctors and nurses who cared for not only my daughter but also for me.

ILLUSTRATING KEY CONCEPTS

Several issues of family and interprofessional communication from the chapter are present in this story of a NICU experience. First, there were several key moments when the healthcare team failed to communicate with the parents, starting as early as their first interrupted consultation with the neonatologist. Second, the healthcare team operates using a transmission model of communication, rather than a constitutive approach. For them, it was an information allocation problem, not a meaning-making problem. The healthcare workers were concerned with sending the parents information, rather than helping the parents make sense of their experience. Third, interprofessional miscommunication created conflicting information for the parents. Fourth, the parents lacked a significant role in their child's healthcare decisions, specifically when the healthcare team excluded them from the conversation during rounds.

The FAAR intervention focuses specifically on making this sort of NICU team, including the parents, more successful. As described above, this intervention starts with a care conference where the healthcare professionals can meet to understand the family's values, to ensure the care plan maintains respect and dignity for the family. The FAAR Intervention also promotes regular check-ins with the family and minimizes conflicting messages because the communication among the interprofessional care team is synchronized and integrated. Finally, a significant part of the uncertainty and anxiety these parents experienced might have been minimized had a care team been appointed to address parents' questions—if the care team had emphasized their sensegiving role. Stories like this one are common among NICU parents. Interventions that integrate a concern for family and interprofessional communication are more likely to support the high-reliability organizing the NICU requires.

REFERENCES

- Apker, Julie, Jennifer Ptacek, Christopher Beach, and Robert Wears. 2016. Exploring Role Dialectics in Inter-Service Admission Handoffs: A Qualitative Analysis of Physician Communication. *Journal of Applied Communication Research* 44 (Oct.): 399–414. <https://doi.org/10.1080/00909882.2016.1225164>.
- Barbour, Joshua B., and Rebecca Gill. 2017. Questioning as Regulatory Work Practice: The Communicative Accomplishment of Reliability for the Safety Oversight of Nuclear Power Plants. *Communication Monographs* 84 (4): 466–487. <https://doi.org/10.1080/03637751.2017.1322212>.
- Baron, Ida Sue, Kimberly A. Kerns, Ulrich Müller, Margot D. Ahronovich, and Fern R. Litman. 2012. Executive Functions in Extremely Low Birth Weight and Late-Preterm Preschoolers: Effects on Working Memory and Response Inhibition. *Child Neuropsychology* 18 (6): 586–599. <https://doi.org/10.1080/09297049.2011.631906>.
- Bender, J., K. Kennally, R. Shields, and F. Overly. 2014. Does Simulation Booster Impact Retention of Resuscitation Procedural Skills and Teamwork? *Journal of Perinatology* 34 (9): 664–668. <https://doi.org/10.1038/jp.2014.72>.
- Benner, Patricia. 1994. The Role of Articulation in Understanding Practices and Experience as Sources of Knowledge in Clinical Nursing. In *Philosophy in an Age of*

- Pluralism: The Philosophy of Charles Taylor in Question*, ed. James Tully and Daniel M. Weinstock, 136–155. New York: Cambridge University Press.
- Brodsky, Dara, Munish Gupta, Mary Quinn, Jane Smallcomb, Wenyang Mao, Nina Koyama, Virginia May, Karen Waldo, Susan Young, and DeWayne M. Pursley. 2013. Building Collaborative Teams in Neonatal Intensive Care. *BMJ Quality & Safety* 22 (5): 374. <https://doi.org/10.1136/bmjqs-2012-000909>.
- Buljac-Samardzic, Martina, Kirti D. Doekhie, and Jeroen D.H. van Wijngaarden. 2020. Interventions to Improve Team Effectiveness within Health Care: A Systematic Review of the Past Decade. *Human Resources for Health* 18 (1): 2. <https://doi.org/10.1186/s12960-019-0411-3>.
- Campbell-Salome, Gemme, and Joshua B. Barbour. 2022. Managing Uncertainty for and with Family: Communication Strategies and Motivations in Familial Uncertainty Management for Hereditary Cancer. *Qualitative Health Research* 32 (8–9): 1230–1245. <https://doi.org/10.1177/10497323221090191>.
- Carmack, Heather J., and Katherine L. Harville. 2020. Including Communication in the Nursing Classroom: A Content Analysis of Communication Competence and Interprofessional Communication in Nursing Fundamentals Textbooks. *Health Communication* 35 (13): 1656–1665. <https://doi.org/10.1080/10410236.2019.1654179>.
- Charchuk, Margo, and Christy Simpson. 2005. Hope, Disclosure, and Control in the Neonatal Intensive Care Unit. *Health Communication* 17 (2): 191–203. https://doi.org/10.1207/s15327027hc1702_5.
- Craig, J.W., C. Glick, R. Phillips, S.L. Hall, J. Smith, and J. Browne. 2015. Recommendations for Involving the Family in Developmental Care of the NICU Baby. *Journal of Perinatology: Official Journal of the California Perinatal Association* 35 (11): S5–S8. <https://doi.org/10.1038/jp.2015.142>.
- Cutrona, Carolyn E., and Julie A. Suhr. 1992. Controllability of Stressful Events and Satisfaction with Spouse Support Behaviors. *Communication Research* 19 (2): 154–174. <https://doi.org/10.1177/009365092019002002>.
- Donchin, Y., D. Gopher, M. Olin, Y. Badihi, M. Biesky, C.L. Sprung, R. Pizov, and S. Cotev. 2003. A Look into the Nature and Causes of Human Errors in the Intensive Care Unit. *Quality and Safety in Health Care* 12 (2): 143. <https://doi.org/10.1136/qhc.12.2.143>.
- Dunn, Alexandra M., Clifton Scott, Joseph A. Allen, and Daniel Bonilla. 2016. Quantity and Quality: Increasing Safety Norms through After Action Reviews. *Human Relations* 69: 1209–1232. <https://doi.org/10.1177/0018726715609972>.
- Fox, Stephanie, Kirstie McAllum, and Laura Ginoux. 2023. Team Care for the Care Team: A Scoping Review of the Relational Dimensions of Collaboration in Healthcare Contexts. *Health Communication* 1–12. <https://doi.org/10.1080/10410236.2023.2198673>.
- Genet, Irene C., Kimberly S. Firestone, and Teresa A. Volsko. 2015. Neonatal Respiratory Therapist-Led Rounds Can Improve Staff Satisfaction and Timeliness of Respiratory Interventions. *Respiratory Care* 60 (3): 321–327. <https://doi.org/10.4187/respcare.03489>.
- Gioia, Dennis A., and Kumar Chittipeddi. 1991. Sensemaking and Sensegiving in Strategic Change Initiation. *Strategic Management Journal* 12 (6): 433–448. <https://doi.org/10.1002/smj.4250120604>.
- Griffin, Terry. 2006. Family-Centered Care in the NICU. *The Journal of Perinatal & Neonatal Nursing* 20 (1) https://journals.lww.com/jpnnjournal/fulltext/2006/01000/family_centered_care_in_the_nicu.29.aspx.

- Harrison, Tyler R., Elizabeth A. Williams, and Ashley R. Reynolds. 2020. The Intersections of Organizations, Health, and Safety: Designing Communication for High Reliability Organizations. In *The Handbook of Applied Communication Research*, ed. H. Dan O'Hair and Mary John O'Hair, 279–296. <https://doi.org/10.1002/9781119399926.ch17>.
- Ichijima, Emiko, Ray Kirk, and Andrew Hornblow. 2011. Parental Support in Neonatal Intensive Care Units: A Cross-Cultural Comparison between New Zealand and Japan. *Journal of Pediatric Nursing* 26 (3): 206–215. <https://doi.org/10.1016/j.pedn.2009.10.003>
- Institute for Patient- and Family-Centered Care. 2023. *Patient- and Family-Centered Care* (blog). 2023. <https://www.ipfcc.org/about/pfcc.html>
- Institute of Medicine. 2007. *Preterm Birth: Causes, Consequences, and Prevention*. The National Academies Press: Institute of Medicine. <https://doi.org/10.17226/11622>.
- Jahn, Jody L.S., and Anne E. Black. 2017. A Model of Communicative and Hierarchical Foundations of High Reliability Organizing in Wildland Firefighting Teams. *Management Communication Quarterly* 31 (3): 356–379. <https://doi.org/10.1177/0893318917691358>.
- Kuo, Dennis Z., Amy J. Houtrow, Polly Arango, Karen A. Kuhlthau, Jeffrey M. Simmons, and John M. Neff. 2012. Family-Centered Care: Current Applications and Future Directions in Pediatric Health Care. *Maternal and Child Health Journal* 16 (2): 297–305. <https://doi.org/10.1007/s10995-011-0751-7>.
- Milgrom, Jeannette, Carol Newnham, Paul R. Martin, Peter J. Anderson, Lex W. Doyle, Rod W. Hunt, Thomas M. Achenbach, et al. 2013. Early Communication in Preterm Infants Following Intervention in the NICU. *Early Human Development* 89 (9): 755–762. <https://doi.org/10.1016/j.earlhumdev.2013.06.001>.
- Myers, Karen K., and Robert D. McPhee. 2006. Influences on Member Assimilation in Workgroups in High-Reliability Organizations: A Multilevel Analysis. *Human Communication Research* 32 (Oct.): 440–468. <https://doi.org/10.1111/j.1468-2958.2006.00283.x>.
- Nadler, Izhak, Penelope M. Sanderson, Coleen R. Van Dyken, Peter G. Davis, and Helen G. Liley. 2011. Presenting Video Recordings of Newborn Resuscitations in Debriefings for Teamwork Training. *BMJ Quality & Safety* 20 (2): 163–169. <https://doi.org/10.1136/bmjqs.2010.043547>.
- Ramezani, Tahereh, Zahra Hadian Shirazi, Raheleh Sabet Sarvestani, and Marzieh Moattari. 2014. Family-Centered Care in Neonatal Intensive Care Unit: A Concept Analysis. *International Journal of Community Based Nursing and Midwifery* 2 (4): 268–278.
- Rauscher, Emily A., Stephanie L. Young, Wesley T. Durham, and Joshua B. Barbour. 2017. 'I'd Know That My Child Was Out There': Egg Donation, the Institutionalized 'Ideal' Family, and Health Care Decision Making. *Health Communication* 32 (May): 550–559. <https://doi.org/10.1080/10410236.2016.1140272>.
- Sawyer, Taylor, Vickie Ann Laubach, Joseph Hudak, Kelli Yamamura, and Amber Pocrnich. 2013. Improvements in Teamwork during Neonatal Resuscitation after Interprofessional Team STEPPS Training. *Neonatal Network* 32 (1): 26–33. <https://doi.org/10.1891/0730-0832.32.1.26>.
- Starks, Helene, Ardith Doorenbos, Taryn Lindhorst, Erica Bourget, Eugene Aisenberg, Natalie Oman, J. Tessa Rue, Randall Curtis, and Ross Hays. 2016. The Family Communication Study: A Randomized Trial of Prospective Pediatric Palliative Care Consultation, Study Methodology and Perceptions of Participation Burden.

- Contemporary Clinical Trials* 49 (July): 15–20. <https://doi.org/10.1016/j.cct.2016.05.004>.
- Street, Richard L., Gregory Makoul, Neeraj K. Arora, and R.M. Epstein. 2009. How Does Communication Heal? Pathways Linking Clinician-Patient Communication to Health Outcomes. *Patient Education and Counseling* 74: 295–301.
- Vogus, Timothy J., and Kathleen M. Sutcliffe. 2007. The Safety Organizing Scale: Development and Validation of a Behavioral Measure of Safety Culture in Hospital Nursing Units. *Medical Care* 45: 46–54. <https://doi.org/10.1097/01.mlr.0000244635.61178.7a>.
- Watson, Bernadette M., Michelle L. Heatley, Cindy Gallois, and Sue Kruske. 2016. The Importance of Effective Communication in Interprofessional Practice: Perspectives of Maternity Clinicians. *Health Communication* 31 (4): 400–407. <https://doi.org/10.1080/10410236.2014.960992>.
- Weick, Karl E., and Karlene H. Roberts. 1993. Collective Mind in Organizations: Heedful Interrelating on Flight Decks. *Administrative Science Quarterly* 38: 357–381. <https://doi.org/10.2307/2393372>.
- Weick, Karl E., and Kathleen M. Sutcliffe. 2015. *Managing the Unexpected: Sustained Performance in a Complex World*. 3rd ed. Hoboken, NJ: John Wiley & Sons, Inc.
- Weick, Karl E., Kathleen M. Sutcliffe, and David Obstfeld. 2005. Organizing and the Process of Sensemaking. *Organization Science* 16 (Aug.): 409–421. <https://doi.org/10.1287/orsc.1050.0133>.
- Weis, J., V. Zoffmann, G. Greisen, and I. Egerod. 2013. The Effect of Person-Centred Communication on Parental Stress in a NICU: A Randomized Clinical Trial. *Acta Paediatrica* 102 (12): 1130–1136. <https://doi.org/10.1111/apa.12404>.
- Welch, Martha G., Myron A. Hofer, Raymond I. Stark, Howard F. Andrews, Judy Austin, Sara B. Glickstein, Robert J. Ludwig, and Michael M. Myers. 2013. Randomized Controlled Trial of Family Nurture Intervention in the NICU: Assessments of Length of Stay, Feasibility and Safety. *BMC Pediatrics* 13 (Sept.): 148. <https://doi.org/10.1186/1471-2431-13-148>.
- Williams, Elizabeth A., and Andrew W. Ishak. 2017. Discourses of an Organizational Tragedy: Emotion, Sensemaking, and Learning after the Yarnell Hill Fire. *Western Journal of Communication*. <https://doi.org/10.1080/10570314.2017.1313446>.

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