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Perspectives on Promoting Breastmilk Feedings for Premature Infants During a Quality Improvement Project

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Abstract

Objective: This study investigated clinicians' perspectives during a quality improvement project to promote breastmilk feedings in premature infants.
Study Design: From 2009 to 2010, 11 hospitals in the California Perinatal Quality Care Collaborative participated in a project to promote breastmilk feedings in premature infants. Audio recordings of monthly meetings held to encourage sharing of ideas were analyzed using qualitative methods to identify common themes related to barriers and solutions to breastmilk feeding promotion.
Results: Two broad categories were noted: communication and team composition. Communication subthemes included (1) communication among hospital staff, including consistent documentation, (2) communication with family, and (3) communication between transfer hospitals. Team composition subthemes included (4) importance of physician buy-in and (5) integrated teams designed to empower leaders.
Conclusions: Optimizing communication among health professionals and parents and improving team composition may be key components of facilitating breastmilk feeding promotion in premature infants.

Introduction

The American Academy of Pediatrics estimates that postneonatal infant mortality rates in the United States are 21% lower in breastfed infants than in formula-fed infants.[1] Breastmilk is the optimal nutrition for premature infants, as infants who are fed breastmilk are less likely to suffer from necrotizing enterocolitis.[2] The prevalence of respiratory, gastrointestinal, and infectious disease is also lower in breastfed infants.[3–6]

Significant disparities in breastmilk feeding rates for premature infants exist within and between hospitals despite the known benefits of breastmilk. Sociodemographic factors such as non-white race and lower maternal education are risk factors for not expressing breastmilk and for shorter duration of breastmilk feeding.[7] In California neonatal intensive care units (NICUs), breastmilk provision for premature infants varies widely by hospital of birth.[8]

Qualitative research studies have addressed clinician, maternal, and familial attitudes as potential barriers to breastmilk feeding.[9,10] A review of qualitative studies on the attitudinal determinants of breastfeeding suggests that perceived social, familial, and clinician support and consistent and reliable information were salient factors in whether a woman would breastfeed her infant.[10] Considering the complexity of neonatal intensive care, maternal practices regarding breastmilk provision are more likely to be influenced by clinician- and systems-level factors for preterm infants. Understanding the influence of these factors may be useful in the implementation of evidence-based breastmilk feeding practices in the NICU.

Quality improvement is a growing area of research emphasis in pediatrics.[11] Although studies describing the quantitative outcomes of quality improvement projects may be useful to those seeking to embark on similar projects, the addition of qualitative research findings may provide critical implementation knowledge.[12] Specifically, the thought processes of clinicians as they actively participate in a quality improvement project may provide insight into key components of the intervention that may not be revealed in quantitative analyses.

We analyzed the perspectives of NICU clinicians who were involved in a year-long statewide quality improvement project to increase breastmilk feeding for premature infants, in

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order to understand perceived obstacles and potential solutions to implementing desired changes in clinical practice. This year-long collaborative project resulted in an increase of breastmilk feeding at discharge from 55% to 64% with a concomitant decrease in the incidence of necrotizing enterocolitis from 7% to 2%.[13]

Participants and Methods

Setting

Over 90% of NICUs in California belong to the California Perinatal Quality Care Collaborative (CPQCC), a multistakeholder quality improvement organization. Some of CPQCC's core activities are to identify NICU best practices and then create implementation toolkits and sponsor collaborative projects to facilitate implementation and dissemination of those practices. A recent project focused on increasing the use of breastmilk nutrition. All 129 member NICUs were invited to participate in the 12-month project. Eleven member hospitals joined and actively participated for the duration of the project from 2009 to 2010, entitled the "CPQCC/California Children's Services Breast milk Nutrition Collaborative." This collaborative was designed to increase breastmilk feeding rates, primarily through implementation of a toolkit designed for this purpose. This group of 11 NICUs was representative of CPQCC hospitals in terms of the distribution of level of care and patient volumes but did have a lower average rate of breastmilk feeding at discharge for preterm infants at the start of the collaborative (baseline, 55%) compared with CPQCC hospitals that did not participate (baseline, 64%). A detailed analysis of the results of the collaborative project is presented elsewhere.[13]

A key component of the collaborative structure was monthly in-person or Webcast meetings for group discussions of progress and challenges the teams were facing. Data for this study consisted of the transcripts of recorded sessions of these meetings. Names of individuals and hospitals were anonymized in transcripts. The study was approved by the Committee on Human Research at the University of California, San Francisco.

Participants

All participating hospitals had Level III NICUs, with five considered Regional NICUs by California Children's Services (Level IIIC designation) and six considered Community NICUs (Level IIIA or IIIB designation).[14] Of the regional NICUs, three were in children's hospitals. The total number of NICU beds ranged from 16 to 104, with a mean of 47 and median of 53. Each hospital had varying numbers of representatives, including clinicians, administrators, and educators. The team representatives were typically the same during each meeting, although there was variation month to month. To give an idea of the representation of teams, 1 month's participants included four developmental specialists, six dieticians, 10 nurse specialists or educators, 10 physicians, seven nurse managers, eight lactation consultants, and 23 staff nurses.

Meeting context

Each meeting addressed one or more specific questions related to the quality improvement project, based on the process of implementation and support within the collaborative structure. We studied transcripts of selected discussions to identify barriers to implementation of breastmilk feeding in participating NICUs. In a previous study, we analyzed data focusing on promotion of skin-to-skin contact, which was primarily discussed in one of the sessions.[15] We limited the sessions included in the current analysis based on two criteria: (1) the topic of the Webcast was pertinent to our research question, and (2) the perspectives expressed by clinicians were based on actual experience and not on assumptions or hearsay. The monthly topics of "Skin to Skin Holding" and "Data Driven Decision Making" were excluded, as was a discussion that focused on familial constraints. Because we did not collect data from the families, we did not include clinicians' interpretations of family situations. Using these selection criteria, our analysis focused on the transcripts of four sessions. The main planned topics for these sessions were "Increasing Physician Buy-In" and "Increasing Nurse Education/Buy-In." Although these were the conversation prompts, the discussions covered a wide spectrum of institutional concerns.

Discussions were organized and facilitated by CPQCC quality improvement leaders such that each participating NICU team had a specific opportunity to contribute to the discussion in each session, thereby ensuring that discussion was not dominated by select institutions or individuals. Monthly discussions were audio-recorded and transcribed verbatim by a professional transcriptionist. Transcripts were double-checked against the recordings for accuracy.

Data analysis

We conducted a thematic analysis according to the methods of Braun and Clarke.[16] Thematic analysis is a structured approach to identifying patterns in qualitative data and may take an inductive or deductive approach. Because we were interested in barriers to implementation as perceived and reported by clinicians, we used an inductive approach producing codes from the data rather than applying a prespecified structure to the data. Two investigators independently read and coded the relevant transcripts for issues related to implementation of breastmilk feeding promotion. The two sets of codes were then reviewed together, and a common coding language was determined by consensus. The coding structure was sensitive to both semantic themes (directly labeled by participants' words) and latent themes (underlying themes that go beyond the explicit words used by participants). Transcripts were then reviewed and coded to the consensus coding language.

Because data were in a fixed form (previously recorded discussions) and prompts were not specifically designed to answer the research question for this study, we chose the frequency with which concepts were mentioned as an indicator of theme salience. When themes from the individual sessions were combined, we noted specific patterns. Transcripts and coding were independently reviewed by a third investigator to confirm fit between data and identified themes. Data were managed and analyzed using Atlas.ti (version 6.2.26; Atlas.ti Scientific Software GmbH, Berlin, Germany).

Results

The majority of codes fell into two broad categories: communication (66%) and team composition (34%). Within the

broad category of communication, three subthemes were identified: (1) communication within the hospital (65%), (2) communication between family and staff (23%), and (3) communication across hospitals (12%).

Communication within the hospital includes transfer of information within a department or across departments. Remarks coded as interdepartmental communication issues made up the majority of the communication codes. Because of the nature of neonatal intensive care workflow, NICU staff interact often with labor and delivery, newborn nursery or mother/baby unit, and postpartum/recovery units. Participants noted that early milk expression is important for initiating and maintaining breastmilk feeding. In the hospital context, mothers require staff support from several areas to accomplish this task. The ability to express milk may therefore be influenced by the policies and procedures of multiple departments. One participant noted that "getting maternity staff involved in terms of the maternal pumping issues and getting that going ideally,…within a few hours of arrival into the maternity unit" was crucial for establishing breastmilk feeding. Another respondent reported that charts were an important form of communication among the NICU, labor and delivery, and postpartum recovery and shared her hospital's use of the chart as a communication tool, "We developed a bright yellow sticker that we're putting on the mothers' charts that's indicating…[what the] pumping window is."

Within departments, participants often noted the difficulty of sharing consistent and useful documentation. Documentation is a standard method of communication in the healthcare setting, either between clinicians with different job titles or between shift changes of the same job title. For example, one participant attested to this barrier by noting that "the documentation is actually quite easy to do on our [electronic charting] system, but getting people to actually document that, that's still an issue for us." Despite making the documentation straightforward, this participant suggested that it is necessary to instill new habits in staff in order to improve use of available tools that may facilitate tracking data important to promoting breastmilk feeding.

Communication between clinicians and family members was the second most prevalent subtheme in the communication category. Participants noted the importance of the initial contact between physicians and parents either just prior to delivery or on admission to the NICU. This was noted as a critical time for conveying the benefits of breastmilk for premature infants.

Consistent communication throughout the infant's stay was considered a key component of maintenance of maternal pumping. Regular communication, either verbally or through documentation, between nursing staff and mothers about the frequency and volume of pumping was noted to be a contributor to success. There were various ways of approaching this issue by hospital. It was noted that a bidirectional flow of information was preferable to having a log kept solely by the mother. Several units had implemented a place on the infant's medical paper or electronic record where information on pumping was noted. In electronic records, data could be displayed graphically for clinicians and mothers to note trends in milk production.

Some units established a schedule for regular communication between the nurse and mother to talk about breastmilk production. One unit had established a daily phone call or face-to-face talk regarding breastmilk, whereas others established a weekly protocol. It was noted that the ideal frequency of such communications may vary by patient population, but a planned, scheduled approach regardless of exact frequency could be of benefit in establishing and maintaining optimal communication.

A unique trait of the NICU is the relationship between inbound and outbound hospitals. With regionalization of neonatal care, infants may be separated from their mothers and transferred to a higher-level NICU that suits their medical needs better.[14,17] Because early milk expression is key to establishing an adequate supply, communication with the hospital where the delivery occurred and the mother is recovering may be crucial. For the mothers in referring hospitals, several units developed brochures/letters that the transport team brought to the mother for initial contact or they attended nurse staff meetings at referring hospitals to communicate the importance of early milk expression.

The other broad category was team composition, with two main subthemes: physician involvement (49%) and diverse, committed teams (51%). A prominent subtheme was the importance of physician involvement in encouraging breastmilk feeding. For some units struggling to implement best practices, the lack of adequate physician involvement and buy-in was noted as a potential contributing factor to this struggle. One participant suggested that the development of a "script would be great for the M.D.s so we can get the message out more consistently [to] discuss breastfeeding, breast milk, lactation during the first meeting with the parents, at the family meeting, the bedside meeting."

Another prevalent subtheme was team diversity (i.e., making sure enough people are on board from different departments). It was noted by several participants that including other units such as well baby, postpartum, and high-risk maternity was beneficial in implementation of the quality improvement project. Unlike a project that might be more isolated to the NICU, such as trying to reduce central line infections, one participant remarked, "Just getting the other [units] to kind of buy into this and help us has just been a little bit of a struggle but we're working on that." Another participant noted, "we had a meeting with pediatric and obstetrical physicians and the nurses in a collaborative proactive practice meeting and at that time were able to present the collaborative project and the goals. We found the obstetricians were supportive of the project…and were willing to make some changes to the order sets for their post-partum patients in order to help improve the success of breastfeeding." Another clinician added, "Sometimes we can't do everything within our own unit and need to reach out,…as you think about patient flow, to [those] before or after us."

Within participating departments, respondents noted the importance of designated leaders among staff. Furthermore, the successful composition of teams may have helped to overcome burnout and maintain commitment. Staffing shortages, unexpected increases in the NICU population, and competing quality improvement initiatives all contributed to burnout within the team. By spreading the leadership roles among various departments, the responsibilities of this project could be shared; this shared leadership was protective against losing momentum when work levels were high or staff turnover threatened maintaining project gains.

Discussion

In our study of 11 hospital teams that underwent a yearlong quality improvement project to promote breastmilk feeding in their respective NICUs, we found that team members identified the broad themes of communication and team composition as key components to success.

Specific important communication areas included communication within hospitals, between hospitals, and with family members. Some issues that seem logistical or administrative at face value—such as proper documentation, maternal willingness to express milk, or transfer issues—were interpreted in our analysis as matters related to communication. Clinicians working with vulnerable infants and their families need to efficiently allocate resources; reliable documentation provides for more targeted needs assessment. Communication between clinicians and family members should happen early—preferably before birth—and ideally continue until after discharge. For hospitals that care for non–English-speaking mothers, this may have implications for facilitating the use of translation services for two-way communication regarding breastmilk. NICUs that admit transfers need to be able to communicate information about milk expression to the mother at the delivery hospital.

Team composition can be summarized by the need to integrate physicians and teams from other departments into the quality improvement process. Research suggests that effective collaboration improves patient outcomes,[18–20] especially with increasing complexity of care.[20] A successful quality improvement project to transition mothers of infants with complex congenital anomalies to breastfeeding utilized a bedside nurse-driven process, which was aided by a multidisciplinary team including surgical and neonatal nurses and physicians, as well as other NICU staff and former parents.[21] In that setting, the unit achieved successful transition to breast prior to discharge for 72% of infants admitted during the quality improvement project.

Participants' views that empowering leaders within other departments was important is consistent with the literature on collaboration. However, diverse teams encompassing varied disciplines are complex, and their success is strongly influenced by organizational context.[19] Differing professional cultures, values, and world views can create differing expectations and conflict for teams that do not have adequate support and resources to conduct their joint work.[22,23] Some determinants of successful collaboration include horizontal rather than hierarchical structures, leadership vision, and having the time and space for regular interaction.[24] These characteristics may be challenging to achieve in interdepartmental and interinstitutional collaboration. When the responsibility for improving the rates of breastmilk feeding is shared among an integrated and diverse team, the likelihood of success may be optimized; however, this is unlikely to occur without organizational support that includes time and physical proximity.

Qualitative studies of parents' perspectives on breastfeeding have found that interactions with clinicians were influential in whether parents considered the breastfeeding experience to be positive.[10] In most of these studies, the perception of health professionals as being influential in deciding to breastfeed was secondary to the influence of family and peers.[10] However, although a few studies have examined premature infants, the majority of these studies have concerned breastfeeding in term infants. As the relationship between families of term infants and clinicians is a relatively short one compared with that of premature infants, we would presume that the interaction with hospital staff may be more influential among NICU families who spend a prolonged time with a variety of clinicians during the hospital course. In a qualitative study of interviews of parents of very premature infants, the parents' perception of providing breastmilk was that it was difficult and discouraging.[25] In that context, NICU staff may play an important role in encouraging families to succeed in this difficult task.

In previous studies, when the healthcare professional was identified as an influence on breastmilk feeding, maternal perception was often negative, particularly when multiple contacts led to inconsistent information.[10] In our study, relevant themes aligned with those findings: providing consistent information from a diverse team and devoting adequate resources such as staffing to provide maternal support. The results of that review and the findings of our study highlight that both clinicians and families perceive similar barriers and opportunities.

Conclusions

There can be many lessons learned from participating in a quality improvement project. By "listening in" on regular discussions of a group participating in a quality improvement project, we gained insight into some key issues related to promoting breastmilk feedings in premature infants in the NICU. This type of qualitative research may help to disseminate some of the useful information that the participants learned, which may help others seeking to perform a similar project.

Providing breastmilk for premature infants is a unique situation in medicine in which clinicians rely heavily on a third party (the mother) in order to provide what may be considered a medical intervention for a patient (the infant). This can be a challenging circumstance for all involved. In our study of clinician perspectives during a quality improvement project, we found that communication and team composition are key facets in promotion of breastmilk feedings for premature infants in the NICU. Strong organizational support, including resources for quality improvement and incentives for effective teamwork, may help those aiming to improve practice.

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