

EVIDENCE-BASED PRACTICE WITHIN DISCHARGE TEACHING OF THE PREMATURE INFANT

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Over 400,000 premature infants are born in the United States every year. The number of infants born weighing less than five pounds, as well the survival of those who might have previously died has steadily increased since 1984 (March of Dimes, 1999). Having a premature infant has a tremendous impact on families, both in the Neonatal Intensive Care Unit (NICU) and at home, after discharge. Premature infants face a high risk of having long-term medical and developmental problems such as chronic lung disease, poor growth, feeding problems, cerebral palsy, learning disabilities, and behavioral issues (Tracy, 1999).

With diminishing health care dollars, technological advancements, and a shift from hospital to community-based care causing a decreased length of stay for premature infants (Brooten, Gennaro, Knapp, Brown, & York, 1989) discharge teaching is even more critical to the well-being of the infant and the family. Because parents may be bringing home an infant with special needs, they should be fully informed and prepared for what type of care their child will require in the future.

Bass (1991) suggests that parents of premature infants face emotional disequilibrium evoked by the stress of parenting a sick child. Bass showed that parents rated the gathering of information about their infant's illness as their most important coping mechanism when trying to master their stressful situation. This same coping mechanism can be a source of adaptation after the infant's discharged home. Because discharge teaching is so important and the methods of instruction vary greatly throughout NICU's across the country, finding an evidence-based method of discharge teaching would benefit the infants, parents, nurses, and other medical professionals who care for premature infants both in the NICU and after discharge.

Individualized Article Critiques

A literature search was performed using the keywords: premature infant, education, and discharge. The years of the articles accepted were narrowed to 1980 through present. Other than the five studies reviewed below, there were no other research-based nursing articles on discharge teaching found.

The first article reviewed was a randomized, repeated measures intervention outcome study done by Meyer, Garcia, Lester, Boukydis, McDonough, & Oh (1994). This was an extremely important study because it examined the efficacy of an individualized, family-based intervention. The sample size was 34 randomly chosen infants weighing less than 1500 grams at birth. The interventions began upon admission to the NICU and continued with weekly evaluations using a multi-disciplinary approach to examining family and infant needs. Results were statistically significant showing at discharge the intervention mothers were less depressed, feeding difficulties were less frequent, and the parent-infant interactions in the intervention group were more positive. Standardized questionnaires were used, parent interactions were videotaped, and both were evaluated by two blinded observers. Although replication is important, this study will be difficult to duplicate because its interventions are so individualized.

Generalization is possible, however, it is limited because of the individualized format of the intervention, the small sample size, and the outcomes are only measured upon discharge.

The second review is on a small descriptive, comparison pilot study conducted by Drake (1995) using the card sort technique. A random, convenience sample of seven nurses and ten parents of stable premature infants was used. At discharge parents are given 24 cards to sort into six piles, ranking them from “most” to “least” important. Nurses were also given the cards to sort and rank. Comparison showed strong differences in what the parents felt were important issues versus what the nurses felt strongly about teaching. For example, learning to take their infant’s temperature was ranked very high by parents and very low by the nurses. Out of 14 cards, nurses matched parents only 21-43 percent of the time. Parents and nurses both expressed that the card sort method gave the parents more control over learning and improved the nurse’s ability to meet the parent’s specific needs. This study sample was small and therefore should be replicated before results can be implemented and generalized. However, the results of this study shows another indication that discharge teaching should be individualized as the nurse’s perception of the parent’s needs may be different than the actual parent needs.

The third study reviewed was a retrospective, descriptive study done by Vecchi, Vasquez, Radin, & Johnson (1996). This group developed a Neonatal Individualized Predictive Pathway (NIPP), a type of critical pathway, after an extensive retrospective chart review using a sample size of 172 charts. After the chart review and NIPP implementation, informal interviews were conducted with 50 parents to find out what they found helpful about the NIPP. Parent response was extremely positive, feeling as if the NIPP gave them a sense of control and understanding of what to expect. No measurements were done regarding improved outcomes for infant or maternal factors. The use of the NIPP is limited to the average premature infant; no critical pathways have been created if complications arise.

The fourth study reviewed was conducted as part of a larger randomized clinical trial done by Brooten, et al (1989). In this area of the study, 36 mothers of infants weighing less than 1500 grams were given extensive teaching soon after birth and continued weekly. Home visits were done until 18 months after discharge. Teaching was focused on what the specific needs of each infant and families were; including current health problems, maternal care needs, managing the health care system, and community resources. A clinical nurse specialist did careful examination of individualized parent needs weekly and the results showed an increased need in all the above areas. Limitations of generalization were due to the sample being primarily black, undereducated, and lower socioeconomic status women, and as in the Meyer, et al (1994) study, teaching was highly individualized making the intervention difficult to replicate.

The final study to be evaluated was done by Deloian (1998). This descriptive, comparative, triangularized study evaluated the relationship of an Individualized Family Service Plan (IFSP), the parent’s experience of transitioning home, and the feeding outcomes of infants one month after discharge. By using both quantitative and qualitative methods, Deloian was able to deduce that the key to discharge teaching is creating a trusting relationship between the nurse and parent caregiver. A trusting relationship builds confidence and competency in the parent resulting in improved weight gain and positive relationship between parent and child. Limitations were a small sample size (20 premature infants and their parents) for quantitative data and lack of measurement of parent stress relief. Because of these limitations generalization of quantitative data is limited, however the qualitative data could be valuable as a basis for further research.

Concluding evidence that supports developing a practice protocol

The most rigorous study was the randomized, repeated measures intervention study done by Meyer, et al (1994). Results were examined and coded by two blinded observers which strengthens its credibility. Validity was strong as they used four questionnaires that had been previously proven (PSS:NICU, MSRI, BDI, & the FES). The Q-sort study by Drake (1995) was the least rigorous because it was a pilot study of only seven nurses and ten parents, and there was not any statistical analysis of the data.

Although some studies evaluated had limitations for generalization, there are important common themes found throughout the research examined. Meyer and Deloian showed competent, positive results for parents by creating a discharge teaching protocol that specifically addresses parent and infant needs. Brooten exemplified this need by concentrating specific teaching needs to a poor, undereducated population. Drake illustrated the significant differences in nurse and parent perceptions of discharge teaching needs indicating the importance of focusing on what parents perceive as priority. The evidence from these studies suggests it is safe to conclude that every discharge teaching protocol should be individualized to meet the parent/infant needs first.

Another common theme is to begin discharge teaching upon admission, followed by weekly evaluations and redirection if needed. Meyer, et al., Brooten, Deloian, and Vecchi, et al. used this technique, showing positive outcome results. Brooten, Vecchi, et al., and Deloian had one clinical nurse specialist as the coordinator of interventions and evaluations. Meyer, et al. assigned one clinician picked from an interdisciplinary team that included pediatrics, psychology, nursing, and/or physical therapy to be the case manager of all individualized interventions. In Meyer's study, a team of multi-disciplinary caregivers met weekly to evaluate the needs of each infant and family.

Creating a discharge planning tool that is both individualized and begins upon admission to the Neonatal Intensive Care Unit is vital to any premature infant discharge teaching process.

Recommended Practice Protocol

- Individualized binder: Every infant admitted to the NICU will be given a three-ring binder upon admission. The binder will contain:
 1. Introduction to NICU
 2. Glossary of definitions pertaining to NICU
 3. What to expect while your infant is in the NICU." "Commonly asked questions." "What to ask your preemie's doctor."
 4. "When will your preemie come home." "When to begin planning for your preemie's discharge from the NICU."
 5. Chart for communicating the infant's progress to parents and a place for parent questions. Chart should be used by nurses weekly (daily when possible).
 6. Hospital resource list.
 7. Community resource list.
 8. Discharge teaching checklist that is reviewed weekly by primary nurse and parent.
 9. Approximately one week prior to discharge information on what to expect the first two years of life will be included in binder (developmental issues, feeding and growth chart, doctor visits, immunizations, etc.)
 10. "Questions to ask pediatrician when searching for a physician." "Questions to ask your pediatrician once your preemie is home."
- Case Manager:

Within the first three days of admission a clinical nurse specialist or nurse practitioner is assigned to the family. He/she is considered their case manager and will oversee all teaching and coordination of the multi-disciplinary approach. This nurse will be available to parents for all questions or concerns that might arise during the hospital course. The primary nurse will confide all issues regarding family issues, infant progress, or problems to the case manager.
- Weekly meetings:

A multi-disciplinary team will meet weekly to discuss each infant. Specific issues surrounding every infant hospitalized will be discussed and evaluated by the team. Parents may attend these meetings if able, otherwise case manager will convey information to the parents. Parent conferences may be arranged at parent request.

Four domains will be reviewed and discussed at these meetings.

1. 1. Medical progress, infant behavior and special characteristics.
 2. Caregiving environment: includes updates on parent progress in caring for infant (i.e. kangaroo care, infant massage, etc.) and problems/issues brought by parents.
 3. Family organization and functioning (includes sibling issues).
 4. Discharge planning, update on teaching, and community resources needed and/or met.
- Follow-up phone call within first week of discharge:
Case manager will call the family within one week after discharge to answer any questions parents may have and/or to connect them with needed community resources.

Implementation and Evaluation Plan

Implementation will begin with every infant admitted to the NICU. No one will be excluded due to extreme illness or wellness.

Evaluation of the protocol will begin with a questionnaire given to parents at discharge. Questions will be geared to all aspects of the care in the NICU; however, some will concentrate specifically on whether the parent felt they were prepared to care for their infant at home.

One month after discharge the NICU social worker will phone one out of every five (randomly chosen) families of an infant discharged from the NICU. He or she will ask them specific questions about the adequacy of the binder, weekly meetings, if they were prepared for caring for their preemie, and any comments or suggestions for improving the care given in the NICU. One section of the questionnaire will be Likert scaled questions; the other will be open-ended questions. The social worker will give the parents an opportunity to give any other feedback they may feel is important.

Every month the social worker will report all feedback to the multi-disciplinary team at the weekly meetings. The group can then evaluate how to alter their current discharge teaching plan to meet the needs of its patients.

Appendix A

First Author, Year	Design	Subjects/Sample Size	Findings	Rating
Brooten, 1989	RCT	36 families of preterm infants. LSES	Parents have learning needs in a variety of areas. Greater needs than shown in other studies.	B
Deloian, 1998	DCT	20 families of preterm Infants. MCSE	Key to discharge teaching is a trusting relationship between parent and nurse	B+
Drake, 1995	DC	10 families 7 nurses	The needs of parents varies from the nurse's perception of parent needs.	B-
Meyer, 1994	RRMIO	34 preterm infants < 1500 grams	Mothers who received an individualized, family-based intervention showed less stress, less depression, improves self- esteem, & improved infant feeding and interaction at time of discharge.	A

RCT: Random Clinical Trial

DCT: Descriptive Comparison Triangular

DC: Descriptive Comparison

RRMIO: Randomized, repeated measures intervention outcome study

Retro D: Retrospective chart review, descriptive

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