Parental Interaction in the Neonatal Intensive Care Unit (NICU)

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Abstract

Parent-infant bonding may be disrupted by premature delivery and complicated by a hospital stay and medical equipment. There are a large number of studies that show early neonatal intensive care unit (NICU) interventions with parents can decrease the infants’ length of stay, improve parent interaction and satisfaction, and enhance parents’ abilities to be effective caregivers after discharge.

PURPOSE: Our purpose was to explore parents’ perspectives of interaction with their preterm infant during their NICU stay and identify interventions that aid in the transition from anxious bystanders to confident caregivers. It was hypothesized that decreased gestational age and birth weight led to decreased parental interaction. Objectives were to identify which interventions eased parents’ anxiety when caring for their infant in the hospital as well as after discharge.

METHODS: Surveys were collected from two Midwest level III NICUs. They were given to parents after their infant had spent at least two days in the NICU. Infants ranged from 24-41 weeks gestation at birth. Demographic data was collected including parents level of education, work status, miles from the hospital, and infant’s current length of stay. Survey questions focused on parents’ knowledge of their infants’ diagnosis, and involvement in their infant’s care. Completing the survey was voluntary and consent was implied by completing it and placing it in the drop box at the nurse’s station. Surveys were compiled (n=25) and qualitative and quantitative data were analyzed.

RESULTS: Of the 25 parents surveyed, the average score for parent’s satisfaction with their NICU experience was 4.9 out of 5 on a Likert scale with 1 being strongly disagree and 5 being strongly agree. It was noted in the results that infants born greater than 35 weeks were presented with less opportunities to do kangaroo care than infants born younger than 35 weeks. In general parents felt well informed about their infants’ diagnosis and medical equipment. It was discovered that parents whose infants were born less than 35 weeks had more concerns about caring for their infant at home.

CONCLUSIONS: Parents of infants hospitalized in the NICU benefit from family-based NICU interventions such has kangaroo care, taking the temperature, and changing the diaper. Involving parents in their infant’s care may enhance their knowledge, involvement, satisfaction, and bonding with their infant.
Parental Interaction in the Neonatal Intensive Care Unit (NICU)

More than 500,000 infants are born prematurely each year in the United States, costing this country an average of $26.2 billion in 2005 (March of Dimes). These costs include hospitalization, early intervention, special education, and loss of household productivity. In addition to the financial concerns of prematurity, parents face a rollercoaster of emotions including anger, denial, anxiety, fear, and feelings of inadequacy. The stress experienced by the parents can negatively affect their ability to cope and bond with their infant.

In the Merriam-Webster Dictionary (2012) parent is defined as “one that begets or brings forth offspring” or “one who brings up and cares for another.” Other commonly used terms include parental, maternal, paternal, father, mother, close relative or blood relative. Interaction is defined as “mutual or reciprocal action or influence” (Merriam-Webster, 2012). The term may also be referred to as communication, contact, interface, collaboration, dealings or relations. Therefore, parental interaction can be defined as the communication and contact between a mother or father and their offspring.

Parental interaction in the NICU is necessary for developing good outcomes for preterm infants. Involvement of the parents in the care of the infant and health care decisions of their infant leads to enhanced growth and development of the child and increased parental empowerment (Melnyk et al., 2006).

**Problem Statement**

Without good parent-child interaction in the NICU parents cannot make a smooth transition to full caregiver upon discharge. Parents’ comfort level is diminished which may lead to increased calls to the pediatrician. There may be a lack of responsiveness by parents resulting in feeding issues and poor weight gain. All these factors can result in a greater risk of hospital readmission. Additionally, parents may have “difficulties interacting with their child in a
developmentally sensitive manner and display other dysfunctional parenting patterns” (Melnyk et al., 2006, p. 1415).

**Purpose Statement**

The purpose of this project was to explore parents’ perspectives of interaction with their preterm infant during their stay in the NICU and identify which interventions aided in the transition to caregiver. The long-term goal of this project was to transition parents during their stay in the NICU from anxious bystanders to confident caregivers.

**Review of Literature**

This review of the literature was conducted using online searches of PubMed, Cinahl, UpToDate, and the Creighton University Health Sciences library. Some of the key concepts and variables that were examined included parent education and subsequent understanding of the medical status of their infant; parental communication and interaction with nursing staff; parental ability to recognize cues displayed by the infant and provide basic cares for their infant including bathing, feeding, and changing; availability of services and accommodations offered to parents and families; and opportunities for bonding and creating of memories while in the NICU. Many barriers exist that can affect these concepts. The following literature review recognizes those barriers along with identifying the benefits and interventions needed to successfully transition parents to caregivers.

**Parent Interaction Benefits**

The benefits of parental interaction in the NICU include improved physiological and behavioral responses by the infant, parental anxiety and stress reduction, parent empowerment, decreased hospital length of stay, and financial benefits.
Physiological and behavioral response. For years it is believed that infants can hear their mothers while in the womb and have the ability to recognize mom’s voice, smell and heartbeat after delivery. Those beliefs can be reinforced by the physiological and behavioral responses of a preterm infant during positive parental contact. Tooten et al (2012), discussed the stabilization of the infant’s heart rate, respirations and body temperature that results from appropriately timed interaction based on identifying the infant’s cues. She also discussed the importance of positive parental interaction beginning immediately after birth. Kangaroo care is one method that allows the mother to bond with her infant and returns the baby to the mothers’ familiar smell, voice and heartbeat, creating a warm, safe environment. Discenza (2012) noted parents feeling a greater sense of control and improved mental state while they were providing for their baby in this nurturing role.

Parent anxiety and stress reduction. Another method of parental interaction that decreases stress and enhances bonding is the concept of family-centered care. One concept of family centered care noted by Griffin (2006) was participation, by allowing unlimited visiting and encouraged presence of both parents and other family members in the NICU setting. This involvement of the entire family helped reduce stress of the parents and supported them as caregivers. Having the parents take part in the treatment plan and care of their infant also led to less conflict and improved communication among parents and staff (Griffin, 2006).

Melnyk, Crean, Feinstein, & Fairbanks (2008) tested the educational-behavioral intervention program Creating Opportunities for Parent Empowerment (COPE) and how it relates to maternal depression and anxiety two months after discharge of their premature infant. This was a secondary analysis of data from her 2006 trial. The research hypothesis suggested that knowing what to expect in a situation enables the individual to cope more effectively
through increased understanding and confidence. It involved 246 mothers of preterm infants who were placed randomly in the COPE group or a placebo group. This randomized controlled trial provided the COPE group with information on how to meet their infants’ care and needs, increase interaction, recognize stress cues and behaviors from their infant, and identify best times for interaction. They were also given opportunities to practice what they had learned with their baby. Mothers in the placebo group received audio tapes and written information that appeared similar but focused on hospital policies and immunizations.

Variables measured in the study included both the emotional and functional outcomes of coping. These variables were determined by using several surveys and scales in the NICU including the Parental Stressor Scale, State-Trait Anxiety Inventory, Beck Depression Inventory, Index of Parental Behavior in the NICU, and the Parental Belief Scale. Results from the structural portion suggested that mothers in the COPE program had higher maternal beliefs and less maternal depression and anxiety in the NICU and after discharge (Melnyk et al., 2008). As hypothesized, the COPE program led to stronger maternal beliefs about their preterm infant and how to parent them, which led to less maternal stress, anxiety and depression during their NICU stay and after discharge.

**Parent empowerment.** Parents should be considered experts in the care of their children (Malusky, 2005). They become advocates as they are the ones who are with their baby every day and know which practices are tolerated best by their infant as well as being able to recognize subtle changes that may affect the infant’s plan of care. These include how their baby likes to be positioned, which type of nipple works best for feedings, and if there have been changes in the baby’s physical condition, such as a distended abdomen or alterations in the baby’s neurological
status. Collaboration with the nurses and physicians allows parents to become decision makers in the care of their infant.

**Decreased hospital stay.** Melnyk et al. (2006) studied the parental health outcomes and premature infant length of stay using COPE. The study was a randomized controlled trial occurring from 2001 to 2004 in two NICUs in the United States. The study involved 260 families with preterm infants who met the following criteria: parents at least 18 years old who spoke English, a gestational age of 26-34 weeks with a birth weight less than 2500 grams, single birth with no grade III or IV hemorrhage, and no previous NICU experience by the family. The parents were randomly selected to be in either the COPE program or a comparison intervention program. All parents participated in four intervention sessions including audio and written information. Parents in the COPE program received additional materials on behavior characteristics and activities of preterm infants and suggestions were made on how to parent based on these findings. The parents were rated on parent-infant interaction in the NICU by observers. Parents were also involved in completing tools during their stay, within seven days of dismissal, and again at two months corrected age. These follow-up visits were completed by research nurses. The hypothesis was that programs such as COPE would decrease length of stay and improve the mental health status of parents following their stay in the NICU. The outcomes measured included parental stress, depression, anxiety, parent-infant interaction, and length of stay.

Melnyk et al. (2006) also found that parents in both the COPE program and the comparison group felt the materials provided were helpful and stated they were comfortable with the information. Mothers in the COPE program had significantly less overall stress while in the NICU than the mothers in the comparison group. There was no difference in stress levels of the
fathers between the groups. The parents in the COPE program reported higher beliefs in their role and what to expect from their infant than those in the comparison group. Fathers in the cope program were more involved and more sensitive to the needs of their infant than the comparison group. At two months corrected age, mothers in the COPE program had less anxiety and depression than mothers of the comparison group. Finally, the length of stay for the infants in the COPE program was 3.8 days shorter than those in the comparison group. The investigators concluded that the COPE program resulted in the following: “less maternal stress in the NICU, stronger parental beliefs, more positive parent-infant interactions in the NICU, less maternal anxiety and depressive symptoms after hospitalization, and reduced length of stay for preterm infants” (Melnyk et al., 2006, p. 1425).

**Financial benefits.** Melnyk & Feinstein (2009) examined the cost of the development and implementation of the COPE program as compared with a control program to analyze direct healthcare costs. There was a pilot study of 42 mothers of premature infants that indicated the COPE infants had significantly higher mental development scores at three and six months of age than did infants in the control group. Therefore a full-scale randomized controlled trial of 260 premature infants was conducted to determine infant and parent effects of the program and cost outcomes. Direct healthcare costs were defined as costs associated with intervention and the costs or savings of other resources including NICU, outpatient visits, and developmental services. The estimated expense per day in the NICU was $1250. The data collected included billing receipts, birth-related records, and adjusted NICU charges.

The findings included a net direct healthcare cost savings per NICU infant of $4864 due to the shortened length of stay. Further analysis of the infants weighing less than 1500 grams indicated a net savings of $9864 per infant, as these infants in the COPE group were discharged
an average eight days earlier than the control group. This cost analysis indicated that hospitals could significantly reduce their costs associated with preterm birth by implementing the COPE program in their units. Further, the United States healthcare system could save an estimated $2.4 to $4.9 billion dollars if the program was routinely used for all preterm infants. The COPE program is based on audiotapes and workbooks so no extensive training is needed for staff members, and the estimated cost of the program per infant is $136 that is far outweighed by the net savings.

Parent Interaction Barriers

Several barriers exist that cause an alteration in parent-infant interaction. These barriers include environmental factors, infant appearance and behaviors, and parental stress.

**Environmental barriers.** There is equipment and procedures to coordinate and parents must rely on NICU staff to offer care for their baby. Tooten et al. (2012) discuss the realization that parents cannot hold and care for their baby as often as they would like. Often the preterm infant requires ventilator support and phototherapy equipment that hinders holding time. Very low birth weight infants have difficulty maintaining body temperature and need to remain in neutral thermal environments with humidity (Martin, Fanaroff, & Walsh, 2011). In addition to the large amount of equipment surrounding their baby, there is the NICU noise factor. Noise can interrupt infant sleep patterns and cause stress and decrease performance of caregivers (White & Philbin, 2004).

**Infant barriers.** The physical appearance of their preterm infant does not match the beautiful images parents have had in their minds for the past several months. Preterm infants are difficult to soothe, more irritable, and less responsive to interaction than full term infants that causes stress to both the parents and the infant (Tooten et al. 2012).
Parental stress and emotional barriers. Studies have shown that increased maternal stress and anxiety during the NICU hospitalization can lead to altered maternal-infant interaction and decreased cognitive development of the child as a toddler (Zelkowitz, 2008; Zelkowitz, 2010). In her 2010 study, Zelkowitz hypothesized that children of anxious mothers would, “exhibit more behavioral problems and poorer cognitive development at 24 months corrected age” (p. 701). Her results demonstrated that those children did in fact score lower on the Mental Developmental Index (MDI) than children of mothers who had lower levels of anxiety. The Emotional Availability Scale (EAS) was utilized to monitor four maternal behaviors towards the child and two child behaviors towards the mother in Zelkowitz’s 2008 trial. Mothers with higher anxiety levels were found to be less sensitive while interacting with their child at 24 months corrected age and less likely to offer the structure needed to enhance the cognitive development of a preterm infant (Zelkowitz, 2008, p. 56). According to Tooten et al. 2012, barriers in the NICU that cause increased stress for parents and inhibit their ability to connect emotionally with their child may lead to greater parenting risk and child vulnerability.

Review of Literature Summary

Studies by Melnyk et al. (2006, 2008) demonstrated a relationship between parental interaction in the NICU and reduced stress and anxiety among families. Furthermore, Melnyk et al. (2008) focused on maternal depression, parental empowerment, and infant length of hospital stay. Family-centered care has opened the lines of communication and promoted bonding and holistic care of the family unit. Facilitating communication between parents and staff, and enabling parents to take a more active role in the care and decision-making process of their child ensures that the emotional and physical needs of the family unit are met. It also provides a sense
of increased job satisfaction among nursing staff. The initiation of kangaroo care promotes bonding and increased lactation success (Griffin, 2006).

In evaluating the results of Melnyk’s work from her studies in 2006, 2008, and 2009, it is clear that some form of intervention is beneficial to parents, infants, and healthcare in general. The goal of the advanced practice nurse (APN) is to recognize which processes and interventions can aid in achieving successful parental interaction in their individual units. Although Melnyk’s work shows strong evidence of improved outcomes following the COPE program, the studies were isolated to one geographical location and targeted only a few units, all of which were Level III facilities in the New York area. Further studies, the utilization of assessment tools, and data collection by the APN can determine how to better serve parents, infants, and staff on a local level.

**Recommendations**

Many studies have found that the Creating Opportunities for Parent Empowerment (COPE) program increases parental confidence of providing cares; recognition of infant stress signals; decreased maternal stress, anxiety and depression both in the NICU and after discharge; and decreased length of hospital stay and overall healthcare costs (Melnyk, 2006; Melnyk, 2008; Melnyk, 2009). However, the use of this program is not feasible for all units. Under the direction of an APN, units of all sizes can develop a screening tool and interventions that promote positive parental interaction. Families can be advised of the benefits of touch and skin-to-skin contact. They can be shown infant cues and taught to recognize stress signals displayed by the infant that help guide parents to provide appropriate contact and care. Through staff education and open communication, parents and the healthcare team can construct a plan of care that is individualized and supportive to their needs and those of the infants.
Additional research studies including parents of different ethnicities and cultural beliefs in various geographical locations in the US would be beneficial to plot trends. Further research will identify methods to achieve and enhance the level of parental interaction. Education provided to the parents including coping mechanisms, support groups, and physical care of their infant will boost confidence, encourage collaboration, and promote parental empowerment.

**Theoretical Framework**

The theory used in this project is The Resiliency Model of Family Stress, Adjustment, and Adaptation by McCubbin and McCubbin (1989). The Resiliency Model is based on Hill’s Family Stress Theory (1959).

**Description of Theory**

The Resiliency Model focuses on family resiliency and their ability to recover from adverse events. The model assesses stressors, family coping and how the crisis has altered the function of the family unit. “It provides a method to assess family functioning and the coping techniques used to facilitate adjustment and adaptation” (Alianiello, 2005).

The Resiliency Model was developed in 1989 when McCubbin and McCubbin expanded Hill’s Family Stress Theory. It is composed of two parts, the Adjustment Phase and the Adaptation Phase. The two phases evaluate the family’s strengths, resources and coping or problem solving abilities that then determines the family’s ability to cope with the illness or stressor.

**Adjustment phase.** The Adjustment Phase identifies an illness or stressor. This leads to family vulnerability due to life changes. Depending on the family type and patterns of functioning, problem solving and coping can occur. If the family displays positive coping patterns of resilience than bonadjustment occurs. Bonadjustment is defined as “meeting both the
needs of individual family members to enable them to achieve their maximum potential and also the functioning of the family system and its transactions with the community” (Beckett, 2000). If coping or adjustment cannot occur within the family they enter into a pattern of maladjustment or crisis situation (Beckett, 2000). The family then begins the second phase of the Resiliency Model.

**Adaptation phase.** The adaptation phase of coping starts similar to that of the adjustment phase. The crisis situation is identified and family stressors and strains considered. Then there is the recognition of family types and newly instituted patterns of functioning. This is followed by an evaluation of the family’s plan and capabilities. This can result in problem solving and coping. The utilization of social support and family resources may lead to bonadaptation. However, if there is maladaptation or continued crisis there is need for referral and assistance (McCubbin, 1993).

**Application of Theory**

A family that is aware of its resources will not view the most distressing events as crises. McCubbin and McCubbin (1989) defined the role of nursing within the Family Stress Theory as to: “not only promote family members’ health, recovery from illness, or maximum functioning within specific health limitations, but also to support and enhance family strengths, to assist families in maintaining linkages with community supports, and to aid families in arriving at a realistic appraisal of what is the best fit for them in their particular situation (p.6).” The Resiliency Model assists the health care team in identifying areas that interventions might be enhanced to better assist families in reaching that positive adjustment phase. Based on the family’s response to the health stressor, the family, nurse and interdisciplinary team can determine which interventions will be effective for that particular family (Aliaiello, 2005).
Any life changes can cause stress. There are different forms of stress and parenthood can be considered a predictable stress. Even if the pregnancy was unplanned, there has been ample time to adjust to the idea of becoming a parent. However, when that child is born prematurely or with health issues, that causes unpredictable stress. Suddenly the parents have had their whole world turned upside down. The APN can apply different techniques and assessment tools to gather information about each family. These techniques should focus on family’s coping skills, the availability of a support system, other stressors the family is facing, determining the family type and how they view the infant’s hospitalization, and recognizing the family’s problem solving skills (Alianiello, 2005). Effective communication in determining roles of the parents and staff can be promoted by the APN.

There are many tools that have been developed to measure components of the Resiliency Model. The Family Inventory of Life Events and Changes (FILE) assess normal and situational family events and stressors. The Family Hardiness Index measures the family’s use of confidence, challenge, commitment and control when responding to stress. Family resources can be identified through the Family Inventory of Resources for Management tool. After a general screening of the family, the APN can identify which areas need further intervention (Alianiello, 2005).

Methods

Design

A descriptive exploratory study was performed consisting of a survey in which parents described how they felt interacting with their baby. Questions included in the survey referred to the parents’ interaction with the bedside staff, physicians, and interdisciplinary team, along with how involved they were in the decision-making process of their baby’s care. Information was...
collected regarding the parents’ emotions and how they viewed their ability to care for a preterm baby. Questions regarding knowledge of equipment and their infant’s disease process were also included. Most of the questions focused on what aspects of the NICU the parents liked or disliked, which skills or tasks they were comfortable performing for their baby, which tasks they liked being involved with, which interventions improved their stay and any other suggestions they had to offer (see Appendix A). Significant medical status was also included in the demographic data collection that addresses the gestational age, infant weight, and ventilator requirements that may have altered parental interaction.

**Setting and Sample**

The data was collected in two Midwest urban NICUs. The units accept infants 22 weeks to post-term and also have transport services available. The target population was parents of infants born 22 to 41 weeks’ gestation. The sample criteria were nonexclusive to gender, ethnic background, diagnosis, or hospital treatment plan.

**Ethical Considerations**

IRB approval was obtained from Creighton University’s social-behavioral IRB committee and from the facilities’ IRB committees. Permission to conduct this study was also obtained by approval of the NICU managers and primary physicians as stakeholders. Subjects were provided essential information and surveys were offered in English only.

**Measurement Methods**

The survey had six demographic questions and twenty survey questions for the parents. The survey questions used the Likert scale from 1-5. The tools were developed by the researchers based on the literature and information needs of the units/facility. Reliability of the instruments was assessed after the study was completed.
Data Collection

The surveys were distributed to the parents of preterm infants after day two of their hospitalization. This allowed the parents time to become acquainted with the NICU routines and settings, and allowed a few days to become accustomed to the idea of having a preterm infant. The surveys were distributed by the nurse researchers who interacted with parents and families daily. The anonymous surveys were returned via a drop box located at the front desk.

Data Analysis

Data were collected and the input analyzed by the researchers. Demographic data were analyzed with frequencies and percentages. All surveys were scored and descriptive results reported. The results of the parent surveys did not indicate a need for intervention or policy change.

Limitations

Limitations of this study included a small sample size (n=25) due to the size of the NICUs and lack of generalization. After collecting data from the surveys it was noted that maternal age and parity potentially could have skewed data regarding maternal anxiety level and caring for their infant after discharge.

Results

A total of 25 surveys were collected from the two NICUs and analyzed by the researchers. Of the 25 parents who were polled, 56% were Caucasian, 16% were African American, 12% were Hispanic, and 8% were other. The parents who participated in the survey had infants whose gestational age ranged from 24-29 (28%), 30-33 (24%), 34-37 (36%), and 38-41 (72%). 5% of the mothers planned to continue to work after delivery while 95% did not plan to work after delivery. Education level of mothers who complete the survey ranged from some
high school to a bachelors degree, with 32% having a bachelor’s degree. Results were based on a Likert scale of 1-5, with 1 being strongly disagree and 5 strongly agree. The NICU Parental Interaction survey found overall satisfaction of parents’ NICU experience with an average score of 4.9. Most parents felt involved with decisions regarding their baby’s care with an average score of 4.88. Knowledge of infant’s diagnosis and medical equipment used in the care of the infant also scored strongly (4.86). Parents of preterm infants 24-35 weeks gestation had more positive experiences and opportunities for skin-to-skin or kangaroo care as evidenced by an average score of 4.1. However, parents of infants 36 weeks to term felt there was less opportunity or emphasis placed on kangaroo care with their infants (3.7). There was no correlation between parent interaction with their NICU child and presence of other children in the home. Other questions on the survey and the results are summarized in the following table.

<table>
<thead>
<tr>
<th>NICU Parent Interaction Survey</th>
<th>Mean score</th>
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<tbody>
<tr>
<td>Satisfaction with NICU experience</td>
<td>4.90</td>
</tr>
<tr>
<td>Involved with decisions</td>
<td>4.88</td>
</tr>
<tr>
<td>Don’t feel comfortable touching baby</td>
<td>1.12</td>
</tr>
<tr>
<td>Knowledge of diagnosis and equipment</td>
<td>4.86</td>
</tr>
<tr>
<td>Encouraged to hold skin to skin</td>
<td>4.04</td>
</tr>
<tr>
<td>Concerns about providing care after discharge</td>
<td>1.82</td>
</tr>
<tr>
<td>Encouraged to participate in cares</td>
<td>4.96</td>
</tr>
</tbody>
</table>
Discussion and Conclusion

Even though the sample population was small and not statistically significant, the feedback from the participants was overall positive. There was no evidence that leads us to believe decreased gestational age and birth weight lead to decreased parental interaction as hypothesized. As a result of the survey findings, encouragement of kangaroo care for infants greater than 36 weeks gestation may increase parent interaction. This could be explained because nurses spend more time explaining kangaroo care to parents of infants who are less than 35 weeks gestation. In most circumstances, infants who are greater than 35 weeks are able to be held and orally eat frequently allowing their parents to be more involved. Therefore nurses may not explain the benefits of kangaroo care because these parents are already involved and holding their infants whereas the infant who is 28 weeks needs to have minimal handling.

Results also indicated that parents of infants less than 35 weeks had greater concerns about caring for their infant upon discharge. Infants born prematurely may require higher calorie formula, home medications, home oxygen, or a home cardiorespiratory monitor. These infants may have several follow-up appointments with various specialists. The increased demands of a premature baby may be the reason the results showed there was an increase concern in mothers whose infants were born less than 35 weeks.

With the increasing number of premature births and advances in technology, the rates of infant survival are ever increasing. There is now a responsibility by health care providers to offer parents the resources and education to care for these infants and their future needs so they may function to their highest potential. Further research studies may aid in identifying interventions needed to enhance interaction between parents and their NICU infant.
References


### Appendix A

**NICU Parent Interaction Survey**

(Return completed survey to Unit Secretary or drop box at front desk)

#### Demographics:

1. My baby’s age is:
   - [ ] < 1 week old
   - [ ] 1-4 weeks old
   - [ ] > 1 month old

2. I plan to continue to work:
   - [ ] Full-time
   - [ ] Part-time
   - [ ] Not work after delivery

3. My highest level of education is:
   - [ ] Some high school
   - [ ] High School Graduate
   - [ ] Associate’s degree
   - [ ] Bachelor’s degree
   - [ ] Master’s degree
   - [ ] Doctorate

4. My race is:
   - [ ] White / Caucasian
   - [ ] Black / African American
   - [ ] Hispanic
   - [ ] Asian
   - [ ] Other __________________

4. My baby’s birth weight is:
   - [ ] <500 grams ( < 1 lb 1oz)
   - [ ] 500-999 grams (1 lb 1oz – 2 lbs 3oz)
   - [ ] 1000-1499 grams (2 lbs 3oz – 3 lbs 4oz)
   - [ ] 1500-1999 grams (3 lbs 4oz – 4 lbs 6oz)
   - [ ] 2000-2499 grams (4 lbs 6 oz – 5 lbs 8oz)
   - [ ] 2500-2999 grams (5 lbs 8 oz – 6 lbs 9oz)
   - [ ] >3000 grams (> 6 lbs 9 oz)

5. My baby’s gestational age is:
   - [ ] < 24 weeks
   - [ ] 24-25 weeks
   - [ ] 26-27 weeks
   - [ ] 28-29 weeks
   - [ ] 30-31 weeks
   - [ ] 32-33 weeks
   - [ ] 34-35 weeks
   - [ ] 36-37 weeks
   - [ ] 38-41 weeks
   - [ ] > 41 weeks

6. My baby is a:
   - [ ] single
   - [ ] twins
   - [ ] triplets
   - [ ] quadruplets
1. Overall, I am satisfied with my NICU experience.

2. I understand the medical diagnosis of my baby.

3. I understand the medical equipment surrounding my baby.

4. I feel comfortable talking to my baby’s nurse.

5. I feel the NICU staff is supportive of parents being involved in their baby’s care while in the NICU.

6. I feel the doctor and NNPs keep me informed about my baby.

7. I am involved with the decisions regarding my baby’s care.

8. I have been encouraged to hold my baby skin-to-skin (Kangaroo Care).

9. I don’t feel comfortable touching my baby.

10. I have been encouraged to take my baby’s temperature.

11. I have been encouraged to change my baby’s diaper.

12. I have concerns about caring for my baby upon discharge.
## NICU Parent Interaction Survey (continued)

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<tr>
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<tbody>
<tr>
<td>1.</td>
<td>I have other children at home.</td>
<td>Yes</td>
</tr>
<tr>
<td>2.</td>
<td>I have adequate transportation to and from the hospital.</td>
<td>Yes</td>
</tr>
<tr>
<td>3.</td>
<td>I have already returned to work / school.</td>
<td>Yes</td>
</tr>
<tr>
<td>4.</td>
<td>I have a good family support system.</td>
<td>Yes</td>
</tr>
<tr>
<td>5.</td>
<td>I am concerned about finances and providing for my baby.</td>
<td>Yes</td>
</tr>
<tr>
<td>6.</td>
<td>I am involved with WIC or other agencies that can offer me assistance.</td>
<td>Yes</td>
</tr>
<tr>
<td>7.</td>
<td>My baby is currently on a ventilator.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>I live _____ miles from the hospital / NICU.</td>
<td></td>
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</table>

Other Comments:

_____________________________________________________________________________________
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