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Facilitation of parenting within the newborn intensive care unit

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Facilitation of Parenting
Within the Newborn Intensive Care Unit

by
gretchen Lawhon

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of the requirements for the degree of

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1994

Approved by _____
(Chairperson of the Supervisory Committee)

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Abstract

Facilitation of Parenting
Within the Newborn Intensive Care Unit

by gretchen Lawhon

Chairperson of the Supervisory Committee: Professor Kathryn E. Barnard
Department of Parent Child Nursing

The major challenge facing neonatal health care providers today is to combine the necessary technological intensive care for preterm infants with a sensitive and individualized approach to facilitate neurobehavioral development while acknowledging and supporting parents of these infants in their role as primary advocates and longterm caregivers. This exploratory pilot study specifically aimed to examine the therapeutic process of an individualized nursing intervention in terms of its integrity, strength, and effectiveness. The individualized therapeutic nursing intervention was based upon underlying assumptions of both infant and parent competence. It was designed to promote the parent's ability to critically appraise their infant's behavior and to integrate the appraisal in their response to the infant in a sensitive and supportive manner.

The analysis focused on further describing and understanding the relationship of treatment integrity and strength on effectiveness. Three levels of effectiveness were explored: parent's ability to critically appraise their infant's behavior, parent's ability to integrate the critical appraisal in their approach toward providing care to their infant, and parent's integration of critical appraisal during caregiving enhancing the parenting experience and in turn the infant's outcome. Multiple sources of data were explored: log and field notes of the interventionist throughout the study; coding and analysis of audiotaped intervention sessions during which the interventionist maintained a therapeutic alliance and modeled the critical appraisal process

while viewing and discussing the parent's own caregiving of their infant on videotape; coding and analysis of the videotaped parent infant interactions; formal feeding observations; an infant neurobehavioral assessment; parent visitation, infant length of stay; and finally weekly parent journal writing.

Findings of this study explicate further understanding of the influences of integrity and strength on effectiveness as well as the complexity of individualization within a research study. The case by case descriptive findings and frequency counts of behaviors provide valuable information for the understanding of the therapeutic process of the intervention and how it may be studied further in a broader based research endeavor. All parents were able to do critical appraisal of their infant's behavior both verbally and in writing. Parents were able to integrate critical appraisal into their handling approach showing some decrease in this ability when the complexity of the caregiving task increased. Measurements of both parent and infant competence show very promising results.

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DEDICATION

To my husband Bob Liptock,
without whose personal support this endeavor
could not have been accomplished,
and to our sons dan and Benj
who have been willing to share their mother
in the interest of science.

Chapter I: Introduction

"I feel like I just want to get closer to him, I want him to know that I'm there for him and that I love him. I don't like the ups and downs but I'm trying to stay strong and believe my baby is going to be alright."
a parent of a 26 week infant

Parenting Within the Newborn Intensive Care Unit

The major challenge facing neonatal health care providers today is to combine the necessary technological intensive care for preterm infants with a sensitive and individualized approach to facilitate neurobehavioral development while acknowledging and supporting parents of these infants in their role as primary advocates and longterm caregivers. For parents of preterm infants, the usual evolution of parenting has been disrupted, and parents are in many ways as premature as their infant. The families of these infants will experience at best a period of four to twenty weeks of hospitalization during which they are faced with multiple setbacks as well as all other inherent stresses in their lives.

Nursing involves a process of facilitation which involves mutual interactive communication toward an individual, family, community, or system and is directed toward further development. Neonatal nursing care involves both the validation of infant and parental competence as well as the provision of strategies to enhance environment and caregiving. The provision of nursing care to preterm infants and families specifically is geared toward the enhancement of the infant's capacity for organization and optimizes developmental potential.

There are a variety of perspectives and goals involved in the provision of neonatal care. Infants are on a course of development in attempting to attain further competence. Families are striving toward the integration of their

infant despite the intensive care setting. Professionals attempt to provide optimal care to both infants and families while integrating an intensive technological approach necessary for the infants' survival. When neonatal health care providers are able to acknowledge the goals of infants, families, and professionals, the need for reorganization and negotiation is apparent. By some formal mechanism parents must be welcomed and recognized as necessary collaborators in care. Once both health care providers and parents share in a sense of working together for the best interest of the infant all aspects of neonatal care become influenced by parent participation.

Statement of the Problem

Advances in neonatal care have led to significant changes in the survival rates of preterm infants. Very low birthweight infants weighing between 1001-1500 grams are reported to have an 80-90% chance of survival (Office of Technology, 1987; Hack, Horbar, Malloy, Tyson, Wright, and Wright, 1991). This is a dramatic change from the previous 40% survival rate of the 1960's. Current survival rates of infants born of extremely very low birthweight (501-1000 grams) are described to be 49-52% (Bennett, 1988; Hack, Horbar, Malloy, Tyson, Wright, and Wright, 1991). This recent phenomenon of survival has only begun to be evaluated in the longer term outcomes such as behavioral and emotional responses at school age. McCormick (1989) urges a far more comprehensive approach to the evaluation of broader range of outcomes that reflect the child as a whole and as an individual functioning in and responding to a broader environment. Beyond the newborn period these infants continue to experience a disproportionate amount of morbidity and need for medical services (Collin, Halsey, and Anderson, 1991). There are few

studies available which address the financial impact on parents of very low birthweight infants. In one such attempt there is a 40%-50% of rehospitalization within the first year and evidence of substantial financial burden (McCormick, Bernbaum, Eisenberg, Kustra, and Finnegan, 1991).

Despite the fact that many infants weighing less than 1500 grams are discharged without medical complications, these infants continue to represent a larger proportion of children who have learning problems with specific areas of developmental limitations especially in visual-perceptual-motor skills (Drillien, Thomson, and Bargovne, 1980, Blackman, 1991). The most devastating medical complications of preterm infants are those of bronchopulmonary dysplasia, intraventricular hemorrhage, retinopathy of prematurity, and necrotizing enterocolitis. Numerous studies examining the outcome of preterm infants continue to demonstrate the delayed development and sensorimotor loss in this particular group of infants (Papile, Munsick-Bruno, and Schaefer, 1983; Sell, 1986; Hertzig, 1981; Marlow, D'Souza, and Chiswick, 1987; Kraybill, Kennedy, Teplin, et. al., 1984; Saigal, Szatmari, Rosenbaum, Campbell, and King, 1990). Recent studies have shown that many of these severe complications of prematurity may be ameliorated or prevented when a comprehensive approach is taken to provide individualized developmentally supportive care throughout the neonatal hospitalization (Als, Lawhon, et. al., 1986 and 1988; Becker, Grunwald, Moorman, and Stuhr, 1991). In essence, there is a growing concern and interest to reduce the stressful effects of the neonatal intensive care environment while encouraging and facilitating the emerging competence of the newborn.

Purpose

The purpose of this study was to explore the therapeutic process of an individualized nursing intervention and to examine the therapeutic process in terms of its integrity, strength, and effectiveness. The individualized nursing intervention evaluated was based upon underlying assumptions of both infant and parent competence. It was designed to promote the parents' ability to critically appraise their infant's neurobehavioral functioning and to integrate this appraisal into their response to the infant in a sensitive and supportive manner. Thus the parenting experience would be enhanced for those low birthweight infants who require intensive care. This study specifically aimed to evaluate the feasibility of the therapeutic process in supporting and facilitating competent parenting and improved infant neurobehavioral functioning and to describe the differences in integrity and strength of treatment in relation to potential outcomes of this individualized nursing intervention.

The three main questions explored in this study were:

1. How are the integrity and strength of the individualized therapeutic nursing intervention related to the effectiveness of the intervention with individual parents ?
2. Does the individualized therapeutic nursing intervention facilitate the parent's ability to critically appraise their infant's neurobehavioral functioning and to integrate this appraisal in a sensitive and supportive response to their infant ?
3. Does the parent's ability to integrate critical appraisal enhance parental competence and, in turn, infant competence ?

Significance

There have been numerous parent intervention studies which have attempted with varying success to show improvement in the outcome of the preterm infant. The significance of this study is in its conceptualization of the parent. Rather than seeing the parent as deficient in information and skill, the parent is viewed as a competent caregiver within the newborn intensive care setting. Emphasis is placed on the support of active involvement of parents early on in the preterm infant's neonatal course. The role of the nurse is seen as a facilitator to the parent who, in turn, is seen as primary facilitator to the infant and as the key agent necessary and appropriate in supporting the infant's emerging competence.

Assumptions and Limitations

There is an inherent challenge to the development of an individualized therapeutic nursing intervention which can be monitored and measured in terms of the basic ingredients necessary to create and maintain a therapeutic relationship. This intervention encourages the parent's ability to critically appraise their infant's neurobehavioral functioning while simultaneously responding to the infant in a supportive manner by modifying the caregiving approach to support the infant's current functioning. A parent's sensitivity and responsiveness to infant's signals or cues are paramount in the development of mutually satisfying parent child interaction (Bromwich, 1990). Drawing from the work on critical appraisal (Paul and Nosich, 1991) there are four principles which can be applied in this situation: 1) to focus on the fundamental concepts, 2) to develop specific strategies for cultivating the critical appraisal, 3) to think aloud for the parent, and 4) to use concrete examples.

In this individualized therapeutic nursing intervention the fundamental concepts used were those of neurobehavioral infant functioning and parental facilitation and support of the infant toward further organization and development. The specific strategies utilized for cultivating the parent's critical appraisal were those of modeling and facilitation of observation, analysis, and strategization while discussing the videotaped parent infant interactions. These interactions were those occurring in the neonatal setting as parents visited and cared for their infant. The critical appraisal was modeled by the interventionist thinking aloud with the parent. The videotape of each parent's own interaction with their infant provided a concrete example to the parent for the enhancement of the critical appraisal process.

Chapter II: Conceptual Framework

" It's getting harder and harder to leave her there night after night. She's becoming less and less an event that's been anticipated, and more of an actual person with a face that can stay in my memory, and be loved and missed." a parent of a 30 week infant

In a review of the literature and exploration of the conceptual framework there are several different concepts which integrate to formulate an understanding of parenting within the newborn intensive care unit. Both newborn competence and parental competence are reviewed as well as the effects of each upon the other within the situation of a preterm infant requiring intensive care. Nursing interventions and pertinent research are also reviewed.

Newborn Competence

The concept of newborn competence provides the framework for all nursing care of newborns which enhances and facilitates the infant's adaptation to the extrauterine environment. The human newborn's sensory and interactive abilities were virtually unrecognized until the latter half of the twentieth century. In 1959 White used the term competence to define the newborn's capacity to interact effectively with its environment. Ainsworth and Bell (1973) proposed that competence in the newborn could be described in areas of cognitive abilities, motor skills, and influence on the environment, especially the newborn's mother. Elliot and Connolly (1973) referred to competence as the organization underlying the newborn's behavioral adjustment to his environment.

Stone (1973) uses competence to stress that, from the earliest days, every infant is an active, perceiving, learning, and information organizing individual. Brazelton (1973) views competence as the driving force within the newborn that works toward development. Als (1982) defines competence as

the degree of smoothness and modulation, regulation, and increasing differentiation of five behaviorally observable subsystems of functioning: the autonomic, motor, state regulatory, attentional/interactional, and self-regulatory systems in continuous mutual interplay with each other and with the environment. Als' conceptualization was a progression of Brazelton's definition and a culmination of the previous efforts to define competence.

The autonomic subsystem incorporates the infant's physiological functions of breathing, color stability, and visceral activity. Motorically the infant demonstrates competence in terms of tone, posture, and movement. The state subsystem competence includes the range of states available to the infant, the clarity of any state, and the transition from one state to another. The attentional/interactional subsystem competence within the state regulatory subsystem addresses the infant's availability and utilization of an alert state. Overall the infant demonstrates emerging efforts at self-regulation or maintaining balance in relation to the environment. The synactive approach (Als, Duffy, McAnulty, and Badian, 1989) toward assessment of organism functioning is appropriate throughout the life span. Each stage of development has an emerging agenda being negotiated given the previous status of subsystem differentiation and modulation.

Using Sameroff and Fiese's (1990) model of developmental regulation, the behavior of the preterm infant is the product of the transactions between the level of biologic organization within the infant and the environment. According to Gorski, Davison, and Brazelton (1979) there are three major stages in the preterm infant's behavioral organization. The first is referred to as "in turning" and is characterized by the physiological organization. The second phase of "coming out" refers to the preterm infant's beginnings of

organized behavioral responsiveness. Finally in the stage of "reciprocity" the preterm infant demonstrates active reciprocity with the social environment. Lester (1992) has shown that a high level of responsivity can be elicited in preterm infants but only at some cost to the psychological organization.

The capacity of the newborn to learn requires an alert state, a structure of stimuli and trials, many repetitions of trials, gradual ordering of tasks in terms of complexity, use of adequate rewards, and a sensitivity to feedback signals indicating limits of tolerance (Papousek and Papousek, 1987). Despite the complexity involved in the learning process described, infancy research on learning and cognitive capacities has shown that infants participate in social interactions with much greater competence and autonomy than was previously acknowledged (Papousek and Papousek, 1992).

Parental Competence

Parenting is viewed as a continuum of development in which the parent strives to support the emerging development of the child. In view of the synactive framework for infant development, parenting is the process of supporting the infant's ongoing development through support and protection of the increasing modulation and differentiation of the infant's responses in relation to the environment. This encompasses the physical and interpersonal environment, which involves caregiver handling and social interaction with the infant.

For the preterm infant, parenting is the process of supporting, through mutual interactive behavioral communication, the infant in developing increasing differentiation and functioning in life processes. Papousek and Papousek (1992) note how intimately the parents' primary didactic support corresponds to the infant's actual state of competence and sense of

development. Two conditions that support this process are that there is only one interchange at a time and that there is an adjustment to the infant's limitations (Papousek and Papousek, 1992). An example of this situation is when the parent makes sure he/she is the only object of attention and places her/his face close within the infant's visual field when talking softly.

In Kang's (1985) model of parental competence there are three components: parental cognitive structures, parental cognitive processes, and parental behavior. Cognitive structures involve ways that parents assign meaning to the newborn's behavior. Parental cognitive processes mediate and guide the interactions between the parent and the newborn. The cognitive processes involve the emotional component and psychological aspects of the individual which enable her/him to be available for interaction and to utilize the knowledge regarding their infant. Parental behavior is the actual caregiving which may or may not be supportive to the emerging competence of the newborn. This model of parental competence is congruent with the previous definition of parenting.

These elusive mediating factors which Kang (1985) refers to as cognitive processes are very difficult to observe or find evidence of, and yet they effect parents' thoughts, feelings, and attitude. These cognitive processes enable the parent to appreciate the infant's emerging competence and therefore modify their caregiving approach and interaction in an effort to facilitate that infant's ongoing maturation. By supporting and encouraging parents in their appreciation and understanding of the infant's competence, their cognitive structures are enhanced with the ability to recognize and to understand the meaning of their infant's behavioral communication. Parental behavior,

which is the observable component of parental competence, is then modified on the basis of the parent's enhanced cognitive structures and processes.

The facilitation of the development of parental competence is the goal of neonatal nursing care which, in essence, displaces the role of the professional and encourages parents, through mutual interactive communication, in supporting the infant in developing increasing differentiation and functioning.

Effects of Parenting on Newborn Competence

Belsky (1984) states that parenting sensitively attuned to the child's capabilities and to developmental tasks will promote a variety of highly valued outcomes, including emotional security, behavioral independence, social competence, and intellectual achievement. Goldberg (1982) describes three main functions of parenting: 1) infant survival, 2) promotion of infant growth and development, and 3) formation of a lasting protective social bond. Goldberg further explains that a well functioning parent-infant dyad generates confidence and competence in its members that become resources for coping with new challenges. Brazelton (1987) states "We see it in the baby and in the mother, when the mother and baby can work together in a mutual rhythm of attention/withdrawal, attention/recovery. As they set up an approach/withdrawal rhythm necessary to prolonged attention, they both get a concept of how they are doing it and this kind of mastery within the dyad leads to a sense of competence in the baby" (p.60). Barnard and Kelly (1990) report the strong relationship between parent-infant interaction and child competence.

The Mother Infant Transaction Program (Rauh, Achenbach, Nurcombe, Howell, and Teti, 1988) was designed to facilitate mother infant interaction in

an effort to accomplish the longterm goal of enhancing infant development. The design of the Mother Infant Transaction Program(MITP) corresponds with the Kang (1985) model of parental competence in terms of the three major thrusts of intervention. The MITP effort toward sensitizing the mother to her infant's behavioral cues would enhance the parental cognitive structures thus influencing the parent's assignation of meaning to the infant's behavior. The MITP's thrust toward enabling mothers to appreciate her infant's unique behavioral characteristics would directly effect the interactions between the parent and infant thus enhancing the parental cognitive processes. In teaching mothers to respond appropriately to infant cues so as to facilitate mutually satisfying interactions the MITP intervened on the actual caregiving influencing the parental behavior.

In Papousek and Papousek's (1992) videotape analysis of parent infant interaction there were representations of nonconscious, intuitive forms of didactic interventions. Papousek and Papousek (1987) suggest that the involvement of integrative processes may be affected by intuitive didactic interventions to a greater extent than previously realized and mediated by nonverbal communication. For example, parents do not intervene with the infant's state of consciousness when in either a sleep or quiet alertness, but they do tend to intervene when the infant is either drowsy or upset and fussing. This awareness of their infant's integrative competence is not a conscious awareness and Papousek and Papousek (1987) refer to the intuitive behaviors of parenting. There is some concern that when effort is directly geared toward teaching and reinforcing on a conscious level these "intuitive behaviors" may be lost in the process. There may be a fine line between

facilitating and supporting the parenting process as opposed to teaching parenting.

Als (1992) summarizes parental goals from behavioral intervention studies primarily focused toward supporting the infant's emerging maturation. The six parental goals described were: 1) feeling of being supported in the NICU as an active partner and participant, 2) courage in observing the infant and trusting one's own observation, 3) recognizing the stress and comfort signals of their infant, 4) valuing own efforts and competence in comforting, regulating, organizing the infant while giving care, 5) experiencing pride and joy in the infant and in one's own competence with the infant, and 6) trusting one's own importance and effectiveness in parenting the infant (Als, 1992).

An individualized therapeutic nursing intervention for parents of preterm infants is geared toward enhancing parental competence in an effort to, in turn, enhance newborn competence. The focus is on facilitating parents through critical appraisal of their infant's neurobehavioral functioning with identification of strategies to modify both caregiving and the environment in an effort to enhance the maturation of both infants and parents. Through sensitive and astute observations of the preterm infant's behavior, signs of instability as well as self-regulatory responses can be identified. Nurses and parents using this information to individualize care and incorporate techniques to modify the environment and caregiving to reduce stress have had an impact on the infant's medical and developmental outcome (Als, Lawhon, et.al., 1986, 1988). These issues are critical to the infant's outcome, parental competence, newborn intensive care unit, and to society as well, if

through innovation, the infant has shorter length of stay, an improved outcome, and financial costs are decreased (Als, Lawhon, et.al., 1986, 1988).

Effects of Prematurity on Parental Competence

For parents of preterm infants the usual progression and preparation for parenting has been interupted and parents are, in many ways, as premature as their infant. The usual emotional and psychological preparation for parenting this infant has been abruptly interupted and a period of adjustment follows prior to the continuation of that developmental process. The relationship between the preterm infant and its mother begins with an infant who is physiologically immature and a mother who may be unprepared physiologically and practically for the early birth of her infant (Crawford, 1982).

Previous studies reviewed by Stern and Karraker (1990) indicate that adults have a negative view of the preterm infant. Stern and Karraker (1990) stress that important influences on the individual's interaction with a preterm infant are the beliefs or attitudes about expected behavior. Assisting parents in understanding the preterm infant's behavior can eliminate the prior misconceptions and negative stereotype held by some parents. Although most parents initially have difficulty in relating to their preterm infant, clinical experience informs that they are eventually able to make appropriate adjustments in their interactions when they understand the behavioral communication. According to Brazelton, Kozlowski, and Main (1974) most mothers endow even the smallest movements of their preterm infant with highly personal meaning and react to them affectively. Yoos (1989) summarizes the situation well in stating that the parent whose infant initiates few mutual interactions, responds less to parental initiations, and expresses

fewer affective reactions must learn to understand, interpret, and respond to the behaviors that the infant does present.

Both the critical nature of the preterm infant's health and the rapidly changing condition of that health necessarily impinge on the parent infant interactional relationship (Gottwald and Thurman, 1990). The Infant Health and Development Program (Ramey, Bryant, Wasik, Sparling, Fendt, and Lavange, 1992) utilized a systematic intervention to improve parent infant transactions by changing both the expectations and behaviors of parents. This approach attempts to alter both the cognitive structures and behaviors of parents, two of the three components of Kang's (1985) model of parental competence. In the reciprocity model described by Brazelton (1988) he suggests that the infant's "sense of competence" is ideal for fueling the system from within. In this reciprocal feedback system there are rewards for the parent as well as the infant. The development of the infant is seen as a product of the continuous dynamic interactions of the infant and the experience provided by the parents and social context (Sameroff and Fiese, 1990). The importance of the individualization required is stressed by Gorski, Davison, and Brazelton (1979) in their recommendation that providing care geared toward the state of neurobehavioral organization of the preterm infant may be therapeutic.

Nursing Interventions and Previous Research

In 1984 Magyary described a process for nurses to support parents of preterm infants. This process involved two steps: 1) identifying the subtle infant cues that demonstrate readiness for interaction or withdrawal, and 2) guiding appropriate responses and pacing of interaction in relation to expressed behavioral cues. The Newborn Individualized Developmental Care

and Assessment Program (Als and Gibes, 1986) which is directed toward the professional caregiver of preterm infants involves the same process. The NIDCAP approach toward behaviorally supportive care in the newborn intensive care unit also stresses the necessity for observation of infant behavior and the sensitive and appropriate response to that communication.

There have been numerous research efforts intervening with parents of preterm infants. Rosenfield (1980) provided a regime of infant stimulation to medically stable preterm infants during hospitalization which resulted in increased maternal visitation as well as infants being more alert prior to feedings. The maternal visitation pattern was initially less than one visit per week and following intervention was increased to two to three visits per week. When the parents were an intact couple they usually chose to visit together so that paternal visiting patterns paralleled the maternal pattern (Rosenfield, 1980).

Minde, Shosenberg, Marton, Thompson, Ripley, and Burns (1980) examined the utilization of parent support groups for parents of preterm infants during hospitalization and found that attendance at these support groups increased parental visiting and interaction. The parents of the control group visited an average of 3.1 times per week while the parents of the intervention group visited an average of 4.5 times per week (Minde, Shosenberg, Marton, Thompson, Ripley, and Burns, 1980). Brooten, Kumar, Brown, Butts, Finkler, Bakewell-Sachs, Gibbons, and Delivoria-Papadopoulos (1986) provided weekly support to parents during the preterm infant's hospitalization as well as an intensive home visitation program after discharge. Participants in their intervention group were discharged earlier and showed fewer parenting problems than control group participants.

In 1987 Barnard demonstrated that when parents were taught to facilitate their infant's getting into a quiet alert state prior to feeding, that feedings then were shorter in duration. Klaus and Kennell (1982) proposed that rather than increased stimulation for the preterm infant it would be more appropriate to support the mother to move at her infant's pace. A key point in working with parents of preterm infants is expressed by Kraus (1990) in the statement "parents must be made to feel that their parenting expertise is valued and that their ability to comfort and interact with their child is a skill that cannot be duplicated" (p.49).

Patteson and Barnard's (1990) review of issues and interventions on parenting low birthweight infants summarizes several salient points: 1) all successful interventions demonstrated active involvement of the parent in the intervention and in interaction with the infant, 2) the most successful interventions involved the parent in understanding their infant's developmental needs, reading their behavioral cues, and deriving satisfaction from caring for and interacting with their own infant, and 3) parent emotional support, resulting from interaction between parents and the interveners, was frequently recognized as a component implemented inadvertently in the intervention. Field (1986) notes as a caveat in interpreting the effects of supplemental stimulation that any enduring effects may be mediated by the parents rather than by the stimulation per se.

The transactional effects of altering parents' perceptions, attitudes, and behaviors appear to mediate development in the infant, which in turn reinforces and elicits further parenting necessary to foster development (Field, 1986). The perceptions, attitudes, and behaviors referred to by Field (1986) are related to the cognitive structures, cognitive processes, and

parental behaviors which compose parental competence (Kang, 1985). In the Nursing Systems Toward Effective Parenting of the Preterm (NSTEP-P) (Barnard, Hammond, Sumner, Kang, Johnson-Crowley, Snyder, Spietz, Blackburn, Brandt, and Magyary, 1987) a six month home visitation protocol was carried out with emphasis on teaching the mother an awareness of her infant's state changes and cues, and how to use the cues as a basis for providing an optimal interaction with her infant. The transactional nature of the parent infant relationship was evident in the finding that providing mothers this information may have promoted increased behavioral responsiveness of the infant and increased quality of the stimulation provided by the mother during interaction.

There have been numerous attempts to increase parental involvement in caregiving through the active demonstration of infant competence utilizing the Brazelton Newborn Behavioral Assessment Scale (BNBAS) (Brazelton, 1973). The goal of such interventions is that when parents are aware of their infant's competence their early interaction is positively influenced which in turn effects the infant's later competence. Widmayer and Field (1981) state that if a mother could be sensitized to her infant's behavior at an early stage, by observation of the BNBAS or her own assessment, early interactions might be more effective and in turn facilitate later cognitive development. Cardone and Gilkerson (1990) utilizing the Family Administered Neonatal Activities (FANA) approach attempt to combine the most successful aspects of active parental participation with that of enhancing parental perceptions of their infant's abilities in order to increase parental involvement. Parental perceptions are presumed to govern the interactive behaviors of the parent with the infant (Cardone and Gilkerson, 1990).

Heinicke, Beckwith, and Thompson (1988) make explicit the importance of parental involvement in effective intervention. They utilize anticipatory guidance which is deliberately timed to make use of the implications of the infant's behavior to the parents. Reciprocity is viewed as the necessary therapeutic agent not only in terms of the parent infant relationship but also in terms of the interventionist parent relationship. Both mirroring and reframing were used to help make parental observations and concerns more salient to the family (Heinicke, Beckwith, and Thompson, 1988). The Heinicke, Beckwith and Thompson (1988) approach utilizes a model of parental competence providing a concrete interactive experience for parent infant interaction. This correlates to the Kang (1985) model of parental competence with three components: 1) parental cognitive structures, 2) parental cognitive processes, and 3) parental behavior are readily seen in the intervention. The anticipatory guidance effects the parental cognitive structures, the utilization of reciprocity as a therapeutic agent enhances the parental cognitive processes, and the concrete interactive experiences effect the parental behavior.

Heinicke, Beckwith, and Thompson (1988) consider the importance of evaluating the process variables of the intervention. The dimensions of the interventions evaluated are the target group, the structure of the intervention, and the timing, frequency, and duration of the intervention. They attempt to evaluate the degree of rapport, trust, and interest the parents have in the intervention. The importance of timing is reinforced by Korner (1988) who concentrated on an immediate in hospital intervention in an effort to enhance infant functioning which would assist them in being more gratifying partners in the earliest relationship with their parents.

Sameroff and Fiese (1990) describe three distinct strategies toward intervention which integrate the transactional model with parent infant interaction: remediation, redefinition, and reeducation. Remediation is geared toward an identifiable condition in the preterm such as feeding difficulty which when normalized will facilitate the parent interaction with the child. Redefinition is directed primarily toward facilitating parenting interaction and is warranted when the parent sees the infant as abnormal and themselves as unable to provide necessary caregiving. Reeducation is directed toward influencing the parent's caregiving abilities and confidence in parenting a preterm infant. Within the transactional model it is when parents change their way of thinking about or behaving toward the infant as a result of the infant's behavior that a transaction has occurred. A therapeutic nursing intervention would combine elements of all three of these strategies. Efforts toward increasing the infant's clarity of cues would involve remediation. Redefinition would involve the understanding of behavioral cues in a positive perspective of emerging competence thereby enhancing the parental perceptions and knowledge of infant behavior. Reeducation efforts would support and facilitate, through modeling critical appraisal of the infant's behavior, a sensitivity and responsiveness during interaction.

Eckerman and Oehler (1992) report on two studies in which they attempted to look at the early postnatal interactions of very low birthweight infants and their parents. They have outlined four ways in which the circumstances of beginning postnatal social interactions differ from the fullterm infants and parents. These four aspects are: 1) postnatal social interactions begin at a much earlier point in the infant's development, 2) not only is the infant immature but is also at risk for nonnormative neurological development,

3) postnatal social interactions begin within the context of intense affects for the parents, and 4) early postnatal interactions proceed under the constraints of the physical and social milieu of the NICU and parents approach their infant often believing that others know better about their infant and these interactions.

Summary

Current neonatal care results in the survival of very low birthweight preterm infants who are a challenge for their equally premature parents. Given the assumption that both these infants and their parents are inherently competent, an individualized therapeutic nursing intervention designed to promote the parent's ability to integrate critical appraisal of their infant's neurobehavioral functioning, will facilitate and enhance both the parent infant interaction and the infant outcome. This promotion of parenting is a primary goal for nurses caring for high risk infants. By actively supporting and involving parent participation in the care of preterm infants parental competence is acknowledged and the parenting process of supporting their infant's emerging competence is enhanced.

Chapter III: Methodology

"This has been a really good experience. I appreciate the knowledge I now have about the small ways in which my baby communicates. I have felt more involved in her care and understand her better than any of the NICU caregivers." a parent of a 30 week infant

Design

This pilot study was an exploration of a therapeutic process and those methodologies necessary to examine the therapeutic process and its potential outcomes. This design provided a richer familiarity with a phenomenon and clarifies concepts as well as developing and refining a new therapeutic nursing intervention (Wilson, 1985). A multiple case descriptive design is usually done under natural conditions and accomplishes the following purposes: gaining insight into a phenomenon, providing background data for the planning of studies, developing explanations of processes, and offering rich description (Wilson, 1985). The primary question asked by this investigation was how the integrity and strength of the individualized therapeutic nursing intervention was related to its effectiveness in enhancing the parent's ability to critically appraise their infant's behavior and to further integrate that appraisal into their parenting behavior. The purpose of this study was to provide the information required to refine an individualized therapeutic nursing intervention which may then be evaluated in an experimental research design in the near future.

Sample Selection

A convenience sample of infants and parents, who met the study criteria, were approached for recruitment into the study. Careful monitoring was done to keep track of characteristics of infants and parents who were not successfully recruited into the study.

Criteria for infants were: less than or equal to 1510 grams, less than 32 weeks post conceptual age at birth, appropriate size for gestational age (greater than 10% and less than 90%), no known congenital or chromosomal anomalies, no known illicit drug exposure in utero, a singleton birth, and cared for in a level III newborn intensive care unit. These infant criteria were established in an effort to ensure a minimum of a month long stay in the hospital to enable a sufficient amount of intervention opportunity. The exclusionary criteria were to prevent the confounding variables of those conditions which potentially alter an infant's neurobehavioral functioning.

Criteria for parents were: 18 years of age or older, planning to be involved with this infant, able to both speak and write in the English language, without known illicit drug addiction, and able to be with the infant at least once a week throughout the hospitalization. The criteria for parents were established to assure the availability for participation in the intervention. The age criteria followed the hospital ethics committee guidelines. The language criteria was merely due to the limitations of the investigator.

Human Subjects

In accordance with the hospital's policy, the staff made the first contact with parents, and once the medical/nursing staff for both the infant and mother had approved the request to recruit the family the investigator met with one or both parents and invited them to participate in the study. Each parent was informed of the procedures to be utilized and the commitment of their involvement being required. Parents were assured that their participation in this study would have no effect on the medical and nursing care provided within the newborn intensive care unit. Their commitment to participate included a minimum of weekly intervention sessions and weekly

journal writing. The issue of privacy and confidentiality was discussed, and each parent signed a formally approved consent form (Appendix A) following the usual procedures. Each parent and infant were identified with a code number, and all data was kept in locked files throughout the study. The data were used only by the investigator to inform the methodology necessary to examine the therapeutic process being explored.

Individualized Therapeutic Nursing Intervention

The focus of the individualized therapeutic nursing intervention was to support parents in gaining a greater ability to critically appraise their infant's neurobehavioral functioning with identification of strategies to modify both caregiving and the environment in an effort to enhance the maturation of both infants and parents. The intervention consisted of four components: 1) initiation and maintenance of a therapeutic alliance, 2) negotiation and agreement on the treatment plan, 3) modeling and facilitation of the critical appraisal of the infant's behavior during interaction, and 4) ongoing assessment of the infant and parent interaction through discussions of videotaped episodes.

Therapeutic alliance as described by Gaston (1990) implies a therapeutic value to the alliance itself. This alliance is a prerequisite for interventions to be effective, and interacts with the intervention being carried out. During the negotiation and agreement of an intervention plan the goal of facilitating a better understanding of the infant's competence was discussed as well as the positive emphasis on supporting the parent's own competence in being able to critically appraise their own infant's behavior and their sensitive response.

According to the principles of critical appraisal (Paul and Nosich, 1991) the modeling and return demonstrations of verbalizing the appraisal of the

infant's behavior during interaction served as the concrete example in which the fundamental concept of competence was reinforced. This modeling and return demonstration component of the intervention was done at least once a week and then as often as requested by the parent throughout the infant's hospitalization. Several infants were transferred to local community hospitals, and the study was continued without interuption at those special care nurseries.

The intervention was begun within the first 10 days of the infant's life and continued through the infant's hospitalization or, as in the case of two infants, when the infant reached 42 weeks post conception. The component of ongoing weekly assessments accomplished through viewing a videotaped caregiving episode and discussing the parent infant interaction was designed to enhance the therapeutic outcome of the intervention as well as to provide data which could be analyzed. Parker and Zuckerman (1990) suggest that the process of assessment has four mechanisms which lead to a therapeutic outcome. The enhancement of the parent's understanding of the child, promotion of the goodness of fit between parent and child, empowerment and support of parents, and the modeling of constructive interactions with the child are all essential components of this individualized therapeutic nursing intervention. On an ongoing basis parents maintained journal writing responding to several key questions regarding their feelings and their infant's response to them (Appendix B). The journal writing was to reflect both cognitive structures and processes. Thus the journal writing was in effect an aspect of the intervention as well as an outcome measurement process.

Instrumentation

Data were collected in this study in order to describe the integrity, strength, and effectiveness of the individualized therapeutic nursing intervention and are summarized in Table 1.

Table 1: Data collection.

Intervention Component	Relevant Data	Method Of Collection
integrity	initiation and maintenance of therapeutic alliance	audiotape transcripts
	negotiation of treatment plan	interventionist's log
	modeling and facilitation of critical appraisal process	audiotape transcripts
	ongoing assessment of parent infant interaction	interventionist's log
strength	parent choices regarding treatment, i.e. individually or as a couple, number and frequency of sessions, and caregiving episodes	interventionist's log
	amount of critical appraisal modeled by the nurse	audiotape transcripts
	combined amount of critical appraisal by parent(s) and nurse	audiotape transcripts
effectiveness level one	amount of critical appraisal done by parent(s)	audiotape transcripts
level two	integration of critical appraisal in parent responsiveness to infant	videotaped episodes
level three	parental competence feelings and thoughts regarding infant and self (parent) sensitivity to infant cues response to infant distress social emotional growth fostering cognitive growth fostering frequency of visitation	journal writing feeding observation interventionist's log and parent journal writing
	newborn competence clarity of cues responsiveness to parent neurobehavioral functioning length of stay in the hospital	feeding observation behavioral assessment interventionist's log

Interventionist Log

A log was designed for each infant (Appendix C) which was designed for each infant which facilitated the maintenance of field notes and daily information as to the infant's health status, medications, breathing support, feedings, and parent infant interactions. The investigator collected this daily information on each subject throughout their stay in the newborn intensive care unit. The log also facilitated the documentation of prenatal and delivery events and the discharge disposition and follow up appointments. Following each interaction with a parent the investigator entered field notes into the daily log which contained aspects of the therapeutic alliance as well as scheduled sessions and impressions of the parents and their interaction with the investigator after each intervention session.

Audiotape Transcripts

In an effort to document aspects of the critical appraisal process a coding scheme was developed entitled Coding System for Transcriptions of Individualized Therapeutic Nursing Intervention Audiotaped Sessions (Appendix D). This coding system was designed as a method of documenting the verbal interaction between the nurse and parent(s) in the intervention sessions. With the primary focus of the process of critical appraisal in this intervention the major purpose of the coding was for this process. The critical appraisal process had three components: observation, analysis, and strategization regarding the infant's behavior. This critical appraisal was not only directed toward the infant but also toward the environment (both animate and inanimate), the parent herself/himself, and occasionally the interventionist.

Throughout the study as parents did their journal writing and it was read by the interventionist it became clear that the intervention sessions not only involved the aspects of negotiating through a therapeutic alliance, modeling and facilitating critical appraisal, but other aspects of caring directed toward the parents themselves. Therefore on the basis of the participant's feedback it was decided to develop a coding scheme which incorporated therapeutic alliance, caring, and critical appraisal.

The Swanson (1993) Caring model was adapted to incorporate both the caring aspects and the critical appraisal modeling and facilitation. Swanson(1993) defines caring as being grounded in the ongoing belief in persons, anchored in knowing the other's reality, conveyed through being with, and enacted through doing for and enabling. There are five components to this model of caring: 1) "maintaining belief" in persons and their capacity to make it through events and transitions, 2) "knowing", which is striving to understand events as they have meaning to the other, 3) "being with", which is to give time, authentic presence, attentive listening, and contingent reflective responses, 4) "doing for", which is doing for the other what they would do for themselves if possible, and 5) "enabling", which is the facilitation of the other's passage through life transitions and unfamiliar events (Swanson, 1991 and 1993).

With the primary focus on the process of critical appraisal in this therapeutic nursing intervention this model was adapted to feature the aspects of the critical appraisal process in the "doing for" category. The interventionist was doing critical appraisal and facilitating the parent in doing the critical appraisal of the infant's behavior, thus doing for the parent what he/she was not yet able to for him/herself. In addition to the aspects of

maintaining belief, knowing, being with, critical appraisal(doing for), and enabling there was an additional coding for either nurse or parent therapeutic alliance.

Knowing was defined as the communication of one individual striving to understand an event as it has meaning to the other, and the codes included either the nurse or the parent expressing a knowing of the baby's, parent's, own, partner's, or nurse's experience. It was useful to consider the purpose of a given statement. The component of **being with** implied emotional presence to the other which went beyond knowing and understanding. Coding designated either the nurse or parent expressing emotional presence with self, baby, parent, partner, or nurse. There was an empathetic component involved in this code.

The component of **doing for** was substituted with the **critical appraisal** process which included observing, analyzing, and strategizing for utilization of information. In this study the primary focus of critical appraisal was toward better understanding of the preterm infant's behavior. A secondary focus was toward a better understanding of the parent's behavior in relation to her/his infant. Codes were developed that included the nurse or parent in observing, analyzing, or strategizing the baby, parent, environment, self, partner, or nurse. When the communication involved an observation with a comparison it became an analysis. Environment was defined as all else beyond the infant and parents, both inanimate and animate. Strategizing involved some aspect of problem solving.

For the component of **enabling** which is the facilitation of the other through provision of information as well as emotional support or validation, codes were developed for either the nurse or parent to express an enabling

toward the baby, parent, self, or partner. The final component of **maintaining belief** involved holding the other in esteem and sustaining faith in their ability. Codes were developed to indicate either the nurse or parent expressing belief in the baby, parent, self, or partner.

Aspects of **therapeutic alliance** were merely coded as nurse therapeutic alliance or parent therapeutic alliance and involved all passages with the primary purpose of negotiating intervention sessions. There was an overall weighting of categories with highest priority toward maintaining belief followed in order by enabling, doing for (featuring critical appraisal), being with, and knowing. Other rules and guidelines are in Appendix D.

Therefore a preliminary coding scheme was developed by the investigator and a second rater (K.B.) who was familiar with both critical appraisal and the caring model. The process involved going through the actual coding of six full audiotape transcripts while refining the codes, discussing and negotiating the definitions within the coding scheme and clarifying the general rules and guidelines. All audiotaped transcripts were coded by the investigator and of the eighty-three transcripts twenty or 24% of them were also coded by the other rater (K.B.) to a criteria of 86% or greater interrater reliability.

Videotape Episodes

The videotaped parent infant interaction episodes were coded to provide a measure of sensitive and supportive handling during naturally occurring interactions throughout the infant's hospitalization on a minimum of a weekly basis. After much reflection a decision was made to look at the positive perspective of sensitive and supportive handling in response to identified disorganized infant behaviors. Both the investigator and the other

independent rater were already trained to observe infant behavior in the naturalistic setting of the newborn intensive care unit with the Naturalist Observation of Newborn Behavior scan sheet (Appendix E) as part of the Newborn Individualized Developmental Care and Assessment Program (Als, 1984). This scan sheet was then evaluated for those infant behaviors that would designate disorganization and be readily observable through the videotaped interactions which had been chosen by the parents and utilized as the basis for the modeling and facilitation of critical appraisal in the individual intervention sessions.

The coding scheme developed referred to as the Coding System for Videotaped Episodes of Parent Infant Interaction (Appendix F) is based on the three major subsystems of the synactive theory of infant development (Als, 1982) which delineates those readily observable infant behaviors within the autonomic, motor, state, and attentional subsystems of functioning that are signals of disorganization or instability. All definitions are directly from the NIDCAP scan sheet manual. The videotaped episodes were coded for disorganized behaviors with emphasis on their frequency rather than duration of behavior. With the utilization of CODER2 (Kappas, 1990) each disorganized infant behavior was additionally coded to as to whether the parent verbally acknowledged and/or actively responded to that disorganized behavior. All 80 videotaped episodes were coded by the investigator; nineteen (22%) episodes were coded by an independent rater (R.H.) to 86% or greater interrater reliability.

Journals

The journals (Appendix B) were designed to elicit the more elusive feelings and emotions that a parent has both regarding the infant and her/himself.

There were five questions asked on each journal: 1) How often have you been able to visit this week and what were you able to do in providing care to your baby during the visit(s)?, 2) How are you feeling as a parent of this baby?, 3) Describe how your baby responds to you?, 4) How has your baby changed in the past week?, and 5) Any other feelings or comments on your experience as a parent of an infant who requires intensive care?.

Once a week each parent was provided a new journal page and the previous week's journal was collected. The weekly collections were intended to increase the respondency rate on the journal writing. The parent was assured that at the end of his/her participation in the study she/he would receive a bound copy of all original journal writing. To facilitate the exchange of these journals in the investigator's absence a mailbox was set up at each study infant's bedside in which any communication regarding the study could go on between the parents and the nurse investigator. At the end of the study each parent was asked to write in response to a final journal page which reformulated the questions in a summative fashion throughout the infant's hospitalization and asked how they felt as a participant in this research study (Appendix G).

Visitation

The significance of parent visitation and involvement during the course of the preterm infant's hospitalization has been associated with the infant's recovery (Zeskind and Iacino, 1984). Lewis, Bendersky, Koons, Hegyi, Hiatt, Ostfeld, and Rosenfeld (1991) have found significant correlations between those infants who are not visited very often and those who do not show up for follow up appointments leading to inconsistent medical care for this high risk population. Frequent visitation has long been associated with an enhanced

parent infant relationship. The interventionist maintained individual logs which documented all parent calls and visits. In the days the interventionist was not on the unit the infant's medical and nursing notes were evaluated for this information as well as specifically asking parents if they had been in to visit on those days. Thus the number of days in which each parent visited was obtained from both the written journal responses as well as the individual logs for each subject maintained by the investigator. These two sources of information could then be checked with each other for accuracy.

Nursing Child Assessment Feeding Scale

At the time of discharge, or at term if the infant was still hospitalized, each parent and infant was observed utilizing the Nursing Child Assessment and Satellite Training Feeding Scale (NCAFS) developed by Barnard (1978). This instrument measured both parental and newborn competence.

The Nursing Child Assessment Feeding Scale (NCAFS)(Appendix H) is a quantified measurement of parent infant interaction developed by Barnard (1978) which places the interactive processes of parent and infant within the standardized context of feeding and enables a continuous interaction for observation. The observational tool, designed with a binary system of yes or no to a total of 76 items, documents a repertoire of behavior and contingency of responses of both infant and parent in a feeding situation. There are six subscales, four of which focus on the parent and two focus on the infant part of the dyadic interaction. The parent subscales are: sensitivity to cues, response to distress, social-emotional growth fostering, and cognitive growth fostering which combine to form a total parent score. The infant subscales of clarity of cues and responsiveness to parent combine for a total infant score.

This is a valid clinical tool for making a reliable observation about the dyadic interaction. The strength of the NCAFS is that the contingent and reciprocal nature of the parent infant interaction is assessed, and the parent as well as the infant characteristics are examined (Barnard and Kelly, 1990). The NCAFS has a Cronbach's alpha of .86 for internal consistency reliability with a generalizability coefficient for the parent score of .75 and for the infant score of .53.

Several studies have been done which demonstrate concurrent validity of the NCAFS with other measures of related concepts such as infant intelligence and behavioral responses. Significant ($p<.001$) correlations at .28 were found with the total parent score at three months of age and the Bayley Mental Development Index at the same age (NCAFS manual, 1994). In relation to the Brazelton Newborn Behavioral Assessment Scale (BNBAS) done at the time of discharge in a study of newborns (Lerner and Ellis, 1993) the NCAFS correlations were .47 between the BNBAS state regulation cluster and NCAFS responsiveness to parent subscale and .35 between NCAFS total score and the BNBAS orientation cluster.

This quantified measurement was used to assess both parent and infant interaction as measures of competence. Although it is a standardized quantitative tool in this study it was used merely to describe the individual cases and show a third level of effectiveness of the intervention.

Length of Stay

Infant's length of stay has been used frequently in the literature as a measure of infant outcome. The length of stay in the hospital is used as an indicator of health status with a shorter length of stay indicating a healthier infant outcome. One of the reasons for the significance of this parameter is

the financial implication both to the medical system and the individual families. The infant's length of stay in the hospital was documented in the interventionist's log for each infant. This was confirmed by examination of the infant's medical record.

Assessment of Preterm Infant Behavior

This is the other of the two standardized and quantified measurement tools used in this descriptive and exploratory design. The Assessment of Preterm Infant Behavior (Als, Lester. Tronick, and Brazelton, 1982) is designed to document the competence of the preterm as the degree of smoothness and modulation, regulation, and differentiation of five behaviorally observable subsystems of functioning (Appendix I). These five subsystems are autonomic, motor, state regulatory, attentional-interactional, and self-regulatory. The Assessment of Preterm Infant Behavior (APIB) uses the maneuvers of the Brazelton Newborn Behavioral Assessment Scale (BNBAS) in a sequence of increasingly demanding inputs moving from distal stimulation during sleep through tactile stimulation combined with vestibular input (Als, Duffy, and McAnulty, 1988). The system parameters are behaviorally defined and are scaled from 1, being well modulated, to 9 which is poorly organized performance. For each of the six examination packages, there are three scores given for autonomic, motor, state regulatory, and self regulatory systems: a baseline score prior to manipulation, a response score during the manipulation, and a post administration score of the infant's functioning prior to the next baseline. The APIB systems scores are derived from the systems scoring sheet in which there are a total of 81 scores from the

assessment. Test retest reliability has been reported at high significance with a group of twenty-eight infants examined at 40 and 44 weeks post conception using the APIB (Als, Duffy, McAnulty, and Badian, 1989).

Concurrent validity has been supported in a study which correlated APIB system variables and brain electrical activity mapping (B.E.A.M.) of 135 infants at 42 weeks post conception (Duffy, Als, and McAnulty, 1990). Of the 66 correlations 41 were significant at the $p<.05$ level with coefficients of .18 - .22. Construct validity is supported by those intervention studies which have shown that the A.P.I.B. distinguishes between different groups of infants (Als, Lawhon, Brown, Gibes, Duffy, McAnulty, and Blickman, 1986 and Als, Lawhon, Duffy, McAnulty, Gibès-Grossman, and Blickman, 1994).

Specific reliability criteria for APIB administration demands above 98% agreement of all the nine point scales to within one point and a one point agreement at 90%. For this study 20% of the APIB assessments were scored by both the investigator and another reliable examiner (R.H.) to a criteria of greater than 90% interrater reliability.

The mean of each subsystem was calculated deriving six APIB summary system scores which were utilized in this study. Additionally a modification was made in scoring to go one step further and average the six subsystem scores to enable a single score merely for the purpose of rank ordering the subjects for this third level of effectiveness as a descriptor of newborn competence.

Analysis

The primary issues related to treatment which must be addressed are those of integrity, strength, and effectiveness (Yeaton and Sechrist, 1981). The

method of data analysis in this study was that of case by case descriptive analysis which provided frequency counts of those events measured.

Analysis of the Intervention

Integrity

The integrity of the treatment was the degree to which the treatment was in fact delivered as intended. The manner in which the individualized therapeutic nursing intervention was delivered as intended and the negotiation of each parent's treatment plan was evaluated through the analysis of the interventionist's log and field notes regarding the parent choices, process, content, and impressions of each intervention session with each parent. Since this individualized therapeutic nursing intervention was modified throughout the course of treatment, it was crucial that a careful monitoring process was in place.

An audiotape of each intervention session with a parent provided a means to evaluate if the following key ingredients were present in each session: 1) initiation and maintenance of a therapeutic alliance, 2) negotiation and agreement on a treatment plan, 3) modeling and facilitation of the critical appraisal of the infant's behavior during interaction, and 4) ongoing assessment of the infant and parent interaction. These audiotaped records also enabled the evaluation of the individualization of the intervention. A case by case description with frequency counts of these codes provided the basis of the measurements on integrity as well as strength of the intervention and first level effectiveness on the parent's ability to do critical appraisal.

Strength

The strength of the treatment refers to how likely it is that the treatment will in fact have the desired outcome. Aspects of treatment strength such as

amount, intensity, and duration of the planned intervention were modified on an individual basis. Parents were only required to participate in one intervention session per week and could negotiate as many other intervention sessions as they desired. They chose whether to work together as a couple or to have separate sessions. Parents also chose which caregiving episodes would be taped and at what time. The investigator was available to parents twenty-four hours a day for their convenience. The intervention plan was individualized for each parent based on their choices regarding frequency of sessions (beyond the weekly requirement), duration of sessions, scheduling time of sessions, and the caregiving interaction to be utilized for the session. Thus the decisions regarding strength of the intervention were made by each parent creating the individualization of the treatment plan. The parent infant interaction progressed from initial touching and presence with the infant to more involved caregiving episodes such as diaper changing, feeding, and bathing as the infant's clinical status changed in addition to the changing comfort level of the parents. The ongoing adjustments and adaptations to the treatment intervention were documented through the maintenance of an ongoing log throughout the study.

Once the audiotape transcripts had been analyzed the information was available on both the amount of critical appraisal modeled by the nurse and the amount of critical appraisal the parent articulated. The overall strength of the individualized therapeutic nursing intervention was determined by both the intensity of the nurse's modeling of critical appraisal and the amount of the parent(s) critical appraisal within the intervention sessions.

In an effort to facilitate the analysis of the intervention effectiveness the ten cases were divided into two groups of strength intensity to enable

descriptive comparisons. For each case the ranking on total amount of critical appraisal was added to the ranking on averaged combined critical appraisal and the sum of these two rankings was divided by two to provide a number by which to rank order the overall strength of the intervention as reported in Table 2. For example case #1112 with a rank of 3 on amount of critical appraisal plus a rank of 4 on intensity of averaged combined critical appraisal yielded a sum of 7 then divided by 2 for 3.5 which was an overall ranking of third for strength of intervention. Once the overall strength rankings were complete a median split was done to facilitate the identification of two groupings on strength of intervention referred to as the higher intervention group and the lower intervention group for the remainder of the analysis and findings.

Table 2: Ranking of overall strength with median split for higher and lower intervention grouping.

Amount cumulative total C.A.	Duration total number of weeks of treatment	Intensity Averaged Nurse C.A.	Intensity Averaged Parent C.A.	Intensity Combined C. A.		Overall Strength Rank ordering by Subject #
922	16 weeks	28%	38%	66%	1	# 0506
736	5 weeks	30%	32%	62%	2	# 04
702	15 weeks	19%	40%	59%	3	# 1112
339	5 weeks	31%	37%	68%	4	# 15
530	5 weeks	20%	33%	53%	5	# 0102
323	6 weeks	22%	32%	54%	6	# 1819
494	11 weeks	19%	26%	45%	7	# 0910
272	5 weeks	23%	32%	55%	8	# 2223
224	5 weeks	25%	31%	56%	9	# 1314
317	13 weeks	27%	26%	53%	10	# 2021

Analysis of Intervention Effectiveness

The effectiveness of a treatment is the measured difference a treatment produces. The effectiveness of the individualized therapeutic nursing intervention was reflected in the parent's ability to critically appraise their

infant's behavior and to then integrate the appraisal in a sensitive and supportive response to the infant. A further issue regarding effectiveness had to do with the relationship between the parent's ability to integrate critical appraisal and the potential for enhancement of both parent and infant competence. The effectiveness of the individualized therapeutic nursing intervention was assessed on three levels of increasing complexity.

First Level of Effectiveness

The first level of assessment of intervention effectiveness was in the ability of the parent to critically appraise their infant's behavior. This was measured through the analysis of the audiotaped discussions of the videotaped parent infant interactions. Each audiotaped session was analyzed for the frequency and amount of critical appraisal the parent articulated. The parent critical appraisal is expressed in percentage of each session and in averaged percentage of critical appraisal across all sessions for each case. In this analysis the parent critical appraisal is documented as one measurement irrespective of whether one or two parents are participating in the session.

Second Level of Effectiveness

The second level was the assessment of parent's ability to integrate the critical appraisal process into a more sensitive and supportive approach to handling during interaction. This was measured through the analysis of the videotaped parent infant interactions. Each episode of parent infant interaction utilized as part of the individualized therapeutic nursing intervention was videotaped and then coded for those disorganized infant behaviors which the parent verbally acknowledged and/or actively responded to. The analysis of the videotaped episodes then provided the case by case description with the frequency counts of integration of critical appraisal

into more sensitive and supportive handling which measured the second level of effectiveness for the intervention.

Third Level of Effectiveness

The third level of assessment of effectiveness was in the evaluation of both parent and infant competence measures suggesting the potential effectiveness of the parent's ability to integrate critical appraisal of their infant into a sensitive and supportive interaction.

Parent competence was measured through the data collected in the individual parent journals, the pattern of parent visitation and the total parent scores on the observation of feeding.

The parent's weekly journal writing in response to five directed questions was analyzed through content analysis facilitated by HyperQual2 (Padilla, 1993). This computer software program facilitated the mechanical aspects of both the data entry and sorting of common concepts and categories. This method of analysis is constant comparative analysis where each journal is reviewed and common concepts and themes are found in the data. Once all the journals had been analyzed there were several common themes that were then rechecked with each parent's journal writing.

Parent visitation was analyzed utilizing a case by case description of the percentage of the infant's days in the hospital that each parent visited. The total parent score on the NCAFS provided a case by case description of one aspect of parent competence and facilitated a rank ordering which could then be utilized in regard to the higher and lower intervention groups.

Newborn competence was analyzed through the data collected on length of stay, total infant scores on the observation of feeding, and the neurobehavioral functioning of each infant measured by the behavioral

assessment (APIB). The infant's length of stay (days of hospitalization) was recorded in the individual logs.

These measurements of parental competence and newborn competence respectively, for level three effectiveness of the intervention, were analyzed through a simple case by case description with the frequency counts available for comparison among subjects. The use of the median as a measure of central tendency was used to provide a more direct and clear interpretation. The median is the "middle" point in a set of scores. There is an equal number of cases above and below the median. It is most appropriate for small samples and when an ordinal scale of measurement is required as with the rank ordering of these ten cases for each parameter of measurement (Hopkins, Glass, and Hopkins, 1987).

Chapter IV: Findings

" I am lucky and feel proud. I know my baby and I can communicate between each other. He smiles when I talk with him at times. He brings me a lot of joy every time I'm with him. I'm getting so anxious for his day to come home."
a parent of a 29 week infant

The purpose of this study was to explore the therapeutic process of an individualized nursing intervention and those methodologies necessary to examine the therapeutic process in terms of its integrity, strength, and effectiveness. Specifically this study aimed at evaluating the feasibility of the therapeutic process in supporting and facilitating competent parenting and improved neurobehavioral functioning and to describe the differences in integrity and strength of treatment in relation to potential outcomes of this individualized intervention.

Sample Description

Of the twenty-five infants who met both the infant and parent criteria for this study between February 1, 1993 and June 30, 1993 eighteen (72%) were approached for participation in the study following the approval of the medical/nursing staff of the Newborn Intensive Care Unit. The reasons the other seven (28%) were not approached were: the medical and nursing staff did not give approval for one infant because they felt he was too sick and the family was already overwhelmed; three infants were given priority to be approached for a competing research study; and three infants came at a time when the investigator could not handle any more subjects.

Of the eighteen infants whose parents were approached for recruitment into the study four (22%) refused. Of the remaining fourteen (88%) infants whose parents consented to be in the study two infants died within several weeks and two infants' parents were simply unable to maintain the commitment to having an intervention session at least once a week within the

first two weeks they were in the study. Thus the study sample consists of ten infants and a corresponding eighteen parents. One was a single parent and another mother's husband was uninvolved in this infant's life during the course of hospitalization.

Table 3 provides a summary of both infant and parent characteristics. Infants ranged from 24 to 32 weeks post conception at birth with a median of 28.72 weeks and weighed from 650-1510 grams at birth with a median of 1244 grams. One infant did not survive his neonatal course but lived beyond the time of this study participation.

Of the eighteen parents who participated in this study ten were mothers and eight were fathers. Mothers' ages ranged from 19-35 years with a median of 25.5 years and fathers' ages ranged from 22-42 years with a median of 26.5 years. Eight mothers were Caucasian and two were black while seven fathers were Caucasian and one was black.

Utilizing the delineation of higher and lower treatment groups there are several sample characteristics pertinent to each of group. The higher intervention group (#0102, #04, #0506, #1112, and #15) infants had a median gestational age of 30.29 weeks and a median birthweight of 1250 grams. Three were vaginal deliveries and two were section deliveries. All but one (#1112) were females. The median length of stay in the hospital was 38 days. These mothers have a median age of 25 years with a median education of 12 years. Two mothers had no previous children. Three mothers had other children and one had previous preterm infants. The three fathers in this group had a median age of 25 years with a median education of 14 years. All fathers had no previous children.

Table 3: Sample characteristics.

	#0102	#04	#0506	#0910	#1112	#1314	#15	#1819	#2021	#2223
Infant										
sex	female	female	female	male	male	female	female	male	female	female
gest at birth	30 2/7weeks	32 weeks	24 5/7weeks	28 weeks	26 weeks	28 3/7weeks	32 weeks	29 weeks	27 weeks	30 weeks
birthweight	1510 grams	1250 grams	650 grams	1084 grams	775 grams	1250 grams	1426 grams	1453 grams	750 grams	1237 grams
delivery mode	spontaneous vaginal	repeat section	spontaneous vaginal	precipitous vaginal	cesarean section	repeat section	vaginal after cesarean	spontaneous vaginal	cesarean section	cesarean section
length of stay	37 days	38 days	113 days	77 days	161 days	34 days	35 days	43 days	112 days	33 days
Mother										
age	19	25	22	35	28	24	26	22	35	28
Gravida/parity	G1 P1	G3 P3 L2	G2 P1	G5 P3	G5 P3	G3 P2	G5 P2	G2 P1	G4 P1	G2 P1
marital status	married	single	partnered	partnered	partnered	partnered	married	partnered	married	married
education	13 years	13 years	12 years	13 years	10 years	13 years	10 years	15 years	15 years	12 years
race	caucasion	caucasion	caucasion	black	black	caucasion	caucasion	caucasion	caucasion	caucasion
Father		N/A					N/A			
age	22		26	30	25	26		33	42	27
parity	P1		P1	P1	P1	P4		P1	P2	P1
education	15 years		12 years	14 years	14 years	12 years		12 years	20 years	14 years
race	caucasion		caucasion	caucasion	black	caucasion		caucasion	caucasion	caucasion

The lower intervention group (#0910, #1314, #1819, #2021, and #2223) infants had a median gestational age of 28.43 weeks and a median birthweight of 1237 grams. Two were vaginal deliveries and three were section deliveries. There were two males and three females. These mothers have a median age of 28 years with a median education of 13 years. Three mothers had no previous children. The fathers in this group had a median age of 30 years with a median education of 14 years. Three fathers had no previous children.

Integrity of the Individualized Therapeutic Nursing Intervention

The integrity of the intervention refers to whether the treatment was in fact delivered as intended. The intervention plan was changed after the first few sessions were done with the first infant and parents participating in this study were done. Prior to the beginning of the study the treatment was intended to be administered to the parent in a strict modeling and return demonstration manner. The field notes and log on the first set of parents documents the problems with this manner of delivery. "Mom really needs to regain control over this situation and is having a difficult time accepting any impositions on her handling her infant". "Parents suggested I could just talk with them about what they do and not have to show them first". Both parents of this first infant were invested in doing as much for their infant as possible and were already somewhat at odds with the nursing staff regarding issues of control. They were clearly dissatisfied with the limitations on the amount of holding and active caregiving they were allowed to participate in.

It was apparent to the interventionist that the intervention should not also usurp their time and caregiving opportunity with their infant by modeling the critical appraisal during their time by my handling of the infant. In addition there was a discomfort level with being coached during their actual

caregiving of their infant. It became clear to the interventionist that to be coaching them through their own caregiving by modeling through the critical appraisal process was possibly intrusive.

As a result of the process with these first two parents the intervention mode of delivery was altered. The manner in which the treatment was given with the remaining parents was then consistent without further alterations. The treatment was given in a manner that did not delete any of the parent's valuable interactive opportunity with their own infant and simultaneously did not intrude during their interaction by thinking aloud the critical appraisal. Instead the parent infant interaction was promoted and supported through the actual interaction and the modeling of critical appraisal took place during the discussion of the videotaped parent infant interaction. It was during this discussion that the critical appraisal was both modeled and facilitated.

The aspects of forming and maintaining a therapeutic alliance were twofold: 1) the negotiation of a treatment plan, and 2) the development of a therapeutic alliance which was ongoing to maintain a therapeutic relationship. Indiviual tables of participation are in Appendix J. Of those in the higher intervention group the treatment plans negotiated were as follows:
#0102) initially set up sessions three times a week with each parent separately but by the second week altered the plan to one to two times a week meeting together as a couple;
#04) set up and maintained a plan of three sessions per week;
#0506) were unable to set up any plan until after several sessions (and the likely survival of the infant) when they negotiated one session a week but without any routine schedule;

#1112) were very clear on one session per week working as a couple, however as time went on the mother often set up additional sessions for herself;
#15) negotiated one to two sessions per week and had much difficulty maintaining this schedule.

Of those parents in the lower intervention group the treatment plans were negotiated as follows:
#0910) set up one to times a week sessions as a couple and additional sessions for Mom as needed;
#1314) never really committed to a set plan but had sessions once a week together as a couple;
#1819) were in a state of flux with losing their residence and set up weekly sessions working together as a couple but were unable to develop any regular schedule;
#2021) negotiated weekly sessions together as a couple and frequently were unable to attend and or reschedule;
#2223) negotiated weekly sessions attempting to meet separately but readjusted the plan to work together as a couple.

In the analysis of the audiotaped transcripts the percentage of sessions which were coded for therapeutic alliance are reported in Table 4. The higher intervention group had a median of 11.33% while the lower intervention group had a median of 17.67% therapeutic alliance coding in the audiotaped transcripts. Four of the five higher intervention group had lower percentage of therapeutic alliance documented. Maintenance of the therapeutic alliance was apparently less difficult an issue for the higher intervention group.

Table 4: Emphasis on therapeutic alliance in audiotape transcripts

Average Therapeutic Alliance	Number of Sessions		Rank by Subject
20.18%	11	1	# 0910
18.50%	4	2	# 1314
17.67%	6	3	# 1819
16.17%	6	4	# 2021
15.60%	10	5	# 0102
15.40%	5	6	# 15
11.60%	5	7	# 2223
11.33%	12	8	# 1112
10.50%	12	9	# 04
6.36%	14	10	# 0506

Strength of the Individualized Therapeutic Nursing Intervention

The strength of the intervention refers to the amount, intensity, and duration of the treatment. Table 2 reported the total strength of treatment in a rank ordering from greatest to least with specifics on the amount duration and intensity levels contributing to the final ranking of strength. The amount of the treatment was measured by the total amount of critical appraisal presented across all intervention sessions for each case. The total amounts of critical appraisal ranged from 224 to 922 episodes with a relationship between those cases having a greater number of sessions receiving a greater amount of critical appraisal. The duration of the treatment was measured by the total number of intervention sessions each case had.

The intensity of the treatment was measured on two levels. One measurement was that of the nurse critical appraisal which should have an effect on the parent critical appraisal and the other level was the percentage of total critical appraisal within each session which should have an effect on the parent's integration of critical appraisal in handling. The averaged

percentages are listed in table 2 on strength of treatment and the specific intensity of each session can be seen in the individual case tables on critical appraisal (Appendix K). Within the intensity of combined critical appraisal is both the nurse critical appraisal modeling and the parent critical appraisal. There was an effort on the part of the interventionist to both model and to coregulate the parent in the critical appraisal process.

The strength of treatment is that measure which was manipulated with a median split procedure to delineate the higher and lower intervention groups after all aspects of amount, duration, and intensity were explored. Cases # 0506, # 04, #1112, # 15, and # 0102 were categorized into the higher intervention group while cases # 1819, # 0910, # 2223, # 1314, and # 2021 have been categorized into the lower intervention group (Table 2).

Effectiveness of the Individualized Therapeutic Nursing Intervention

The effectiveness of the individualized therapeutic nursing intervention was assessed on three levels: 1) ability of the parent to do critical appraisal, 2) parent's ability to integrate critical appraisal into a more sensitive and supportive approach to handling during interaction, and 3) enhanced parent and infant competence.

First Level of Effectiveness

The first level of the effectiveness of this treatment was in the ability of the parent to articulate the critical appraisal process. The individual graphs (Figures 1 and 2) depicting both the nurse critical appraisal and the parent critical appraisal report the findings of each subject on this level of effectiveness grouped into higher and lower intervention. For more specific detail on those components of critical appraisal which were found to represent

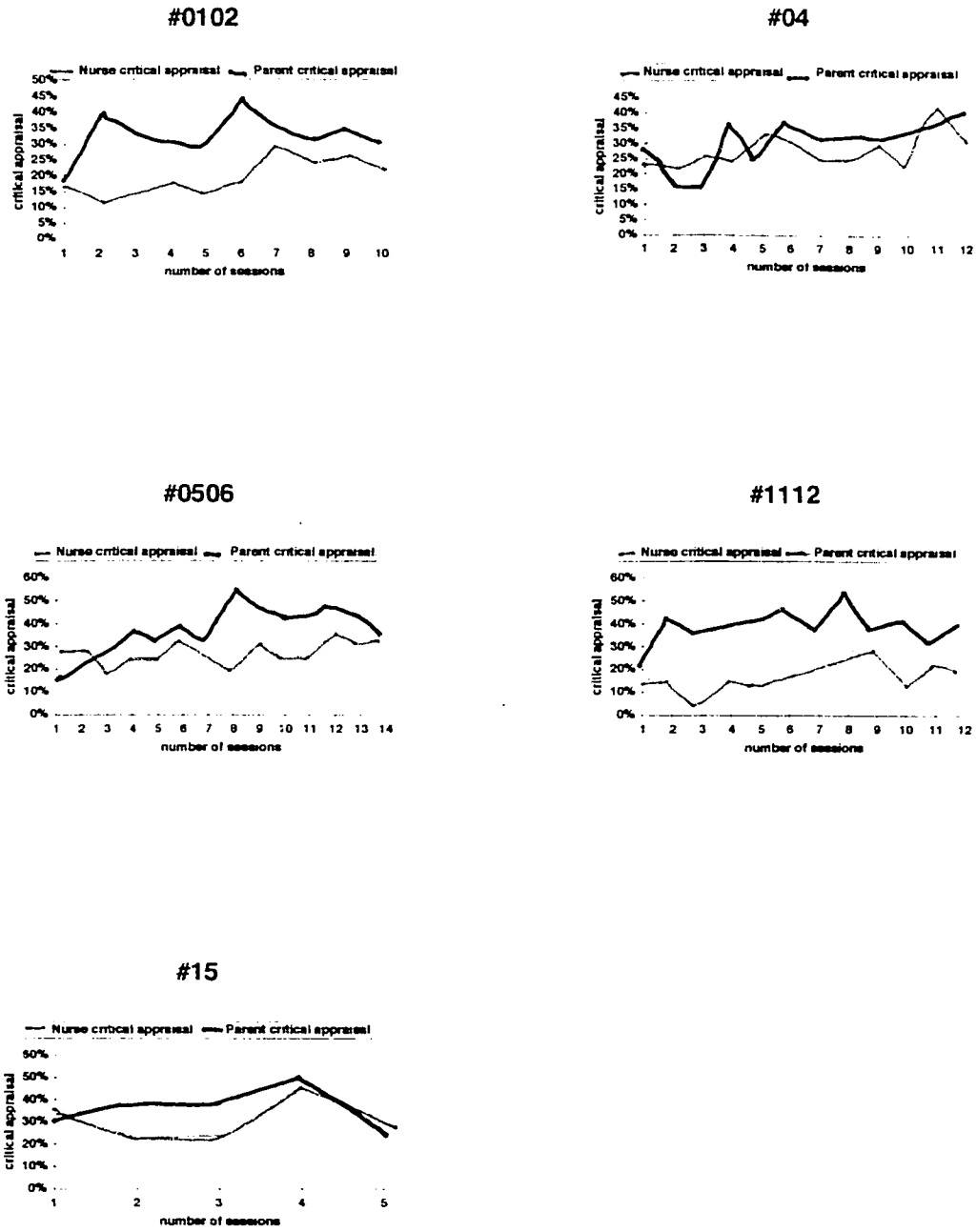

Figure 1: Level one effectiveness in higher intervention group

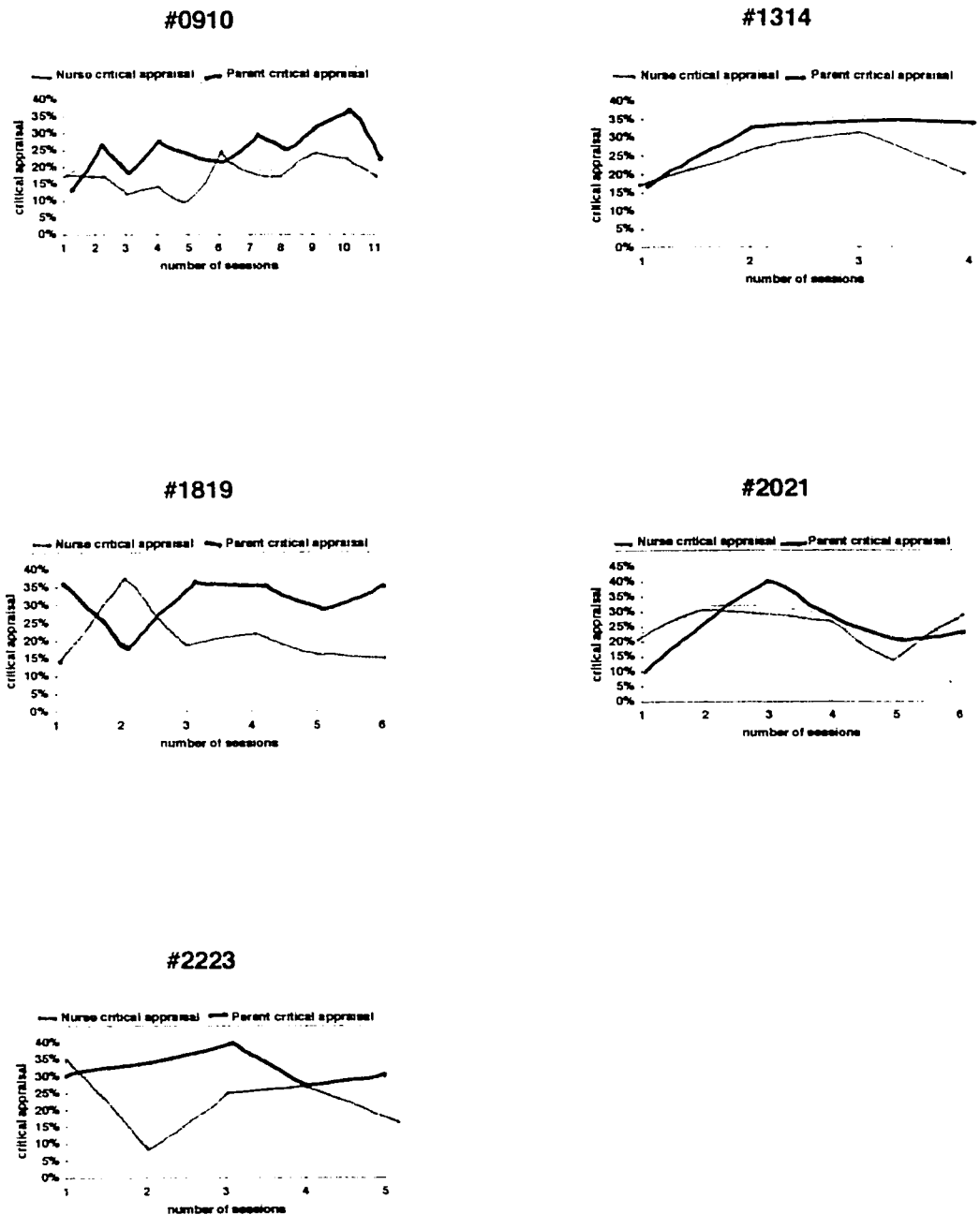

Figure 2: Level one effectiveness in lower intervention group

5% or greater of the audiotape transcript the individual cases on critical appraisal may be referred to in Appendix K.

In Table 5 there is a rank ordering with median split representation of all measures of effectiveness excluding the parent journal writing. Of those cases (#1112, #0506, #15, #0102, and #04) having higher averaged parent critical appraisal per session, all were in the higher intervention group. The median averaged parent critical appraisal of the higher intervention group was 37% as compared to the median averaged parent critical appraisal of the lower intervention group of 31%. Therefore at the first level of effectiveness greater strength of treatment yielded greater effectiveness.

Second Level of Effectiveness

The second level of treatment effectiveness in this study was measured by the parent's ability to integrate the critical appraisal into a more sensitive and supportive approach to handling in interaction. Both the actual number of disorganized infant behaviors as well as the number of those disorganized behaviors which the parent verbally acknowledged and/or actively responded to, and the percentage within the episode of disorganized infant behaviors which were acknowledged and/or responded to are reported in Tables Appendix L. In addition the graphs of individual subjects reports the relationship between the total critical appraisal within one session with the integration or responsiveness of handling. In order to allow for the process of integration to occur the combined critical appraisal percentage is plotted with the integration percentage of the following intervention session. These graphs are in Figures 3 and 4 and are within the higher and lower intervention groupings.

Table 5: Ranking of all subjects across all measures

Averaged Parent Critical Appraisal	Rank by subject	Averaged Parent Integration	Rank by subject	Percent of days Parent Visited	Rank by subject	Parent Total Feeding Scale	Rank by subject	Infant's length of stay in hospital	Rank by subject	Infant Total Feeding Scale	Rank by subject	Assessment Preterm Infant Behavior	Rank by subject
40%	1 #1112	62%	1 #0102	100%	1 # 04	50	1 # 02	33 days	1 # 2223	22	1 # 0506	4.4	1 # 04
				100%	2 # 01	49	2 # 01						
38%	2 #0506	61%	2 #0506	100%	3 # 13	49	2 # 05	34 days	2 # 1314	20.5	2 # 1819	4.41	2 # 0102
				97%	4 # 15	49	2 # 06						
37%	3 #15	57%	3 #0910	95%	5 # 18	49	2 # 13	35 days	3 # 15	20	3 # 1314	4.45	3 # 0910
				95%	6 # 02	48	6 # 10						
33%	4 #0102	51%	4 #04	94%	7 # 14	48	6 # 15	37 days	4 # 0102	20	3 # 15	4.58	4 # 15
				92%	8 # 05	48	6 # 19						
32%	5 #04	51%	4 #2223	89%	9 # 06			38 days	5 # 04	20	3 # 2223	4.84	5 # 1819
32%	5 #1819	50%	6 #2021	88%	10 # 19	47	9 # 12	43 days	6 # 1819	19.5	6 # 0102	4.91	6 # 0506
				88%	11 # 22	47	9 # 22						
32%	5 #2223	48%	7 #1112	84%	12 # 20	46	11 # 04	77 days	7 # 0910	18	7 # 04	5.04	7 # 2021
				84%	13 # 09	46	11 # 09						
31%	8 #1314	41%	8 #1819	81%	14 # 11	46	11 # 11	112 days	8 # 2021	18	7 # 0910	5.7	8 # 1314
				77%	15 # 10	45	14 # 20						
26%	9 #0910	38%	9 #1314	76%	16 # 23	45	14 # 23	113 days	9 # 0506	17	9 # 2021	6.06	9 # 2223
				48%	17 # 12	44	16 # 21						
26%	9 #2021	31%	10 #15	38%	18 # 21	40	17 # 18	161 days	10 # 1112	14	10 # 1112	6.55	10 # 1112

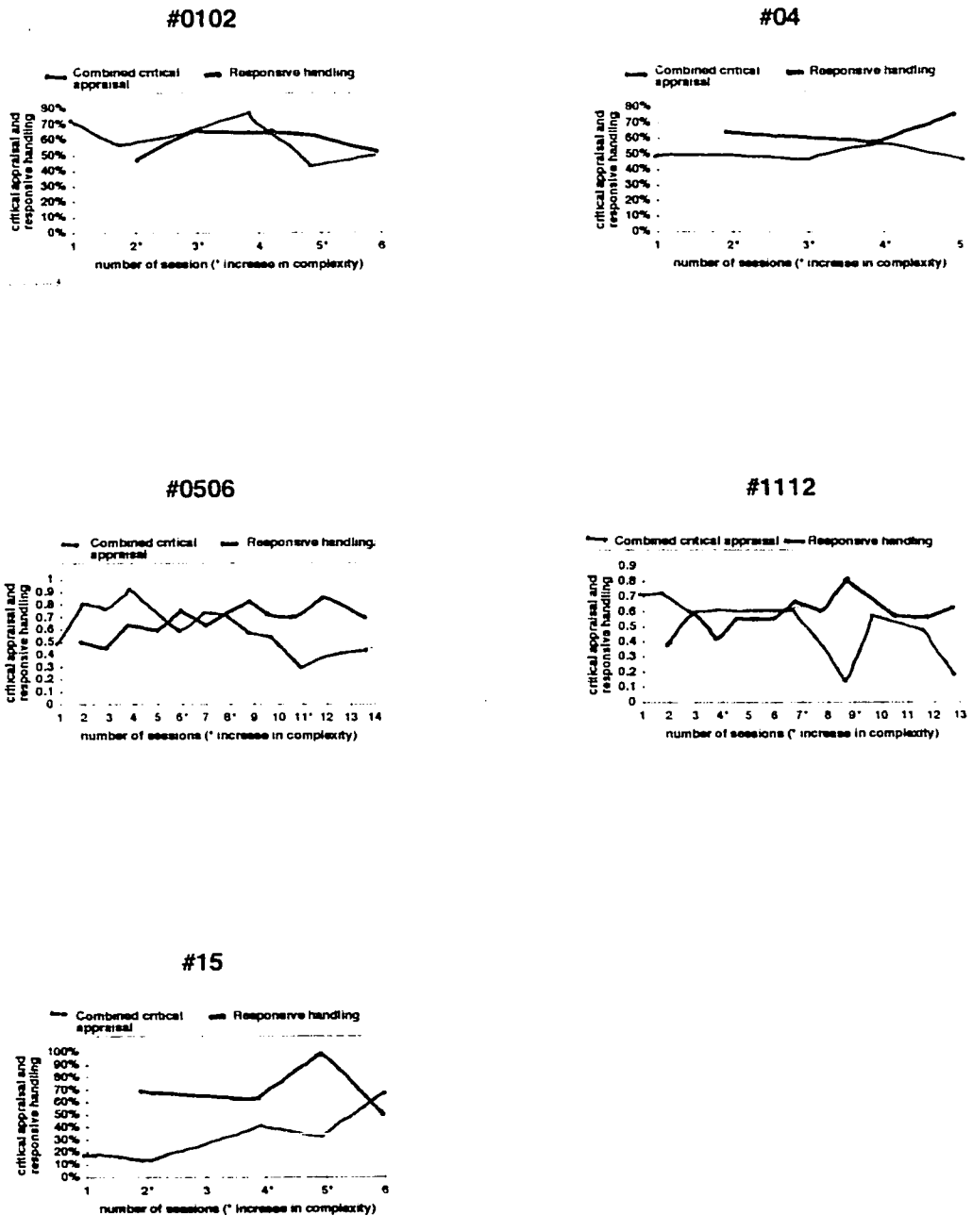

Figure 3: Level two effectiveness in higher intervention group

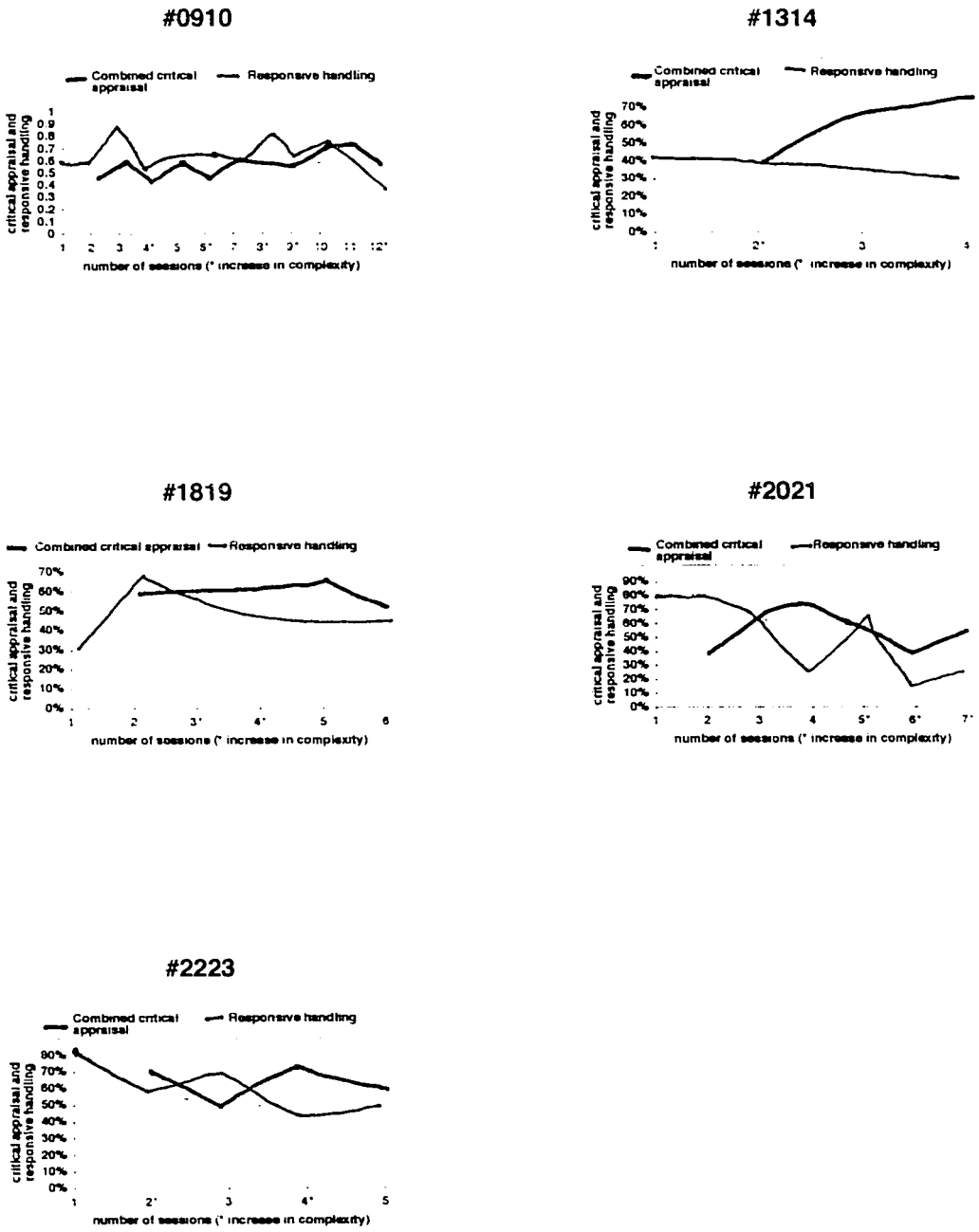

Figure 4: Level two effectiveness in lower intervention group

In Table 5, of those cases (#0102, #0506, #0910, #04, and #2223) showing higher averaged integration, three (#0102, #0506, and #04) were in the higher intervention group and the other two (#0910 and #2223) were in the lower intervention group. The median averaged integration of the higher intervention group was 57% as compared with the median averaged integration of the lower intervention group of 41%. Thus there is a trend at this level of effectiveness for greater intervention yielding greater effectiveness as a group with some individual case differences.

Third Level of Effectiveness

The third level of effectiveness for this treatment was measured in the parent and infant competence measures.

Parent Competence Measures

Parent visitation is reported in Table 6. Of those nine parents showing a higher percentage of visitation, six of them were in the higher intervention group and three of them (#13, #18, and #14) were in the lower intervention group. The median percentage of parent visitation in the eight parents of the higher intervention group was 93.5% in comparison to the median percentage of parent visitation in the ten parents of the lower intervention group of 86.0%. Thus although individual parents show differences there is a trend that the higher intervention group yields greater effectiveness in visitation as a measure of parent competence.

Parent Subscales of Nursing Child Assessment Feeding Scale

The second measure of parent competence utilized in this study was the parent subscales of the NCAFS. One parent was not observed in the feeding situation. Table 7 reports gestational age, parent subscales, and total parent scores with a rank ordering by subject. Of those eight parents with higher

parent scores on the NCAFS, five were in the higher intervention group and three were in the lower intervention group (#13, #10, and #19). The median total parent score in the eight parents of the higher intervention group was 48.5 at a median gestational age of 37 weeks in comparison to the median total parent score of the nine parents of the lower intervention group of 46.0 at a median gestational age of 38 weeks. Thus again with the exception of individual differences there is a trend that higher intervention yields greater effectiveness on this measure of parent competence.

Table 6: Parent visitation in the newborn intensive care unit

Subject #	# days infant in hospital (during study)	# Days Parent visited infant	% Days Parent visited infant
# 04	38 days	38	100%
# 01	37 days	37	100%
#13	34 days	34	100%
# 15	35 days	34	97%
# 18	43 days	41	95%
# 02	37 days	35	95%
# 14	34 days	32	94%
# 05	113 days	104	92%
# 06	113 days	101	89%
# 19	43 days	38	88%
# 22	33 days	29	88%
# 20	95 days	80	84%
# 09	77 days	65	84%
# 11	106 days	86	81%
# 10	77 days	59	77%
# 23	33 days	25	76%
# 12	106 days	51	48%
# 21	95 days	36	38%

Table 7: Parent subscales of Nursing Child Assessment Feeding Scale

Day of life	Gesatational age	Sensitivity to cues	Response to distress	Social/emotional growth fostering	Cognitive growth fostering	Parent Total		Rank order by parent subject #
33	34 weeks	16	11	14	9	50	1	# 02
34	35 weeks	15	11	14	9	49	2	# 01
113	40 weeks	16	10	14	9	49	2	# 05
113	40 weeks	15	11	14	9	49	2	# 06
34	33 weeks	16	11	14	8	49	2	# 13
74	38 weeks	14	11	13	9	48	6	# 10
34	36 weeks	16	10	13	9	48	6	# 15
38	34 weeks	16	8	13	9	48	6	#19
106	40 weeks	14	10	11	8	47	9	# 12
55	38 weeks	15	10	13	9	47	9	#22
37	37 weeks	14	10	13	9	46	11	# 04
74	38 weeks	14	11	13	8	46	11	# 09
106	40 weeks	16	10	12	8	46	11	# 11
95	41 weeks	14	11	13	7	45	14	# 20
59	39 weeks	14	10	12	9	45	14	# 23
95	41 weeks	13	11	13	7	44	16	# 21
38	34 weeks	12	9	13	6	40	17	# 18

Parent Journal Writing

The third measure of parent competence is reflected in their journal writing. Seventeen parents participated in this aspect of the study intervention plan. Parent journal writing as reported in Appendix M shows a positive trend in parents expressing their understanding of the infant as well as personal feeling issues. In writing about how they were able to provide care to their infant's all 17 of the parents responded with physical aspects of care and 14 of them discussed emotional aspects of care. In writing about how their infant responds to them all parents were not only able to discuss the infant's behavior but showed critical appraisal (CA) in writing. Each parent expressed the issue of personal recognition (PR) and were confident that their infant knew who they were and responded to them in a unique manner. In response to how the infant has changed in the past week all parents spoke about the changes in both physical and behavioral terms. A majority (12 of 17) consistently mentioned weight gains or losses. Two of the three mothers who were able to write about their infant's developing personality were in the higher intervention group.

Parent feelings were elicited from two questions; one asked "How are you feeling as a parent of this infant" and the other was an opening to write additional feelings or comments. The common themes that came across for parents were that: they felt a range of both negative and positive feelings; more than half expressed a feeling of pride in their infant; many have had issues related to staff limiting their handling or not providing consistent care; there was a fair amount of frustration expressed and wanting to hold the infant more. In the final journal pages there was overall satisfaction and positive feeling expressed although many wanted to hold more. In regard to

the writing on their experience in the study most were able to express that they have gained a better understanding of their infant and many expressed the support they felt as parents.

Newborn Competence Measures

Newborn competence was measured as part of the third level of effectiveness by length of stay in the hospital, infant subscales of the NCAFS, and neurobehavioral functioning on the APIB.

Infant Length of Stay

Infant length of stay is reported on Table 8 with a rank ordering by subject. Of those infants with shorter length of stay, three were in the higher intervention group and two (#2223 and #1314) were in the lower intervention group. The median length of stay for the higher intervention group was 38 days from a median birth gestational age of 30.29 weeks in comparison to the median length of stay for the lower intervention group which was 43 days from a median birth gestational age of 28.43 weeks. Thus in this measure of infant competence there is a trend toward higher parent intervention and shorter length of stay.

Table 8: Infant length of stay

Subject #	Rank order	length of hospitalization
#2223	1	33 days
#1314	2	34 days
#15	3	35 days
#0102	4	37 days
#04	5	38 days
#1819	6	43 days
#0910	7	77 days
# 2021	8	112 days (95 in study)
#0506	9	113 days
#1112	10	161 days (106 in study)

Infant Subscales of Nursing Child Assessment Feeding Scale

The second measure of infant competence was the infant subscales of the NCAFS as reported in Table 9 with gestational age, infant total score, infant smiles, and ranking by subject. For the seven infants who were observed in feeding situations with both parents their two scores were averaged to present one representative score. Of those infants who show better performance on the total infant score, only two (#0506 and #15) were in the higher intervention group. The median total infant score of the higher intervention group was 19.5 at a median gestational age of 37 weeks in comparison to the median total infant score of the lower intervention group of 20.0 at a median gestational age of 38 weeks. Thus in the second measure of infant competence there is not a higher performance of infant yielded by higher parent intervention at this level of effectiveness.

Table 9: Infant subscales of Nursing Child Assessment Feeding Scale.

Day of life	Gestational age	Clarity of cues	Responsivity to parent	Infant Total	Infant Smiles		Rank order by infant subject #
113	40 weeks	13	9	22	*	1	# 0506
38	34 weeks	12	8.5	20.5	*	2	# 1819
34	33 weeks	12	8	20	*	3	# 1314
34	36 weeks	12	8	20	*	3	# 15
57	38 weeks	12.5	7.5	20		3	# 2223
34	35 weeks	10.5	9	19.5	*	6	# 0102
37	37 weeks	11	7	18		7	# 04
74	38 weeks	11.5	7	18		7	# 0910
95	41 weeks	11.5	5.5	17		9	# 2021
106	40 weeks	9	5	14		10	# 1112

Assessment of Preterm Infant Behavior

As the third measure of infant competence, the APIB subsystem scores as well as gestational age at time of exam and an averaged subsystem score with

ranking by subject are reported in Table 10. The lower the score the better organized the infant's neurobehavioral functioning is. Of those infants who show more organized neurobehavioral functioning three were in the higher intervention group and two (#0910 and #1819) were in the lower intervention group. The median averaged subsystem score of the higher intervention group was 4.58 at a median gestational age of 38 weeks in comparison to the median averaged subsystem score of the lower intervention group of 5.04 at a median gestational age of 38 weeks. Thus in this measure of infant competence there appears to be higher performance of infants by higher parent intervention at this level of effectiveness.

Table 10: Assessment of Preterm Infant Behavior Scores by subsystems.

Subject	Day of life	Gest age	PHYSM1	MOTOM1	STATM1	ATTNM1	REGUM1	EXFAM1	Averaged system score	Rank order
#04	42	37 weeks	4.93	4.87	4.67	4	4.33	3.6	4.4	1
#0102	45	36 weeks	4.72	4.33	4.27	4.33	4.66	4.16	4.41	2
#0910	74	38 weeks	4.28	4.39	4.28	6.67	3.39	3.67	4.45	3
#15	48	38 weeks	4.33	4.53	3.87	4	4.93	5.8	4.58	4
#1819	39	34 weeks	5.11	4.22	4.11	6.67	4.28	4.67	4.84	5
#0506	113	40 weeks	5.53	5.6	4.13	4	5.6	4.6	4.91	6
#2021	95	41 weeks	5.33	5.72	4.78	4.33	5.56	4.5	5.04	7
#1314	38	33 weeks	4.78	6.22	5.61	7	5.11	5.5	5.7	8
#2223	59	39 weeks	5.61	6.06	5.28	7	6.44	6	6.06	9
#1112	106	40 weeks	7.72	6.67	3.94	7	6.78	7.17	6.55	10

Note: PHYSM1-physiological; MOTOM1-motor; STATM1-state regulatory; ATTNM1-attentional-interactive; REGUM1-regulatory; EXFAM1-examiner facilitation.

Chapter V: Discussion

"This experience has helped us to understand our daughter and her care by giving us the opportunity to ask questions and comment on what's happening with her. It gave us lots of inside information about her and about us, allowing us to be more empowered in her care and to have more credibility with the staff." a parent of a 24 week infant

This pilot study was an exploration of the therapeutic process and those methodologies necessary to examine this process in order to evaluate integrity, strength, and effectiveness of this intervention. The goals of an individualized therapeutic nursing intervention based on assumptions of inherent infant and parent competence were designed to promote the parent's ability to critically appraise the infant's behavior and integrate that appraisal into more sensitive and supportive interactions. There are complex issues involved with research evaluating individualized intervention at multiple levels occurring in the naturalistic setting of a newborn intensive care unit.

Integrity of the Intervention

As stated in the findings there was a major shift in the manner in which this treatment was delivered on the first case in the study. The challenge of attempting to remain sensitive and respectful of the individual parent while intervening in either clinical practice or scientific exploration is not negligible. The priority on facilitating emerging competence rather than provision of knowledge to a deficient parent was the the overiding principle. Therefore when it became clear that the first parents were feeling an intrusion and resentment regarding the limitations and judgement of the neonatal staff on their own amount and quality of handling the decision was made to change the manner in which the treatment would be delivered. The actual demonstration of caregiving by the interventionist was replaced with a more observant commentary during the discussion of the videotaped

interaction. Thus the modeling of critical appraisal was within the context of discussion rather than during active interaction with the infant.

The negotiation and maintenance of a therapeutic alliance with the parents was not as formally integrated into the intervention sessions and had a tendency to occur in an informal manner surrounding the sessions. The evidence of that aspect of treatment integrity became fragmented between log and field notes of the interventionist as well as that which was present in the audiotaped transcripts. Heinicke, Beckwith, and Thompson (1988) suggest that in a therapeutic alliance commitment communicated through an ongoing and more frequent contact in combination with concrete signs of helpfulness is likely to stimulate a greater sense of trust and expectation of being cared for.

In that aspect of individualization involving the treatment that allowed the negotiation of the intervention plan it was beneficial to have parent choices regarding frequency, timing, and duration of sessions. There needs to be more structure and consistency in measurements of potential outcomes related to infant gestational age and the type of caregiving interaction being evaluated. Without some basic standards in measurement there would be less integrity of both the intervention and the outcome measurements.

The issue of whether to work with parents as individuals or couples had an inherent effect on the integrity of the treatment. Interestingly there was no apparent difference in either the critical appraisal by both interventionist and parents or more surprisingly the parent critical appraisal when there were two parents versus one involved in the treatment session. The significant factor may be the infant's status and how available he or she may be for any interaction. This provides a ceiling effect on the amount of critical appraisal that may be warranted.

It may be valuable to have the same initial session for the introduction to the critical appraisal process. Due to the variety of infant gestational age and acuity status the initial session for each parent was quite varied. The utilization of a videotaped infant who was involved in several different episodes of caregiving would provide a powerful exposure to the critical appraisal process over a variety of caregiving experiences. The challenge of providing an individually tailored session which retains the integrity of a planned intervention may be met with this videotaped parent demonstration. A model parent could be videotaped in several different caregiving episodes such as diapering, holding, or bathing which would provide a powerful example of the integration of critical appraisal into a sensitive and supportive handling approach. This more structured demonstration would complement the current level of caregiving for each parent while providing a standard initial dosage of the critical appraisal process.

Strength of the Intervention

Both the amount and the duration of the intervention beyond the once a week minimum requirement were completely at the discretion of the individual parents involved in the study. The findings indicate a trend that greater strength leads to increased effectiveness and the potential of a dose related effect. One of the confounding variables involved in the decisions regarding amount and duration is the acuity status of the infant and length of hospitalization. These findings related to dose effect indicate that parents should be encouraged to have more sessions per week and one might increase the number of sessions per week for those parent's whose infant has a shorter projected length of hospitalization.

In view of the findings on integration of critical appraisal in parent caregiving there is contraindication to tapering off the frequency of sessions over time in that most parents show a decreasing percentage of integration as the caregiving becomes more involved and the infant is more energetic. This phenomenon of attempting to increase the complexity of the task of caregiving while maintaining an ability to critically appraise the infant's behavior leads to some decrease in parents effectively integrating critical appraisal in their handling approach. This may be analogous to the transitory disorganization of the infant's behavior as he/she reaches a threshold of stress and prepares to move forward to attain the next level of differentiated functioning. As parents are increasingly taking on the acquisition of new skills such as bathing, feeding, and comforting a more robust infant it could be beneficial to provide a more supportive environment. This added support could be the opportunity for added intervention sessions and/or a slower, more gradual approach toward the acquisition of complex caregiving skills.

The intensity of the treatment showed much variation and was within the discretion of the interventionist. When referring to the individual graphs on first level effectiveness (Figures 1 and 2) one can look just at the intensity of nurse critical appraisal and see certain patterns. The degree of intensity refers to the percentage of critical appraisal the interventionist (nurse) modeled within each session. Although there is an effort at individualizing the modeling in such a way to encourage increasing critical appraisal from the parent, not all parents were provided the same intensity of treatment. Only half the cases were provided more interventionist critical appraisal than parent critical appraisal in the first session. It is unclear as to why the

interventionist would model less than the parents were able to do in the initial session.

The interventionist was initially underestimating the parent's ability to critically appraise their infant's behavior and therefore inadvertently not providing a very intense first session. This was in part due to the lack of any pre-intervention assessment inherent in the newborn settings. One way in which to ensure a better goodness of fit for the strength of the first intervention session may be to obtain an initial screening of the parent's critical appraisal abilities. This could be done fairly simply with a five to ten minute videotape segment of a preterm infant and asking the parent to discuss the infant's behavior as the tape is viewed. This would support an effort to to have a consistent intense first session with parents and then evaluating their level of critical appraisal performance to guide the intensity of subsequent sessions.

Effectiveness of the Intervention

The effectiveness of the individualized therapeutic nursing intervention was evaluated on three levels: the ability of the parent to critically appraise their infant's behavior, the parent's ability to integrate this critical appraisal into their interactions, and the effect of the integration of parental critical appraisal on the competence of both parents and infants. The first level of effectiveness is recorded in the case by case graphs labelled level one effectiveness. In five cases (#0506, #0910, #15, #2021, and #2223) the interventionist started out doing more critical appraisal than the parent(s) and then for the most part did less than the parent(s) do in the remainder of sessions. This would indicate that the interventionist was giving the parents the lead and supporting their ability to critically appraise in a very subtle and

incidental manner. In three cases (#0102, #0910, and #1314) the pattern was one where the interventionist from the beginning was doing less critical appraisal than the parents throughout the treatment. One parent (#1112) did a tremendous amount of critical appraisal by consistently remarking upon and analyzing every aspect of his son's features. This has the effect of inflating the parent critical appraisal pattern. Two cases (#04 and #0910) follow a much more synchronized pattern of the interventionist and parent(s) working more with each other in the critical appraisal process. Case #1819 was altered by the second session in which the mother was the only parent present and was very distracted by the father's absence.

As in Als' (1992) efforts to provide intervention with parents the interventionist must consistently focus on the parents' needs and strengths as well as the infant's. In the treatment plan where there was a consistent strong initial session and then an ongoing evaluation of the extent of parental critical appraisal there could be a more optimal match between interventionist and parent creating a pattern in which the interventionist provides more critical appraisal than parent and gradually the parent surpasses the interventionist. In the case where the parent's critical appraisal declined the interventionist would increase the amount of critical appraisal being modeled to stimulate the parents to increase in their critical appraisal and then gradually decrease the amount of critical appraisal being modeled as the parents have increased their level. The ongoing monitoring of this process could be very effective in recognizing common patterns and responses among parents.

In the second level of effectiveness regarding the parent's ability to integrate critical appraisal into a sensitive and supportive interaction there are several salient issues. The measure of integration as analyzed from the videotaped parent infant interactions is a novel approach in looking at very early interaction within the newborn intensive care unit. Eckerman and Oehler(1992) reviewed the literature and found no other efforts to look at this phenomenon. Preterm infant's responsivity to social stimulation prior to term remains largely unexamined, even though parent infant postnatal interactions may begin long before term age (Eckerman and Oehler, 1992). Therefore in evaluating the effectiveness on this level of integration of critical appraisal in the caregiving approach there is no known perspective or normative data on the extent of integration ordinarily occurring in a caregiver's responsiveness to disorganized infant behaviors.

There is a dilemma regarding the effort to increase a parent's ability to critically appraise their infant's behavior and to integrate that appraisal into their interactional approach. Papousek and Papousek (1992) express concerns that undue attention and rationale guidance on the course of intuitive processes may be detrimental since intuitive processes are not able to be controlled by rational decisions.

The third level of effectiveness, the evaluation of parent and infant competence measures in this pilot study may provide some grounds for estimation of effect size in future studies. Despite the limitations the investigator was intent on looking for potential positive outcomes at this level of effectiveness. The outcome measures were done by the interventionist, and although this is not optimal in an experimental design, it was considered reasonable in this exploration. The interventionist was not aware of the status

of any infant or parent belonging to the higher or lower strength intervention grouping.

Parent visitation as represented was quite high. The lower visitations were by several fathers who reduced their visiting pattern over the course of their infant's hospitalization for various reasons such as employment, finances, and availability. One mother with lower visitation was able to discuss her initial inability to feel a connection to this infant and only visited once a week until she felt the connection and then increased visiting to every day. Rosenfield (1980) reported an increase in visiting to be two to three visits per week while Minde, Shosenberg, Marton, Thompson, Ripley, and Burns (1980) reported an increase in visiting up to four to five times per week. Brown, York, Jacobsen, Gennaro, and Brooten (1989) reported a typical visiting pattern for parents of preterm infants to be three times a week for mothers and one and a half times a week for fathers during the first six weeks of hospitalization. In comparison this group of parents was visiting far more than any other reported group.

The second measure of parent competence was measured by the NCAFS. Barnard (1994) recently studied a large cohort of preterm infants who were observed in mother infant feeding situations at 40 weeks post conception with a mean total parent score of 40. Kirgis (1989) observed 26 preterm infants at 36 weeks post conception during feeding and found a mean total parent score of 38.19. The parents in this study were observed with preterm infants at a median post conceptual age of 37.5 weeks and with a parental median score of 47. The parent total scores in this group are very high and clearly demonstrate a promising outcome for this individualized therapeutic nursing intervention.

Parental journal writing showed a positive trend of parents who expressed their understanding of the infant as well as personal feeling issues. Each parent expressed the issue of personal recognition and became confident that they were known by the infant and responded to in a unique manner. These findings are congruent to Eckerman and Oehler's (1992) interviews with parents of preterms who expressed their goals as: trying to get the infant to respond to them, helping the infant know them, letting the infant know they are loved and comforted, and stimulating the infant in ways to promote development.

The infant measures of competence also reflect a high degree of functioning. Becker, Grunwald, Moorman, and Stuhr (1991) found a mean length of stay for their intervention group of 24 preterm infants born under 1500 grams to be 53 days of hospitalization from a mean gestational age at birth of 29.00 weeks. In the family-based intervention program with 18 intervened preterm infants under 1500 grams at birth, Meyer, Garcia Coll, Lester, Boukydis, McDonough, and Oh (1994) reported a mean length of stay of 60 days in the hospital from a mean gestation of 28.80 weeks at birth. Length of stay for this group of preterm infants was a median of 40.5 days from a median gestational at birth of 28.75 weeks. Thus the length of stay shows a very positive trend to being shortened by this therapeutic intervention to facilitate parenting in the newborn intensive care unit.

The NCAFS infant total is high considering the younger gestational age that these infants were observed. In Barnard's (1994) recent sample of preterm infants observed at 40 weeks the mean total infant score was 17. In Kirgis's (1989) group of 26 preterm infants at 36 weeks post conception the mean total infant score was 13.39. This group of infants had a median total infant score of

19.75 at a median gestational age of 37.5 weeks. Of note there were five infants who actually smiled at their parent during the feeding experience. Lyon's (1981) studied preterm infants' feeding behaviors and reported delayed smiling even at three months corrected age. Three of the five infants who smiled during feeding were in the higher intervention group.

The subsystem APIB scores reflect unusually high scores for preterm infants. There is not a comparable group of preterm infants who have had APIB exams at this median gestational age of 38 weeks. The standard timing of APIB exams is at 40 to 42 weeks and in Als (1994) intervention group infants the scores were not as indicative of organized neurobehavioral functioning. These findings however indicate that these infants have been positively affected toward more organized and neurobehaviorally competent functioning. This has important implications for the later outcome and development of these infants.

Limitations

There are numerous limitations that are evident with this pilot study. The integrity of the intervention was altered early on in the course of the study. This led to a slightly different approach toward the modeling of the critical appraisal process which may have effected the strength of the intervention. The extent of individualization and parent choices regarding both treatment and measurement aspects inhibited the meaning and significance of results. There was no standardization on a specific caregiving episode for the analysis of parent infant interaction compounded by a lack of uniformity in the infants' age at points of measurement which prohibits comparison. The very small sample size limits generalizability. The lack of blind status of the examiner who was the interventionist leaves the parent and newborn

competence measurements potentially biased except in regard to higher and lower intervention group status.

The intervention requires an investigator who is highly informed and skilled regarding preterm infant behavior in addition to sensitivity and astuteness regarding the developing parent. This issue limits the ease for replication studies.

Implications for Research

The lessons learned from this study that will inform the next scientific endeavor are several. An individualized treatment plan which would have more structured instrumentation and measurement would facilitate the experimental design and offer a control group. In terms of integrity the experimental design with a randomized control and intervention group would have the outcome measures be done by an individual blinded to the status of the infant or parent in either group.

In order to ensure enough statistical power for significant results and potential generalizability an 80% power level will be used as recommended by Polit and Sherman(1990) for nursing research. Given the qualitative data from this pilot study the effect size will be estimated to be a moderate one at .40. Then utilizing the power tables in Kraemer and Thiemann (1987) for a one tailed hypothesis at a .05 significance level the study sample size is calculated to be 36 subjects which would be divided evenly between control and intervention groups.

The issues of individualized intervention research within a naturalistic setting will continue to be a challenge. However there are numerous ways in which the intervention could be made more consistent among subjects. The

efficiency of working with both parents together needs to be weighed with the advantage of working with parents individually to ensure effectiveness with each parent. On the basis of the information provided in this pilot study parents would be encouraged to work together as a couple. There were no evident advantages to those parents who chose to participate in the intervention alone.

In terms of the strength of the intervention, greater amount and duration appears related to effectiveness, and integration was decreased as complexity of interaction increased. This might lead the interventionist to maintain and/or encourage the parents to maintain frequent intervention sessions throughout the infant's hospitalization. It may be that with the very acute infant the benefit is stronger for the parent support and as the infant is less acute the intervention is stronger for the parent competence. A consistent planned session in which a videotape is utilized that contains several increasingly complex parent infant interactions may be an advantage in preparation for increasing complexity of caregiving. The infant's length of stay could be carefully estimated and taken into account to determine amount and duration of treatment. For the infant born at 31 weeks who is estimated to be in the unit for five weeks an intervention schedule with more frequent than weekly sessions would be recommended. In order to increase the strength of the treatment a closer look at the strategization aspect of the critical appraisal process may lead to more effect on integration into handling.

In regard to issues of effectiveness the issue of the measure of integration still remains unresolved, but an experimental design would at least provide a

control group. All outcome measures could be obtained by a non biased observer. Evaluation of extent of critical appraisal and integration every three or four sessions would enhance the strength and effectiveness. The following is the suggested research protocol:

Step 1) following appropriate screening and approval by medical/nursing staff the recruitment meeting is held;

Step 2) initial baseline on parent's ability to do critical appraisal utilizing a twenty minute videotape designed for this purpose;

Step 3) negotiation of treatment plan with discussion of current critical appraisal ability and expected length of infant's hospitalization, recommendation of twice weekly sessions as a couple for minimum;

Step 4) ongoing sessions (at least twice a week) with videotaping of current parent infant interaction which is then viewed for discussion during which critical appraisal is both modeled and facilitated;

Step 5) at whatever point the infant is becoming more available for involved caregiving such as bathing and feeding the prepared videotape demonstration is utilized to practice critical appraisal with more complex caregiving and an emphasis on strategizing for integration;

Step 6) at 30 weeks of age each infant will be videotaped during the parent diapering activity;

Step 7) at 36 weeks of age each infant will be observed with each parent in a feeding interaction (NCAFS); and

Step 8) at 42 weeks each infant will have a neurobehavioral assessment (APIB).

Intervention is to begin within the first ten days of life and throughout hospitalization and/or when the infant reaches 42 weeks post conception.

Infants who have gone home may be asked to come in for either the feeding observation or the neurobehavioral assessment at the appropriate time.

Finally, it would be important to strategize in making the next research endeavor compatible with implementation in a NICU. This would be best achieved by designing an educational program to train a group of primary nurses in actually integrating the intervention into their nursing care with infant's and families. A thirty minute training tape could readily be made with segments of parent infant interaction from this pilot study supplemented with the narration of the critical appraisal process. The parents could be supported in videotaping each other in interaction to decrease the burden of the interventionist.

The unit would need several trained preterm infant observers in addition to one or two APIB examiners as well as reliable raters for the NCAFS. An interdisciplinary research team would be ideal which included neonatology, nursing, psychology, therapists, and a parent liaison. The team would have to prepare the staff for the expected issues regarding potential role conflicts and philosophical issues when parents are acknowledged and welcomed as active participants in their infant's care within the newborn intensive care unit. This would necessitate negotiation and support for the nursing staff in particular in the midst of the upheaval of health care reform.

Implications for Implementation

The focus of individualized nursing care is to support parents in gaining a greater understanding of their infant's neurobehavioral functioning with identification of strategies to modify both caregiving and the environment in an effort to enhance the maturation of both infants and parents. During the collaboration and agreement between health care providers and parents on a

plan of care the goal of facilitating a better understanding of the infant's competence would be discussed as well as the positive emphasis on supporting the parent's own competence in appraising their own infant's behavior and their response. The enhancement of the parent's understanding of the infant, promotion of the goodness of fit between parent and infant, facilitation and support of parents, and the modelling of sensitive interactions with the infant are all essential components of therapeutic nursing care.

Parents must be supported in being welcomed as active collaborators in their infant's care. This involves a complete change of the traditional paradigm and would eliminate the concept of a visiting policy. The concept of visiting is both inadequate and inappropriate when referring to parents and families being with and caring for their infants who require intensive care. The environment must be altered in creative ways in order to communicate this message of welcoming families as an essential component of our care to infants. Parents are clearly communicating their right to be included in all aspects of their infant's care from access to information, participation in daily rounds, and active participation in both the planning and implementation of care to their infants (Harrison, 1993). This is a crucial change in our traditional practice and challenges health care providers to reevaluate and restructure the nature of neonatal care.

As neonatal health care providers begin to acknowledge the goals of infants, families, professionals, and the environment the need for reorganization and negotiation is apparent. By some organized fashion, be it primary care or otherwise, parents must be welcomed and recognized as crucial collaborators in care. When an infant is admitted to the intensive care unit it is imperative to assess the family needs as well as the critically ill

infant in order to expedite the collaboration. In some settings there is the potential of setting the stage for collaboration prior to the delivery and admission of the infant to the unit. This opportunity should not be neglected.

Once parents and families have been acknowledged and welcomed as active collaborators in their infant's care, all aspects of caregiving become influenced by the families' participation. Timing and clustering of active caregiving is arranged so as to facilitate and support parent participation, therefore timed for the convenience of parents. This approach toward feeding and bathing practices will acknowledge the parental nurturence aspects of infant care and lead to an assimilation of both nurturence and technical aspects of caregiving. Increasingly the move toward skin to skin holding and unlimited yet supportive holding of critically ill infants by their parents will lead to more active facilitation of parenting within newborn intensive care units.

The utilization of neurobehavioral assessment in supporting parents in gaining a deeper understanding of their preterm infant's behavior is an invaluable component to neonatal nursing care. Parents who appreciate their own infant's emerging competence are supported in being able to enhance the infant's development through their own sensitive and supportive response and interaction. The nurse caring for the preterm infant is in an ideal position to model both the ability to critically appraise the infant's behavior as well as to integrate that appraisal in a sensitive and supportive handling approach which enhances the infant's organization and further development.

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Appendix A
Consent Form

University of Washington
Facilitation of Parenting Within the Newborn Intensive Care Unit

Investigator: gretchen Lawhon, RN: Doctoral Candidate, School of Nursing
Phone 367-8545

Advisor: Kathryn E. Barnard, R.N., Ph.D.: Professor, Parent Child Nursing
Phone 543-9200

Investigator's statement

Purpose and Benefits

I am doing research into how nurses can help parents whose infants are in the Newborn Intensive Care Unit. Parents who participate may benefit by learning more about new ideas and methods for helping premature infants develop some basic communication skills. Infants who participate may benefit by being more easily understood in their interaction with their parents. Parents will also be able to consult with the nurse investigator throughout their infant's hospitalization. Through doing this study, I hope to learn how nurses can work more effectively with premature infants and their parents.

Procedures

For each parent involved in this study the number and frequency of the contacts with the nurse is discussed and agreed upon. Initially in the first week the frequency may be daily and then weekly by the time the infant reaches expected due date or is discharged from the newborn intensive care unit. Each session with the nurse will last from 30-60 minutes and will be audiotaped. These audiotapes will then be evaluated and then erased. The primary purpose of each session is the nurse showing how to handle the infant in response to the infant's behavior. The parent will then handle the infant in a similar way. This handling such as holding or changing a diaper would be happening regardless of the study and appropriate for how the infant is doing medically. There will be no effect on the medical/nursing care being provided within the newborn intensive care unit.

Once a week this parent infant interaction will be videotaped and used for discussion with the parent. At the end of the research study each participating parent will receive a copy of their videotaped sessions. The investigator will keep one copy which will be used by this investigator only for educational purposes to teach other nurses how to work more effectively with premature infants and their parents. Parents will have the right and opportunity to review the tape and have any portions deleted. All videotapes will be erased after seven years. At any point the parent has the right to refuse to allow use of the videotape or request that it be erased.

In addition each parent is asked to provide the investigator each week with journal entries responding to questions about the experience of parenting an infant who requires intensive care. These weekly journal entries will be collected at the weekly videotape sessions. At the conclusion of the study each parent will receive a bound personal copy of his/her journal containing all weekly entries. The investigator will keep a copy of each journal in a locked data file. The review of medical records will be necessary to provide demographic and medical data on each infant enrolled in the study.

Risks, Stress, or Discomfort

The manner of the investigator's individual agreement with each participating parent will be relaxed and supportive throughout their involvement in this research study. Any risk to the parent's privacy will be minimized by the use of of a subject's study code to maintain the privacy of each parent No parent will be identified by name or medical

record number. Any parent is free to refuse any portion of the study and may discontinue involvement at any point if so desired. As previously stated the parent infant interactions used to show more responsive handling of the infant will not interfere in any way with the medical/nursing care being provided in the newborn intensive care unit. There are minimal risks involved in this research study.

Other Information

This study will not interfere or replace the nursing care already provided in the newborn intensive care unit. The information obtained will be confidential and only the investigator will have access to the data. The data will be used to inform the investigator as to the methods necessary to examine the nursing intervention being studied. Subjects may refuse to participate or withdraw from the study at any time without penalty or loss of benefits to which they are otherwise entitled.

_____ _____

Signature of Investigator Date

Subject's statement:

The study described above has been explained to me. I voluntarily consent to participate in this activity. I have had an opportunity to ask questions. I understand that future questions I may have about the research or about my rights as a subject will be answered by the investigator listed above.

_____ _____

Signature of Subject Date

Copies to: Subject
Investigator's file

Appendix B
Journal Entry

University of Washington
Facilitation of Parenting Within the Newborn Intensive Care Unit

*Study Code Number*_____
*Date*_____

How often have you been able to visit this week and what were you able to do in providing care to your baby during the visit(s) ?

How are you feeling as a parent of this baby?

Describe how your baby responds to you ?

How has your baby changed in the past week ?

Any other feelings or comments on your experience as a parent of an infant who requires intensive care ?

Appendix C
Interventionist Log

Facilitation of Parenting
Within the Newborn Intensive Care Unit

Subject #_____

Doctoral Dissertation
gretchen Lawhon
1993

Observations/reflections:

Date: Day #
Weight:
Warmer Incubator Crib
FIO_2:
Via:
Medications:

Feedings
Type: Interval:
I.V. Gavage Bottle Breast
Discontinuations:

Initiations:

Mother Father
Visit:
Caregiving:
Other Concerns:

Sex_____

Father's
Age_____

Mother's
Age_____

Mother's
Gravida/Parity_____

Infant's Date of Birth_____Expected Due
Date_____

Post Conceptual Age at Birth_____Mode of
Delivery_____

Birthweight_____% Birth
Length_____%

Birth Head Circumference_____%
AGA_____SGA_____LGA_____

Apgars_____1minute_____5minute_____10minute

Asphyxia_____

Discharge Status: Date_____Post Conceptual Age_____

Weight_____Length_____Head Circumference_____

Medications:_____
_____
_____

Current Feeding
Schedule:_____

Other Discharge
Therapy_____
_____
_____

Appendix D
Coding System for Transcriptions of ITNI Audiotaped Sessions
Individualized Therapeutic Nursing Intervention
February 1994 revision

The code preceding the statements reflect the individual speaking
N: signifies the nurse who is always gretchen
#: will signify the one or two digit numerical code assigned to a parent and will be one of the following; 1, 2, 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23 representing the eighteen parent participants in this study

To the left of each transcription segment a code will be assigned which will denote the specific ingredient of the overall therapeutic process. The overall process will be that of Swanson's Caring Model with the modification of an expansion in the Doing For component of the model. The Doing For component will be further delineated to reflect the specific components of the Paul and Nosich Critical Appraisal Process. In addition there will be a category of Therapeutic Alliance to address those specific aspects of process facilitation in general.

Under the Caring Model the following codes will be used:

For the component of **Knowing** which is the communication of one individual striving to understand an event as it has meaning to the other the following codes will be used:

NKB--nurse expressing a knowing of the baby's experience
NKP--nurse expressing a knowing of the parent's experience
PKB--parent expressing a knowing of their baby's experience
PKS--parent expressing a knowing of their own experience
PKP--parent expressing a knowing of their partner's experience
PKN--parent expressing a knowing of the nurse's experience
*It may be useful to consider the purpose of a statement. If the nurse is discussing the meaning of an infant's observed behavior the purpose is to model the analysis of behavior for the parent. If the statement refers to the feeling and/or understanding of the experience of the infant than it is an expression of knowing. If the nurse is expressing her general knowledge of infants then it is coded as NKP.

For the component of **Being With** which implies emotional presence to the other which goes beyond knowing and understanding the following codes will be used:

NBS--nurse expressing emotional presence with herself
NBB--nurse expressing emotional presence with the baby
NBP--nurse expressing emotional presence with a parent
PBB--parent expressing emotional presence with their baby
PBS--parent expressing emotional presence with self
PBP--parent expressing emotional presence with their partner
PBN--parent expressing emotional presence with the nurse

*Remember that Being With will involve a giving of emotional presence from the one making the expression. There is an empathetic component involved.

For the component of Doing For the Critical Appraisal Process will be included which is the process of *observing, analyzing,* and *strategizing* for utilization of information. In this study the primary focus of the Critical Appraisal is toward a better understanding of the preterm infant's behavior. A secondary focus is toward a better understanding of the parent's behavior in relation to their infant. The following codes will be used:

NOB--nurse observation of the baby
NOP--nurse observation of the parent
NOE--nurse observation of the environment
POB--parent observation of their baby
POS--parent observation of self
POP--parent observation of their partner
POE--parent observation of the environment

NAB--nurse analysis of the baby behavior
NAP--nurse analysis of the parent behavior
NAE--nurse analysis of the environment
PAB--parent analysis of their baby's behavior
PAS--parent analysis of self behavior
PAP--parent analysis of partner's behavior
PAE--parent analysis of the environment

NSB--nurse strategizing regarding baby behavior
NSP--nurse strategizing regarding parent behavior
NSE--nurse strategizing regarding the environment
PSB--parent strategizing regarding their baby's behavior
PSS--parent strategizing regarding their own behavior
PSP--parent strategizing regarding their partner's behavior
PSE--parent strategizing regarding the environment
*Note that when the communication involves an observation with a comparison then it is an analysis and not merely observation.
Environment is defined as all else beyond the infant and parents. This includes both physical aspects and interpersonal aspects of the environment. This is used when references are made to caregivers and extended family members as well.
Stategizing will involve some anticipatory problem solving aspect and not merely the discussion of a protocol.

For the component of **Enabling** which is the facilitation of the other through provision of information as well as emotional support and validation of feelings toward the cared one's concerns the following codes will be used:

NEB--nurse expressing an enabling toward the baby
NEP--nurse expressing an enabling toward the parent
PEB--parent expressing an enabling toward their baby
PES--parent expressing an enabling of self

PEP--parent expressing an enabling toward their partner

For the final component of Maintaining Belief which is holding the other in esteem and sustaining faith in their ability the following codes will be used:

NMB--nurse expressing belief in the baby
NMP--nurse expressing belief in the parent
PMB--parent expressing belief in their baby
PMS--parent expressing belief in self
PMP--parent expressing belief in their partner
*Note that the category of maintaining belief in the infant should be considered and not forgotten in the coding.

Under the aspects of therapeutic alliance the following codes will be used:

NTA--nurse therapeutic alliance, when the nurse is setting up next session or requesting information on the process aspects such as journal writing, etc.
PTA--parent participant is responding to questions regarding process aspects or negotiating times for sessions, etc.
*Note that any passage in which the primary purpose involves the negatiation of further sessions is coded as a therapeutic alliance.

General rules and guidelines in coding the INTI sessions

1. There is an overriding weighting of categories from lower to higher level of significance. Highest priority is the Maintaining Belief category followed in order by Enabling, Doing For (replaced by critical appraisal), Being With, and Knowing.

2. Within the Doing For category which includes the Critical Appraisal process there is a similar weighting of codes from the Strategizing being most prioritized followed by an analysis, and Observation.

3. The Therapeutic Alliance codes are used only when all other codes are not applicable and the primary purpose is negotiation or facilitation of the overall process.

4. In the case of a segment which has a mixture of codes present only one code is given, that which represents the highest priority as described. This code should refer to the portion of the passage which is focussed on the infant in any of the parent passages. However in the nurse passages the infant focus does not necessarily take priority.

5. There may be a situation in which a segment may be coded with the higher priority focus on the Doing For or Critical Appraisal process while another code may be applicable when looking at the entire Caring model. In these situations the general rule is stated in #1 above.

6. There is no need to score any one to three word type passages which do not provide a complete thought.

7. Note that while coding a passage only the literal interpretation is used without any remembered or understood unwritten context.

Appendix E
NIDCAP Observation Sheet

OBSERVATION SHEET Name: _____ Date: _____ Sheet Number _____

		Time:	0-2	3-4	5-6	7-8	9-10
Resp:	Regular						
	Irregular						
	Slow						
	Fast						
	Pause						
Color:	Jaundice						
	Pink						
	Pale						
	Webb						
	Red						
	Dusky						
	Blue						
	Tremor						
	Startle						
	Twitch Face						
	Twitch Body						
	Twitch Extremities						
Visceral/ Resp:	Spit up						
	Gag						
	Burp						
	Hiccough						
	BM Grunt						
	Sounds						
	Sigh						
	Gasp						
Motor:	Flaccid Arm(s)						
	Flaccid leg(s)						
	Flexed/ Tucked Arms	Act.					
		Post.					
	Flexed/ Tucked Legs	Act.					
		Post.					
	Extend Arms	Act.					
		Post.					
	Extend Legs	Act.					
		Post.					
	Smooth Mvmt Arms						
	Smooth Mvmt Legs						
	Smooth Mvmt Trunk						
	Stretch/Drown						
	Diffuse Squirm						
	Arch						
	Tuck Trunk						
	Leg Brace						
Face:	Tongue Extension						
	Hand on Face						
	Gape Face						
	Grimace						
	Smile						

		Time:	0-2	3-4	5-6	7-8	9-10
State:	1A						
	1B						
	2A						
	2B						
	3A						
	3B						
	4A						
	4B						
	5A						
	5B						
	6A						
	6B						
	AA						
Face (cont):	Mouthing						
	Suck Search						
	Sucking						
Extrem.:	Finger Splay						
	Airplane						
	Salute						
	Sitting On Air						
	Hand Clasp						
	Foot Clasp						
	Hand to Mouth						
	Grasping						
	Holding On						
	Fisting						
Attention:	Fuss						
	Yawn						
	Sneeze						
	Face Open						
	Eye Floating						
	Avert						
	Frown						
	Ooh Face						
	Locking						
	Cooing						
	Speech Mvmt						
Posture:	(Prone, Supine, Side)						
Head:	(Right, Left, Middle)						
Location:	(Crib, Isolette, Held)						
Manipulation:							
	Heart Rate						
	Respiration Rate						
	$TcPO_2$						

Appendix F
Coding System for Videotaped Episodes of Parent Infant Interaction
March 1994

There are three levels of coding for each item. There is an overiding major category, a more specific code within the categories, and a qualifier for each coding.

Major categories are:
Identification- refers to the identification of each subject by number

Autonomic- refers to those behaviors observable within the autonomic subsystem of infant functioning

Motor- refers to those observable infant behaviors within the motor subsystem of infant functioning

State- refers to those upset states of consciousness which are observable within the infant's state functioning

Attentional- refers to those disorganized behaviors observable within the infant's attentional subsystem functioning

Minor codes within each major category are:

Identification: #0102
#04
#0506
#0910
#1112
#1314
#15
#1819
#2021
#2223

Autonomic;
1 webbed; the irregular vascular color pattern on the infant's skin, often referred to as mottled
2 dusky; the slightly dark or bluish tinge color of the infant's skin
3 blue; the color of the infant's skin when quite hypoxemic and compromised
4 tremor; the quivering of any part of or the infant's whole body
5 hiccough; one or more repetitive sharp inspiratory sounds
6 startle; sudden large amplitude jumping movement of the infant's body
7 grunt; bowell movement grunting or straining
8 twitch; small amplitude contractile response of muscle
9 spit up; any feeding or saliva being brought up
10 gasp; a sharp or laborious drawing in of respiration
11 gag; appearance of choking or sputtering

Motor;
1 flaccid arm; very low tone or limp arm
2 flaccid leg; very low tone or limp leg
3 extension of arm; active extension movement of one or both arms
4 extension of leg; active extension movement of one or both legs
5 stretch drown; a configuration of labored breathing, usually associated with a respiratory pause followed by the motion of extension and flexion of trunk and a recovery of the breathing
6 diffuse squirm; small writhing or wriggling motion
7 arch; trunkal extension
8 tongue extension; active protrusion of the tongue
9 gape face; loss of tone in the lower face
11 finger splay; active extension of fingers spread open
12 airplane; one or both arms extended out to the side
13 salute; one or both arms extended out into midair

State;
1 5A; a diffuse fussy state
2 5B; a robust clear fussy state
3 6A; a diffuse irritable crying state
4 6B; a robust clear crying or irritability
5 AA; a prolonged respiratory pause

Attentional;
1 sneeze; explosive expelling of air from the mouth and nose
2 eye floating; uncoordinated eye movements
3 avert; the active avoidance of eye contact
4 frown; knit eyebrows and flexion in upper face
5 locking; visually fixated or staring
6 yawn; open mouth with deep inspiration

The qualifiers for Identification were the numbered sessions from session one through session seventeen.

The qualifiers for all other minor codes of autonomic, motor, state, and attentional were as follows;

1 verbal acknowledgement
2 active response
3 both
4 no response

General rules and guidelines in coding the videotapes with the CODER2 computer system

1. All videotape episodes were coded for disorganized behaviors with an effort to be accurate on frequency but not duration of behaviors.

2. The code sitting on air was not used so as not to have to scroll the codes on the computer screen and all episodes of sitting on air were coded as leg extensions.

3. In the analysis and interrater reliability checks the codes of arm extension, salute, and airplane were interchangeable.

4. Any episodes of choking or sputtering during feeding were coded as a gag.

5. Any episode of burping was coded as a grunt.

6. Any episode of crossing eyes was coded as eye floating.

Adapted from Als, H. (1981, 1984) Manual for the Naturalistic Observation of Newborn Behavior, The Children's Hospital, Boston, MA

Appendix G
Final Journal Entry

University of Washington
Facilitation of Parenting Within the Newborn Intensive Care Unit

*Study Code Number*_____
*Date*_____

During the course of your baby's hospitalization did you feel you were able to visit as often as you wanted and were you able to provide the care you wanted to during those visits ?

How are you feeling as a parent of this baby?

Describe how your baby responds to you ?

How has your baby changed over the time since birth ?

What are your feelings or comments on your experience as a parent in this research study ?

Appendix J
Individual Participation Tables

Table 11: #0102 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
2/12/93	5	30weeks	One	15min	10min		
2/17/93	10	31weeks	Two	14min		01 and 02	
2/17/93			Three	17min			
2/19/93	12	31weeks	Four	45min	34min		
2/19/93			Five	14min			
2/22/93	15	32weeks	Six	28min	20min	01 and 02	
2/25/93	18	32weeks	Seven	38min	16min		
2/27/93	20	33weeks	Eight	25min			
3/3/93	24	33weeks	Nine	28min	35min	01 and 02	
3/9/93	30	34weeks	Ten	36min	15min	01 and 02	
3/12/93	33	34weeks					02 NCAFS
3/13/93	34	35weeks				01 and 02	01 NCAFS
3/16/93	37						DISCHARGE
3/24/93	45	36weeks					APIB

Table 12: #04 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
3/29/93	6	32weeks	One	16min			
3/30/93	7	32weeks	Two	13min	9min	X	
4/1/93	9	33weeks	Three	22min			
4/5/93	13	33weeks	Four	12min			
4/7/93	15	34weeks	Five	12min	12min	X	
4/9/93	17	34weeks	Six	22min			
4/12/93	20	34weeks	Seven	26min			
4/14/93	22	35weeks	Eight	18min		X	
4/16/93	24	35weeks	Nine	24min	20min		
4/20/93	28	35weeks	Ten	24min	2min	X	
4/22/93	30	36weeks	Eleven	19min	20min		
4/27/93	35	36weeks	Twelve	31min	27min	X	
4/29/93	37	37weeks					04 NCAFS
4/30/93	38	37weeks					DISCHARGE
5/4/93	42	37weeks				X	APIB

Table 13: #0506 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
4/2/93	3	25weeks	One	31min	7min		
4/13/93	14	26weeks	Two	13min	10min	05and06	
4/17/93	18	27weeks	Three	21min	9min	05and06	
4/26/93	27	28weeks	Four	25min	12min		
5/4-5/5	35	29weeks	Five	22min	16min	05and06	
5/6-5/7	37	30weeks	Six	31min	11min	05and06	
5/11/93	42	30weeks	Seven	26min	9min	05and06	
5/21-5/24	51	32weeks	Eight	31min	20min	05and06	
5/28/93	59	33weeks	Nine	31min	8min	05and06	
5/31/93	62	33weeks	Ten	31min	27min		
6/6/93	68	34weeks			60min		
6/13/93	75	35weeks	Eleven	62min	26min	05and06	
6/20/93	82	36weeks	Twelve	42min	56min	05and06	
6/28/93	90	37weeks			10min	05and06	
7/1/93	93	37weeks	Thirteen	25min	24min	05and06	
7/10/93	102	39weeks	Fourteen	32min	36min	05and06	
7/21/93	113	40weeks			20min	05and06	05 NCAFS
7/21/93							06 NCAFS
7/21/93							APIB
7/21/93						05and06	Discharge

Table 14: #0910 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
4/12/93	6	28weeks	One	31min	15min		
4/16/93	10	29weeks	Two	23min			
4/18/93	12	29weeks	Three	12min	8min	09and10	
4/22/93	16	30weeks	Four	18min	11min		
4/29/93	23	31weeks	Five	10min		9	
5/4/93	28	31weeks	Six	30min	18min	10	
5/10/93	34	32weeks	Seven	31min	21min	09and10	
5/11/93	35	32weeks			5min		
5/16/93	40	33weeks	Eight	31min	20min		
5/20/93	44	34weeks			20min		
5/23/93	47	34weeks	Nine	11min	24min	09and10	
6/1/93	56	35weeks	Ten	31min	32min		
6/7/93	62	36weeks	Eleven	12min	34min	09and10	
6/10/93	65	37weeks			28min		
6/19/93	74	38weeks			33min	09and10	09 NCAFS
6/19/93							10 NCAFS
6/19/93							APIB
6/22/93	77	38weeks			21min		DISCHARGE
6/28/93	83	39weeks				09and10	

Table 15: #1112 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
4/13/93	8	26weeks	One	27min	14min	11and12	
4/20/93	15	27weeks	Two	19min	11min	11and12	
4/22/93	17	28weeks	Three	30min	17min		
4/29/93	24	29weeks	Four	24min	19min	11and12	
5/6/93	31	30weeks	Five	30min	22min	11	
5/11/93	36	31weeks	Six	28min	21min	12	
5/22/93	47	32weeks	Seven	19min	37min	11and12	
5/29/93	54	33weeks	Eight	31min	17min	11	
6/5/93	61	34weeks			22min	11	
6/13/93	69	35weeks	Nine	33min	25min	11and12	
6/19/93	75	36weeks	Ten	31min	14min	11	
6/23/93	79	37weeks			37min		
6/28/93	84	37weeks	Eleven	46min	14min		
7/2/93	88	38weeks			12min	11and12	
7/9/93	95	39weeks			15min	11	
7/13/93	99	40weeks	Tweive	28min	21min		
7/14/93	100	40weeks			12min		
7/20/93	106	40weeks					11 NCAFS
7/20/93							12 NCAFS
7/20/93							APIB
7/28/93	114	42weeks				11	
9/6/93	154	47weeks				12	
9/13/93	161	48weeks					DECEASED

Table 16: #1314 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
5/4/93	10	29weeks	One	16min	6min	13and14	
5/11/93	17	30weeks	Two	17min	19min	13and14	
5/19/93	25	31weeks	Three	16min	14min		
5/25/93	31	32weeks	Four	11min	21min	13and14	
5/28/93	34	33weeks				13and14	13 NCAFS
5/28/93							DISCHARGE
5/31/93	37	33weeks				13and14	
6/1/93	38	33weeks					APIB

Table 17: #15 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
5/11/93	6	32weeks	One	14min	8min	X	
5/17/93	12	33weeks	Two	31min	16min		
5/21/93	16	34weeks	Three	20min	13min		
5/24/93	19	34weeks	Four	10min	17min		
5/31-6/1	26	35weeks	Five	23min	16min		
6/5/93	31	36weeks			14min		
6/8/93	34	36weeks					NCAFS
6/9/93	35	36weeks					DISCHARGE
6/22/93	48	38weeks					APIB

Table 18: #1819 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
5/20/93	6	29weeks	One	18min	9min	18	
5/28/93	14	30weeks	Two	16min	14min	18and19	
6/5/93	22	32weeks	Three	43min	20min	18and19	
6/15/93	32	33weeks	Four	36min	52min	18	
6/20/93	38	34weeks				18	18 NCAFS
6/21/93	39	34weeks	Five	23min	20min		19 NCAFS
6/21/93							APIB
6/24/93	41	34weeks	Six	26min	25min		
6/26/93	43	35weeks					DISCHARGE

Table 19: #2021 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
5/27/93	9	28weeks	One	30min	15min		
6/1/93	14	28weeks	Two	22min	15min	20and21	
6/17/93	30	31weeks	Three	31min	2min	20(2)/21	
6/24/93	37	32weeks	Four	31min	6min	20	
7/3/93	46	33weeks	Five	15min	9min	20and21	
8/18/93	92	41weeks	Six	31min	25min	20and21	
8/21/93	95	41weeks				20and21	20 NCAFS
8/21/93							21 NCAFS
8/21/93							APIB
8/29/93	103	42weeks			15min		
9/7/93	112	44weeks				20	DISCHARGE

Table 20: #2223 Participation

DATE	DAY OF LIFE	GESTATIONAL AGE	Session #	AUDIOTAPE	VIDEOTAPE	JOURNAL	OTHER
7/3/93	9	31weeks	One	10min	15min	22and23	
7/10/93	16	32weeks	Two	38min	40min	22and23	
7/14/93	20	33weeks	Three	25min	20min	22and23	
7/19/93	25	34weeks	Four	24min	22min	22	
7/22/93	28	34weeks	Five	31min	22min		
7/27/93	33	35weeks					DISCHARGE
8/18/93	55	38weeks					22 NCAFS
8/23/93	59	39weeks					23 NCAFS
8/23/93							APIB

Table 21: #0102 Critical Appraisal

	NOB	NAB	NAE	NSB	NSP	Nurse C.A.	POB	POE	PAB	PAS	PAE	Parent C.A.	Combined CA
1		9%		7%		16%	6%		9%	5%		20%	36%
2		11%				11%	14%		20%	6%		40%	51%
3		7%			7%	14%			16%	17%		33%	47%
4	7%	11%				18%	12%		13%	5%		30%	48%
5	6%	8%				14%	17%		12%			29%	43%
6	7%	12%				19%	9%		26%	6%	5%	46%	65%
7		11%	9%		10%	30%	7%	8%	21%			36%	66%
8		16%	9%			25%	9%		17%		6%	32%	57%
9	11%	16%				27%	5%		31%			36%	63%
10		23%				23%			19%	6%	6%	31%	54%

Table 22: #04 Critical Appraisal

	NAB	NAP	NAE	NSB	NSP	Nurse C.A.	PAB	PAS	PAE	PSB	Parent C. A.	Combined CA
1	17%	8%				25%	17%	8%	6%		31%	56%
2	18%				5%	23%	16%				16%	39%
3	13%			15%		28%	16%				16%	44%
4	14%	7%	5%			26%	22%	5%	11%		38%	64%
5	36%					36%	19%		6%		25%	55%
6	13%		6%	5%	9%	33%	23%		8%	7%	38%	71%
7	16%			6%	5%	27%	26%			6%	32%	59%
8	16%		11%			27%	22%		7%	5%	34%	61%
9	32%					32%	28%	5%			33%	65%
10	24%					24%	25%			10%	35%	59%
11	34%		10%			44%	31%		8%		39%	83%
12	19%		13%			32%	22%	5%	15%		42%	74%

Table 23: #0506 Critical Appraisal

	NAB	NAE	NAP	Nurse C.A.	POB	POE	PAB	PAS	PAE	Parent C.A.	Combined CA
1	21%	6%		27%			17%			17%	44%
2	16%	8%	5%	29%			21%			21%	50%
3	18%			18%			22%	5%		27%	45%
4	18%	7%		25%			20%	6%	12%	38%	63%
5	25%			25%		5%	20%	7%		32%	57%
6	22%	11%		33%			26%		14%	40%	73%
7	20%	8%		28%			22%		11%	33%	61%
8	13%	6%		19%	5%		30%		20%	55%	74%
9	18%	15%		33%			21%	8%	20%	49%	82%
10	12%	14%		26%			17%		26%	43%	69%
11	18%	8%		26%			25%	7%	13%	45%	71%
12	25%	12%		37%			31%		18%	49%	86%
13	24%	7%		31%			31%	7%	8%	46%	77%
14	25%	9%		34%			21%	5%	10%	36%	70%

Table 24: #0910 Critical Appraisal

	NOB	NAB	NAE	NSP	Nurse C.A.	POB	POE	PAB	PAS	PAE	Parent C.A.	Combined CA
1		18%			18%			10%	5%		15%	33%
2		12%	8%		20%	7%		14%	6%		27%	47%
3		13%			13%			12%		5%	17%	30%
4	10%	7%			17%	6%		15%	7%		28%	45%
5		11%			11%			23%			23%	34%
6	7%	18%			25%			23%			23%	48%
7		19%			19%	6%		24%			30%	49%
8		19%			19%	10%		16%			26%	45%
9		21%	5%		26%	10%	7%	16%			33%	59%
10	6%	19%			25%	11%		20%	7%		38%	63%
11		13%		5%	18%	6%		17%			23%	41%

Table 25: #1112 Critical Appraisal

	NOB	NOE	NAB	NAE	Nurse C. A.	POB	POE	PAB	PAS	PAE	Parent C. A.	Combined CA
1			16%		16%	6%		17%			23%	39%
2	9%		7%		16%	17%		27%			44%	60%
3			5%		5%	9%		15%	11%		35%	40%
4	6%		11%		17%	11%		19%	10%		40%	57%
5	5%		8%		13%	13%	5%	17%	7%		42%	55%
6	8%		11%		19%	15%	8%	18%		7%	48%	67%
7			17%	5%	22%	5%	8%	18%	6%		37%	59%
8	6%	6%	10%	6%	28%	10%	10%	24%		11%	55%	83%
9	5%		26%		31%	11%		19%	7%		37%	68%
10	7%		8%		15%	15%		21%		6%	42%	57%
11	8%		16%		24%	12%		20%			32%	56%
12	6%		14%		20%	7%		21%	9%	5%	42%	62%

Table 26: #1314 Critical Appraisal

	NAB	NAP	NAE	NSE	Nurse C. A.	PAB	PAP	PAS	PAE	Parent C. A.	Combined CA
1	17%				17%	18%				18%	35%
2	6%	6%	11%	5%	28%	8%		8%	18%	34%	62%
3	25%	8%			33%	24%	5%	7%		36%	69%
4	22%				22%	29%		7%		36%	58%

Table 27: #15 Critical Appraisal

	NOP	NAB	NAE	NSP	Nurse C.A.	PAB	PAS	PAE	PSS	Parent C.A.	Combined CA
1		34%			34%	19%	5%	9%		33%	67%
2		15%		8%	23%	13%	10%	10%	5%	38%	61%
3		24%			24%	22%	9%	7%		38%	62%
4	5%	30%	11%		46%	22%	7%	22%		51%	97%
5		27%			27%	25%				25%	52%

Table 28: #1819 Critical Appraisal

	NAB	NAE	Nurse C.A	PAB	PAS	PAE	Parent C. A.	Combined CA
1	16%		16%	25%	5%	6%	36%	52%
2	34%	5%	39%	16%			16%	55%
3	20%		20%	18%	8%	10%	36%	56%
4	17%	7%	24%	22%	9%	5%	36%	60%
5	18%		18%	19%	5%	5%	29%	47%
6	11%	6%	17%	27%	9%		36%	53%

Table 29: #2021 Critical Appraisal

	NOB	NOE	NAB	NAE	NSP	Nurse C. A.	POB	POE	PAB	PAE	Parent C.A.	Combined CA
1			17%		6%	23%			7%	5%	12%	35%
2	5%		16%	11%		32%	5%	6%	10%	8%	29%	61%
3		6%	13%	13%		32%		9%	17%	16%	42%	74%
4	5%		17%	7%		29%			19%	9%	28%	57%
5			8%	7%		15%		7%	5%	9%	21%	36%
6			23%	6%		29%			20%	5%	25%	54%

Table 30: #2223 Critical Appraisal

	NOB	NOP	NOE	NAB	NAE	Nurse C. A.	POB	POS	POE	PAB	PAS	PAE	PSB	Parent C. A.	Combined Ca
1	5%	5%		19%	5%	34%	14%	5%		11%				30%	64%
2				8%		8%	8%			20%		5%		33%	41%
3	6%			19%		25%	8%			18%	6%	7%		39%	64%
4	6%	6%	6%	9%		27%				16%	6%		5%	27%	54%
5	12%			7%		19%	9%		6%	15%				30%	49%

Table 31: #0102 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	31 weeks	10 min	temp/diaper	12	9	75%
2	32 weeks	34 min	temp/diaper/hold/feeding	35	20	57%
3	32 weeks	20 min	diaper/tub bath	45	31	69%
4	33 weeks	16 min	diaper/tub bath	37	28	76%
5	34 weeks	35 min	diaper/dressing/feeding	55	23	42%
6	34 weeks	15 min	tub bath	43	23	53%

Table 32: #04 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	32 weeks	9 min	touching	4	2	50%
2	34 weeks	12 min	diaper/dressing/held	28	14	50%
3	35 weeeks	20 min	temp/bath/dressing/held	43	20	47%
4	36 weeks	20 min	temp/diaper/dressing/bottle	29	17	59%
5	37 weeks	27 min	temp/diaper/bottle	43	22	51%

Table 33: #0506 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	26 weeks	10 min	temp/touching	33	17	52%
2	27 weeks	9 min	touching	16	13	81%
3	28 weeks	12 min	touching/play music	8	6	75%
4	29 weeks	16 min	touching	19	18	95%
5	30 weeks	9 min	touching/reading to	13	10	77%
6	32 weeks	20 min	touching during gavage feeding	18	11	61%
7	33 weeks	8 min	touching	11	8	73%
8	33 weeks	27 min	held first time	32	24	75%
9	34 weeks	60 min	held	100	61	61%
10	35 weeks	26 min	held	82	45	55%
11	36 weeks	56 min	temp/diaper/bath/bottle	117	60	51%
12	37 weeks	10 min	held/bottle	20	6	30%
13	37 weeks	24 min	bath/held	97	39	40%
14	39 weeks	36 min	diaper/held/bottle	85	38	45%
15	40 weeks	20 min	dressing/held/bottle	53	24	45%

Table 34: #0910 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	28 weeks	15 min	touching	44	27	61%
2	29 weeks	8 min	touching	6	4	67%
3	30 weeks	11 min	touching/calming	25	23	92%
4	31 weeks	18 min	temp/diap/held	43	24	56%
5	32 weeks	21 min	touching/held	30	18	60%
6	33 weeks	5 min	bath	18	11	61%
7	33 weeks	20 min	temp/diaper/held during gavage	58	33	57%
8	34 weeks	20 min	temp/diaper/held/bottle	63	31	49%
9	34 weeks	24 min	bath/bottle	74	55	74%
10	35 weeks	32 min	weight/bath/dressing/bottle	103	54	52%
11	36 weeks	34 min	temp/diaper/bottle	75	44	59%
12	37 weeks	28 min	weight/bath/held/bottle	64	32	50%
13	38 weeks	33 min	diaper/bath/held/bottle	52	15	29%
14	38 weeks	21 min	diaper/dressing/bottle	95	50	53%

Table 35: #1112 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	26 weeks	14 min	touching	28	20	71%
2	28 weeks	11 min	touching	18	13	72%
3	29 weeks	17 min	touching	28	17	61%
4	30 weeks	19 min	weight/held/hand prints	39	23	59%
5	31 weeks	22 min	touching	53	33	62%
6	32 weeks	21 min	touching during gavage	39	24	62%
7	33 weeks	37 min	reposition/diaper/held	48	30	63%
8	34 weeks	17 min	held	31	14	45%
9	35 weeks	22 min	held/bath/dressing	94	10	11%
10	36 weeks	25 min	temp/held/bottle	26	15	58%
11	37 weeks	14 min	temp/diaper	52	26	50%
12	37 weeks	37 min	bath/dressing/held	133	57	43%
13	38 weeks	14 min	held	29	14	48%
14	39 weeks	12 min	held/bottle	43	13	30%
15	40 weeks	15 min	diaper/held/bottle	77	27	35%
16	40 weeks	21 min	bath/dressing/held	100	21	21%
17	40 weeks	12 min	held/bottle	27	6	22%

Table 36: #1314 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	29 weeks	6 min	held	7	3	43%
2	30 weeks	19 min	bath/dressing	43	18	42%
3	31 weeks	14 min	bath/dressing/held	36	13	36%
4	32 weeks	21 min	bath/dressing	54	17	31%

Table 37: #15 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	32 weeks	8 min	held during gavage	6	1	17%
2	33 weeks	16 min	temp/diaper/dressing/held	33	4	12%
3	34 weeks	13 min	temp/diaper/dressing/held	22	6	27%
4	34 weeks	17 min	bath/dressing/held	37	15	41%
5	35 weeks	16 min	diaper/breastfeeding	33	10	30%
6	36 weeks	14 min	bath/dressing	40	24	60%

Table 38: #1819 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	29 weeks	9 min	diaper/touch during gavage	25	6	24%
2	30 weeks	14 min	temp/diaper/held	56	34	61%
3	32 weeks	20 min	bath/dressing/held	92	42	46%
4	33 weeks	52 min	held/breastfeeding/bottle	140	54	39%
5	34 weeks	20 min	bath/dressing/held/bottle	99	38	38%
6	34 weeks	25 min	diaper/held/bottle	133	52	39%

Table 39: #2021 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	28 weeks	15 min	touching	16	13	81%
2	28 weeks	15 min	touching/reposition	42	34	81%
3	32 weeks	2 min	touching	3	2	67%
4	33 weeks	6 min	touching	9	2	22%
5	36 weeks	9 min	held during gavage	10	6	60%
6	41 weeks	25 min	held/bottle	77	10	13%
7	42 weeks	15 min	diaper/held/breastfeeding	121	28	23%

Table 40: #2223 Integration

# videotaped session	Gest age	Length of video episode	caregiving on videotape	#disorganized infant behaviors	#disorg behaviors responded to	% disorg behaviors responded to
1	31 weeks	15 min	touching/diaper	15	11	73%
2	32 weeks	40 min	temp/bath/dressing/held	104	51	49%
3	33 weeks	20 min	diaper/held	49	29	59%
4	34 weeks	22 min	bath/dressing/held/bottle	82	28	34%
5	34 weeks	22 min	temp/diaper/held/bottle	76	32	42%

Appendix M
Journal Writing

	Provision of care	Baby's response	Baby's changes
#01	physical/emotional	PR/behavioral/CA	phys/behav/wt/pers
#02	physical/emotional	PR/behavioral/CA	phys/behav
#04	physical	PR/behavioral/CA	phys/behav/wt/pers
#05	physical/emotional	PR/behavioral/CA	phys/behav/wt
#06	physical/emotional	PR/behavioral/CA	phys/behav/wt
#09	physical/emotional/financial	PR/behavioral/CA	phys/behav
#10	physical/emotional/financial	PR/behavioral/CA	phys/behav/wt
#11	physical/emotional	PR/behavioral/CA	phys/behav/wt
#12	physical/emotional	PR/behavioral/CA	phys/behav/wt
#13	physical/emotional	PR/behavioral/CA	phys/behav
#14	physical/ /learning	PR/behavioral/CA	phys/behav/wt
#18	physical/emotional	PR/behavioral/CA	phys/behav/ /pers
#19	physical	PR/behavioral/CA	phys/behav
#20	physical/emotional	PR/behavioral/CA	phys/behav/wt
#21	physical/emotional	PR/behavioral/CA	phys/behav/wt
#22	physical/emotional	PR/behavioral/CA	phys/behav/wt
#23	physical/emotional	PR/behavioral/CA	phys/behav/wt

	Feelings as a parent
#01	frustrated/staff conflict/empty/proud/excited
#02	love/excited/staff conflict/pleased/happy/wonderful/stressed
#04	anxious/worried/proud/alone/depressed/lucky/good/hopeful/happy
#05	excited/worried/good/frustrated/seperated/scared/thankful/nervous/ staff issue/happy/confident
#06	good/excited/proud/frustrated/scared/comfortable/happy/anxious/ stressed
#09	better/want him home/bad/great/good
#10	good/getting ready/glad/left out/proud/better/personal recognition
#11	good/wish could do more/want him home/happy/scared/better/ praying/empty/overwhelmed/proud
#12	optimistic/happy/good/alone/confused/love/proud/confident/ enthusiastic
#13	part time/missing bond/control issue/can't wait/proud/ want more holding/positive/excited
#14	interested/can't wait/close/lucky/proud
#18	proud/confident/lucky/joy/anxious/stressed/worry/wonderful/relaxed
#19	proud/happy/sad
#20	proud/happy/excited/frustrated/overwhelmed/loving/caring/exhausted/ responsibility/parent in name only
#21	hopeful/overwhelmed/challenged/disappointed/grief/optimistic/frustrated/ disenfranchised/control issue/relaxed/confident/relieved/thankful/anxious
#22	happy/love/scared/moody/angry/glad/joy/sad/proud/want her home/ staff issue/frustrated
#23	frustrated/as an observer

	Additional feelings and comments
#01	Staff limitations on handling/ missing out on Jenna's life
#02	staff limitation on handling/ feel less important to my wife frustrated/ want her home
#04	want her home/ thank God/thrilled/anxious
#05	anxiety/concern/worry/staff inconsistency issue/excited/tired/ frustrated/ready to go home
#06	anxious/happy/great/excited/scared/helpless/angry/proud/ concerned/frustrated
#09	don't feel like thinking/getting good care/worth the hard work/ want him home/he doesn't need intensive care anymore
#10	this is tough/feels like we didn't have him/ want him home/ stressful/left out/doesn't need intensive care now/neat
#11	it's hard/want him home/trying to be strong/want him to know I'm here praying/why me?/scared/don't know what to do/happy/more comfortable
#12	can't wait to bring him home/fatigue/wild ride/safe and not alone/ proud/a learning experience
#13	staff inconsistency/need privacy/want more celebration
#14	care is exceptional/educational/pleasant
#18	blessed/thankful/proud/excited/it's hard/ready for him
#19	hard to accept/hard to go through
#20	it's ups and downs/learning/excited/guarded/more positive/faith/patience/ difficult to have others care for her/
#21	support is helpful/hard to feel she's ours/feels long/no more intensive care
#22	want to hold more/difficult to leave her/want others to be more optimistic/ mixed feelings/a huge weight lifted when she came home
#23	helpful staff/hard to leave her/she's more of a real person

	Satisfaction with visiting and provision of care	How are you feeling as a parent of this baby?	baby response	? baby changed	comments on experience in this research study
#01	dissatisfied/not enough	happy/lack of bonding/fear of someone taking her	PR/behav	phys/behav/pers	good/understand infant/felt more involved
#02	staff control issue	great/wonderful/glad	PR/behav	/behav	wonderful/helped us to grow/understand infant
#04	good/transfer helped	relief/proud/she's a miracle	PR/behav	phys/behav/pers	beneficial/liked videos/understand infant and self
#05	wanted to hold more	relieved/anxious/confident	PR/behav	phys/behav	beneficial/better parent/more independent/understand infant
#06	needed to build trust first	happy/grateful	PR/behav	phys	strongly positive/understand infant/support to us/empowered/ increased our credibility/increased bonding
#09	work and home conflicted	more comfortable at home	PR/behav	phys/behav	nurses were great/understand infant
#10	work and financial limitations	wonderful/joy/proud	PR/behav	phys/behav	support to us
#11	wanted to hold more and do more	tired/love/proud/ready at home/praying/ stop saying preemie	PR/behav	phys/behav	understand infant/support to us
#12	had work conflict	roller coaster/love/optimistic/prepared for worst	PR/beha.	phys/behav	informative/understand infant/understand self
#13	as much as possible	proud/I must have done something good	PR/behav	phys/behav	understand infant
#14	staff inconsistency issue	fine/proud/feeling paranoid for her	/behav	phys/behav	informative/confident
#18	good/comfortable	proud/scared/prayed/love my time with him	/behav	phys/behav/pers	happy/excited/blessed
#19	great	responsible/happy	/behav	/behav	important/able to help/met people
#20	limitations/wanted to hold and do more	excited/proud/happy/wanting everything for her	PR/behav	phys/behav	confronted feelings/consistency with researcher
#22	limitations was an issue	overjoyed/she makes me feel special/love/ tired of people saying how small she is	PR/behav	phys/behav	learning experience/support to me
#23	staff inconsistency issue	more prepared because new knowledge and experience	PR/behav	/behav	information/resource/support to me

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EDUCATION

Ph.C.	UNIVERSITY OF WASHINGTON, Seattle, Washington, Graduate School of Nursing (March 1992) IN PROGRESS Toward a Ph.D. in NURSING SCIENCE since Fall 1989.
M.S.N.	UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pennsylvania, Perinatal Nursing Program, 1980.
B.S.N.	NORTHEASTERN UNIVERSITY, Boston, Massachusetts, 1979.
DIPLOMA	GEISINGER MEDICAL CENTER SCHOOL OF NURSING, Danville, Pennsylvania, 1976.

PROFESSIONAL EXPERIENCE

January 1990-Present	Neonatal Clinical Nurse Specialist for the NICU Transition Project, and NICU Follow-Through Project, federally funded grants from U.S. Dept. Education through the University of Washington Child Development and Mental Retardation Center.
July 1989-Present	Co-Director Newborn Individualized Developmental Care and Assessment Program, National Training and Education.
April 1984-Present	Instructor: Newborn Individualized Developmental Care and Assessment Program, in collaboration with Children's Hospital Medical Center and Harvard Medical School, Boston, Massachusetts.
August 1990-May 1993	Staff Nurse for Acute Care Inc., providing direct care to local special care nurseries.
December 1989-May 1993	Staff Nurse for Neonatal Nurses Northwest of Pediatric Home Care Inc., providing direct care to local special care nurseries.

April 1983-July 1989	Neonatal Clinical Nurse Specialist, Brigham and Women's Hospital, Boston, Massachusetts.
Sept. 1980-April 1983	Staff Nurse, Neonatal Intensive Care, Brigham and Women's Hospital, Boston, Massachusetts.
October 1976-Aug. 1979	Staff Nurse, Pediatric Medical-Surgical, Joseph P. Kennedy Memorial Hospital for Children, Brighton, Massachusetts.

CERTIFICATION

Brazelton Newborn Behavioral Assessment Scale
Assessment of Preterm Infant Behavior
Nursing Child Assessment Satellite Training
NCAST Feeding Scale
NCAST Teaching Scale
HOME Inventory Scale
Nursing Systems Toward Effective Parenting of the Preterm
NSTEP-P Instructor

LICENSURE

Professional Nurse Pennsylvania 234633
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RESEARCH ACTIVITIES

Effects of Early Behavioral and Environmental Modification to Infants with Severe Respiratory Distress, 1983-1984.

Deep Tendon Reflexes in Premature Infants, 1984-1985.

NIHR/NIDCAP Behavioral Intervention Study, 1985-1987.

NIDRR Behavioral Intervention Study, 1987-1989.

HONORS/AWARDS

Massachusetts Nursing Association 1986 Clinical Practice Award

Individual National Research Service Award, 1991-Present.

Fellow; Zero to Three, National Center for Clinical Infant Programs, 1992-Present

PUBLICATIONS

Als, H., Lawhon, g., Brown, E., Gibes, R., Duffy, F.H., McAnulty, G., and Blickman, J.G. (1986). Individualized behavioral and environmental care for the VLBW preterm infant at high risk for bronchopulmonary dysplasia: NICU and developmental outcome. *Pediatrics*, 78 (6), 1123-1132.

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Lawhon, g. (1994). Facilitating parenting in the NICU. *Advance for Nurse Practitioners* (in press).

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AUDIO/VISUAL

"Prematurely Yours: Infant Behavior and Personality" (1983). Consultant to Polymorph Films Inc..

"To Have and Not to Hold: Helping Parents of Preemies Cope" (1983). Consultant to Polymorph Films Inc..

"Breastfeeding Your Premature Infant: From Delivery to Discharge" (1986). Consultant to PGG Associates.