A renewed interest in the first minutes, hours, and days of life has been stimulated by several provocative behavioral and physiologic observations in both mother and infant. These assessments and measurements have been made during labor, birth, the immediate postnatal period, and the initial breastfeedings. They provide a compelling rationale for major changes in care in the perinatal period for both mother and infant. These findings form a novel way to view the mother–infant dyad.

To understand how these observations fit together, it is necessary to appreciate that the period of labor, birth, and the ensuing several days can probably best be defined as a “sensitive period.” During this time, the mother and, probably, the father, are especially open to changing their later behavior with their infant depending on the quality of their care during the sensitive period.

Winnicott also described this period. He reported a special mental state of the mother in the perinatal period that involves a greatly increased sensitivity to, and focus on, the needs of her baby. He indicated that this state of “primary maternal preoccupation” starts near the end of pregnancy and continues for a few weeks after the birth of the baby. A mother needs nurturing support and a protected environment to develop and maintain this state. This special preoccupation and the openness of the mother to her baby is probably related to the bonding process. Winnicott wrote that “Only if a mother is sensitized in the way I am describing, can she feel herself into her infant’s place, and so meet the infant’s needs.” In the state of “primary maternal preoccupation,” the mother is better able to sense and provide what her new infant has signaled, which is her primary task. If she senses the needs and responds to them in a sensitive and timely manner, mother and infant will establish a pattern of synchronized and mutually rewarding interactions. It is our hypothesis that as the mother–infant pair continues this dance pattern day after day, the infant will more frequently develop a secure attachment, with the ability to be reassured by well-known caregivers and the willingness to explore and master the environment when caregivers are present.

This chapter describes studies of the process by which a parent becomes attached to the infant and the physiologic and behavioral components in the newborn, and suggests applications of these findings to the care of the parents of a normal infant, a premature or sick infant, and a stillbirth or neonatal death. Technical advances in the care of critically ill and premature infants have resulted in decreased mortality and morbidity of the high-risk infant. These developments have been accompanied by a heightened awareness of the psychologic strain and emotional stresses encountered by the family of a sick neonate and the profound effect on family functioning. Realization of the need for a family-centered approach to perinatal care has emerged out of an enhanced understanding of individual and family functioning and the challenges in coping and adapting to stress. It has become essential for perinatal healthcare teams to be cognizant of the overall psychological needs of families who are experiencing the painful crisis of the birth of a sick newborn.

PREGNANCY

A mother’s and father’s actions and responses toward their infant are derived from a complex combination of their own genetic endowment, the way the infant responds to them, a long history of interpersonal relations with their own families and with each other, past experiences with this or previous pregnancies, the absorption of the practices and values of their cultures, and probably most importantly, how each was raised by his or her own mother and father. The parenting behavior of each woman and man, his or her ability to tolerate stresses, and his or her need for special attention differ greatly and depend on a mixture of these factors. Fig. 7.1 is a schematic diagram of the major influences on paternal and maternal behavior and the resulting disturbances that we hypothesize may arise from them.

Included under parental background are the parent’s care by his or her own mother, genetics of parents, practices of their culture, relationships within the family, experiences

Unfortunately a certain number of mothers abandon the babies whose needs they have not had to meet, and in whom they have lost all interest. The life of the little one has been saved, it is true, but at the cost of the mother.

Pierre Budin, The Nursling
The second stage is a growing perception of the fetus as a separate individual, usually occurring with the awareness of fetal movement. After quickening, a woman generally begins to have some fantasies about what the baby may be like; she attributes some human personality characteristics and develops a sense of attachment and value toward the baby. At this time, further acceptance of the pregnancy and marked changes in attitude toward the fetus may be observed; unplanned infants can become deeply valued. Objectively, the health worker usually finds some outward evidence of the mother’s preparation in such actions as the purchase of clothes or a crib, selecting a name, and arranging space for the baby.

The increased use of amniocentesis and ultrasound has appeared to affect parents’ perceptions of babies in a rather unexpected fashion. Many parents have discussed the disappointment they experienced when they discovered the sex of the baby. Half of the mystery was over. Everything was possible, but once the amniocentesis was done and the sex of the baby known, the range of the unknown was considerably narrowed. However, the tests have the beneficial result of removing some of the anxiety about the possibility of the baby having an abnormality. We have noted that, following the procedure, the baby is sometimes named, and parents often carry around a picture of the very small fetus. This phenomenon requires further investigation to understand the significance of these reactions to the bonding process.

Cohen suggests the following questions to learn the special needs of each mother:\textsuperscript{16}

- How long have you lived in this immediate area, and where does most of your family live?
- How often do you see your mother or other close relatives?
- Has anything happened to you in the past (or do you currently have any condition) that causes you to worry about the pregnancy or the baby?
- What was the father’s reaction to your becoming pregnant?
- What other responsibilities do you have outside the family?

When planning to meet the needs of the mother, it is important to inquire about how the pregnant woman was mothered—did she have a neglected and deprived infancy and childhood or grow up with a warm and intact family life?

**LABOR AND DELIVERY**

Newton and Newton noted that those mothers who remain relaxed in labor,\textsuperscript{17} who are supported, and who have good rapport with their attendants are more apt to be pleased with their infants at first sight.

One Cochrane review looked at the importance of continuous support for women during childbirth. Looking at 21 trials involving 15,061 mothers, the results showed that women who had continuous social support during labor and birth had labors that were significantly shorter, were more likely to have a spontaneous vaginal birth, and were less likely to have intrapartum analgesia.\textsuperscript{18} They also were less likely to have a

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**BOX 7.1 Steps in Attachment**

- Before pregnancy:
  - Planning the pregnancy
- During pregnancy:
  - Confirming the pregnancy
  - Accepting the pregnancy
  - Experiencing fetal movement
  - Beginning to accept the fetus as an individual
- Labor
- Birth
- After birth:
  - Touching and smelling
  - Seeing the baby
  - Breastfeeding
  - Caring for the baby
  - Accepting the infant as a separate individual

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with previous pregnancies, and planning, course, and events during pregnancy. Strong evidence for the importance of the effect of the mother’s own mothering on her caretaking comes from an elegant 35-year study by Engel et al. that documented the close correspondence between how Monica (an infant with a tracheoesophageal fistula) was fed during the first 2 years of life,\textsuperscript{13} how she then cared for her dolls, and how as an adult she fed her own four children.

During the first hours and days of life, it is here, during this period, that studies have in part clarified some of the steps in parent–infant attachment. A diversity of observations are beginning to piece together some of the various phases and times that are helpful for this process (Box 7.1). Pregnancy for a woman has been considered a process of maturation,\textsuperscript{14,15} with a series of adaptive tasks, each dependent on the successful completion of the preceding one.

Some mothers may be initially disturbed by feelings of grief and anger when they become pregnant because of factors ranging from economic and housing hardships to interpersonal difficulties. However, by the end of the first trimester, the majority of women who initially rejected pregnancy have accepted it. This initial stage, as outlined by Bibring, is the mother’s identification of the growing fetus as an “integral part of herself.”\textsuperscript{14}
cesarean section or instrumented vaginal birth, regional anesthesia, or a baby with a low 5-minute Apgar score. This low-cost intervention may be a simple way to reduce the length of labor and perinatal problems for women and their infants during childbirth.

EFFECTS OF SOCIAL AND EMOTIONAL SUPPORT ON MATERNAL BEHAVIOR

Pregnancy and labor, a highly significant time in a woman's life, has been explored in depth because the care during labor appears to affect a mother’s attitudes, feelings, and responses to her family, herself, and especially her new baby to a remarkable degree. In a well-conducted trial of continuous social support in South Africa, both mothers with and without doula support were interviewed immediately after delivery and 6 weeks later. Women who had support during labor had significantly increased self-esteem, believed they had coped well with labor, and thought the labor had been easier than they had imagined. Women who received this support reported being less anxious 24 hours after birth compared with mothers without a doula. Supported mothers were significantly less depressed 6 weeks postpartum, as measured on a standard depression scale. Also, supported mothers had a significantly greater incidence of breastfeeding without supplements (52% versus 29%), and they breastfed for a longer period.

The supported mothers said it took them an average of 2.9 days to develop a relationship with their babies compared with 9.8 days for the nonsupported mothers. This feeling of attachment and readiness to fall in love with their babies made them less willing to leave their babies alone. They also reported picking up their babies more frequently when they cried than did nonsupported mothers. The supported mothers were more positive in describing the special attributes of their babies than were the nonsupported mothers. A higher percentage of supported mothers not only considered their babies beautiful, clever, healthy, and easy to manage, but also believed their infants cried less than other babies. The supported mothers believed that their babies were “better” when compared with a “standard baby,” whereas the nonsupported mothers perceived their babies as “almost as good as” or “not quite as good as” a “standard baby.” “Support group mothers also perceived themselves as closer to their babies, as managing better, and as communicating better with their babies than control-group mothers did,” the study reported. A higher percentage of the supported mothers indicated that they were pleased to have their babies, found becoming a mother was easier than expected, and thought that they could look after their babies better than any other person could. In contrast, the nonsupported mothers perceived their adaptation to motherhood as more difficult and believed that others could care for their baby as well as they could.

A most important aspect of emotional support during childbirth may be the most unexpected internalized one—that of the calm, nurturing, accepting, and holding model provided for the parents with support during labor. Maternal care needs modeling; each generation is influenced from the care received by the earlier one. Social support appears to be an essential ingredient of childbirth that was lost when birthing moved from home to hospital.

THE DAY OF DELIVERY

Mothers after delivery appear to have common patterns of behavior when they begin to care for their babies in the first hour of life. Filmed observations reveal that when a mother is presented with her nude, full-term infant in privacy, she begins with fingertip touching of the infant's extremities and within a few minutes proceeds to massaging, encompassing palm contact of the infant's trunk. Mothers of premature infants also follow this sequence, but proceed at a much slower rate. Fathers go through some of the same routines.

A strong interest in eye-to-eye contact has been expressed by mothers of both full-term and premature infants. Tape recordings of the words of mothers who had been presented with their infants in privacy revealed that 73% of the statements referred to the eyes. The mothers said, “Let me see your eyes” and “Open your eyes and I'll know you love me.” Robson has suggested that eye-to-eye contact appears to elicit maternal caregiving responses. Mothers seem to try hard to look “en face” at their infants—that is, to keep their faces aligned with their baby's so that their eyes are in the same vertical plane of rotation as the baby's. Complementing the mother's interest in the infant's eyes is the early functional development of the infant's visual pathways. The infant is alert, active, and able to follow during the first hour of life if maternal sedation has been limited and the administration of eye drops or ointment is delayed.

Additional information about this early period was provided by Wolff, who described six separate states of consciousness in the infant, ranging from deep sleep to screaming. The state in which we are most interested is state 4, the quiet, alert state. In this state, the infant's eyes are wide open, and he or she is able to respond to his or her environment. The infant may only be in this state for periods as brief as a few seconds. However, Emde et al. observed that the infant is in a wakeful state on the average for a period of 38 minutes during the first hour after birth. It is currently possible to demonstrate that an infant can see, has visual preferences, has a memory for the mother's face at 4 hours of age, will turn his or her head to the spoken word, and moves in rhythm to the mother's voice in the first minutes and hours of life—a beautiful linking and synchronized dance between the mother and infant. After this, however, the infant goes into a deep sleep for 3 to 4 hours.

Therefore during the first 60 to 90 minutes of life, the infant is alert, responsive, and especially appealing. In short, the infant is ideally equipped to meet his or her parents for the first time. The infant's broad array of sensory and motor abilities evokes responses from the mother and begins the communication that may be especially helpful for attachment and the initiation of a series of reciprocal interactions. It is important to keep the mother–infant dyad together during those first critical moments whenever medically possible.
Observations by Condon and Sander reveal that newborns move in rhythm with the structure of adult speech. Interestingly, synchronous movements were found at 16 hours of age with both of the two natural languages tested, English and Chinese.

Mothers also quickly become aware of their infant. Kaitz et al. demonstrated that after only 1 hour with their infants in the first hours of life, mothers are able to discriminate their own baby from other infants. Parturient women know their infant’s distinctive features after minimal exposure using olfactory and tactile cues (touching the dorsum of the hand), whereas discrimination based on sight and sound takes somewhat longer to develop. Fathers are good at quickly recognizing their newborn through visual-facial cues, although not quite as good as mothers at recognizing olfactory cues.

Without attachment, there is risk for the following parenting disorders: vulnerable child syndrome, child abuse, failure to thrive, and some developmental and emotional problems in high-risk infants. Other determinants—such as the attitudes, statements, and practices of the nurses and physicians in the hospital, whether the mother is alone for short periods during her labor, whether there is separation from the infant in the first days of life, the nature of the infant, his or her temperament, and whether he or she is healthy, sick, or malformed—will affect parenting behavior and the parent–child relationship. Included under care practices are the behavior of physicians, nurses, and hospital personnel, care and support during labor, first days of life, separation of mother and infant, and rules of the hospital. The variables most easily remedied in this scheme are the separation of the infant from the mother and the practices in the hospital during the first hours and days of life.

CARE OF THE HEALTHY TERM INFANT AND PARENTS FOLLOWING BIRTH

After birth, the newborn should be thoroughly dried with warm towels so as not to lose heat and be observed to have good color and be active (usually within 5 minutes); ideally, this can be done on the mother. If not, the warm and dry infant should be placed between the mother’s breasts or on her abdomen or, if she desires, next to her as soon as possible. The latest Neonatal Resuscitation Program guidelines emphasize that babies who do not need resuscitation should not be separated from their mothers.

When newborns are kept close to their mother’s body or on her mother, the transition from life in the womb to existence outside the uterus is made much easier for them. The newborn recognizes his mother’s voice and smell, and her body warms his to just the right temperature. In this way, the infant can experience sensations somewhat similar to what he felt during the last several weeks of uterine life.

In the past, many caretakers believed that the newborn needs help to begin to nurse. So often, immediately after birth, the baby’s lips are placed near or on the mother’s nipple. In that situation, some babies do start to suckle, but most babies just lick the nipple or peer up at the mother. They appear to be much more interested in the mother’s face, especially her eyes, even though the nipple is right next to their lips. They most commonly begin, when left on their own, to move toward the breast 30 to 40 minutes after birth.

THE BREAST CRAWL

One of the most exciting observations made is the discovery that the newborn has the ability to find her mother’s breast all on her own and to decide for herself when to take her first feeding. In order not to remove the taste and smell of the mother’s amniotic fluid, it is necessary to delay washing the baby’s hands. The baby uses the taste and smell of amniotic fluid on her hands to make a connection with a certain lipid substance on the nipple related to the amniotic fluid.

The infant usually begins with a time of rest and quiet alertness, during which he rarely cries and often appears to take pleasure in looking at his mother’s face. Around 30 to 40 minutes after birth, the newborn begins making mouthing movements, sometimes with lip smacking, and shortly after, saliva begins to pour down onto his chin. When placed on the mother’s abdomen, babies maneuver in their own ways to reach the nipple. They often use stepping motions of their legs to move ahead while horizontally moving toward the nipple, using small push-ups and lowering one arm first in the direction they wish to go. These efforts are interspersed with short rest periods. Sometimes babies change direction in the midst of their journey. These actions take effort and time. Parents find patience worth every minute if they wait and observe their infant on his first journey.

In Fig. 7.2, one newborn is seen successfully navigating his way to his mother’s breast. At 10 minutes of age, he first begins to move toward the left breast, but 5 minutes later, he is back in the midline. Repeated mouthing and sucking of the hands and fingers is commonly observed. With a series of push-ups and rest periods, he makes his way to the breast completely on his own, placing his lips on the areola of the breast. He begins to suckle effectively and closely observes his mother’s face.

In one group of mothers who did not receive pain medication and whose babies were not taken away during the first hours of life for a bath, vitamin K administration, or application of eye ointment, 15 of 16 babies placed on their mother’s abdomen were observed to make the trip to their mother’s breast, latch on their own, and begin to suckle effectively.

This sequence is helpful to the mother as well, because the massage of the breast and suckling induce a large oxytocin surge into her bloodstream, which helps contract the uterus, expelling the placenta and closing off many blood vessels in the uterus, thus reducing bleeding. The stimulation and suckling also helps in the manufacture of prolactin, and the suckling enhances the closeness and new bond between mother and baby. Mother and baby appear to be carefully adapted for these first moments together.

To allow this first intimate encounter, the injection of vitamin K, application of eye ointment, washing, and any measuring of the infant’s weight, height, and head circumference may be delayed for at least 1 hour. More than 90% of all
full-term infants are normal at birth. In a few minutes, they can be easily evaluated to ensure that they are healthy.

The odor of the nipple appears to guide a newborn to the breast. If the right breast is washed with soap and water, the infant will crawl to the left breast, and vice versa. If both breasts are washed, the infant will go to the breast that has been rubbed with the amniotic fluid of the mother. The special attraction of the newborn to the odor of his mother’s amniotic fluid may reflect the time in utero when, as a fetus, he swallowed the liquid. Although it is not breast milk, amniotic fluid probably contains a substance that is similar to a secretion of the breast. Amniotic fluid on the infant’s hands probably explains part of the interest in sucking the hands and fingers seen in the photographs. Early hand-sucking behavior is markedly reduced when the infant is bathed before the crawl. With all these innate programs, it almost seems as if the infant comes into life carrying a small computer chip with these instructions.

At a moment such as childbirth, we come full circle to our biological origins. Many separate abilities enable a baby to do this. Stepping reflexes help the newborn push against his mother’s abdomen to propel him toward the breast. Pressure of the infant’s feet on the abdomen may also help in the expulsion of the placenta and in reducing uterine bleeding. The ability to move his hand in a reaching motion enables the baby to find the nipple. Taste, smell, and vision all help the newborn detect and find the breast. Muscular strength in the neck, shoulders, and arms helps newborns to hold their heads and do small push-ups to inch forward and to side. This whole scenario may take place in a matter of minutes; it usually occurs within 30 to 60 minutes, but it is within the capacity of the newborn. It appears that young humans, like other baby mammals, know how to find their mother’s breast.

When the mother and infant are resting skin to skin and gazing eye to eye, they begin to learn about each other on many different levels. For the mother, the first minutes and hours after birth are a time when she is uniquely open emotionally to respond to her baby and to begin the new relationship.

A Sensitive Period?

Many studies have focused on whether additional time for close contact of the mother and infant alters the quality of attachment. These studies have addressed the question of whether there is a sensitive period for parent–infant contact in the first minutes, hours, and days of life that may alter the parents’ later behavior with their infant. In many biological disciplines, these moments have been called sensitive periods. However, in most of the examples of a sensitive period in biology, the observations are made on the young of the species rather than on the adult. Evidence for a sensitive period comes from the following series of studies. Note that in each study, increasing mother–infant time together or increased suckling improves caretaking by the mother.

In six of nine randomized trials of only early contact with suckling (during the first hour of life), both the number of women breastfeeding and the length of their lactation were significantly increased for early contact mothers compared with women in the control group.

In addition, studies of Brazelton and others have shown that if nurses spend as little as 10 minutes helping mothers discover some of their newborn infant’s abilities, such as turning to the mother’s voice and following the mother’s face, and assisting mothers with suggestions about ways to quiet their infants, the mothers become more appropriately interactive with their infants face-to-face and during feedings at 3 and 4 months of age.
O'Connor et al. carried out a randomized trial with 277 mothers in a hospital that had a high incidence of parenting disorders.45 One group of mothers had their infants with them for 6 additional hours on the first and second day, but no early contact. The routine care group began to see their babies at the same age but only for 20-minute feedings every 4 hours, which was the custom throughout the United States at that time. In follow-up studies, 10 children in the routine care group experienced parenting disorders, including child abuse, failure to thrive, abandonment, and neglect during the first 17 months of life compared with two children in the experimental group who had 12 additional hours of mother–infant contact. A similar study in North Carolina that included 202 mothers during the first year of life did not find a statistically significant difference in the frequency of parenting disorders13; 10 infants failed to thrive or were neglected or abused in the control group compared with seven in the group that had extended contact. When the results of these two studies are combined in a metaanalysis (p = 0.054), it appears that simple techniques, such as adding additional early time for each mother and infant to be together and continuous rooming-in, may lead to a significant reduction in child abuse. A much larger study is necessary to confirm and validate these relatively small studies.

Swedish researchers have shown that the normal infant,36 when dried and placed nude on the mother's chest and then covered with a blanket, will maintain his or her body temperature as well as when elaborate, high-tech heating devices that usually separate the mother and baby are used. The same researchers found that when the infants are skin to skin with their mothers for the first 90 minutes after birth, they cry hardly at all compared with infants who were dried, wrapped in a towel, and placed in a bassinet. It is likely that each of these features—the crawling ability of the infant, the decreased crying when close to the mother, and the warming capabilities of the mother's chest—are adaptive features that have evolved to help preserve the infant's life.

When the infant suckles from the breast, it stimulates the production of oxytocin in both the mother's and the infant's brains, and oxytocin in turn stimulates the vagal motor nucleus, releasing 19 different gastrointestinal hormones, including insulin, cholecystokinin, and gastrin. Five of the 19 hormones stimulate growth of the baby's and mother's intestinal villi and increase the surface area and the absorption of calories with each feeding.46 Stimuli for this release are touch on the mother's nipple and the inside of the infant's mouth. The increased gut motility with each suckling may help remove meconium, with its large load of bilirubin.

These research findings may explain some of the underlying physiologic and behavioral processes and provide additional support for the importance of 2 of the 10 caregiving procedures that the United Nations International Children's Emergency Fund is promoting as part of its Baby Friendly Initiative to increase breastfeeding: (1) early mother–infant contact, with an opportunity for the baby to suckle in the first hour; and (2) mother–infant rooming-in throughout the hospital stay.

Following the introduction of the Baby Friendly Initiative in maternity units in several countries throughout the world, an unexpected observation was made. In Thailand,47 in a hospital where a disturbing number of babies are abandoned by their mothers, the use of rooming-in and early contact with suckling significantly reduced the frequency of abandonment from 33 in 10,000 births to 1 in 10,000 births a year. Similar observations have been made in Russia, the Philippines, and Costa Rica, where early contact and rooming-in were also introduced.

These reports are additional evidence that the first hours and days of life are a sensitive period for the human mother. This may be due in part to the special interest that mothers have shortly after birth in hoping that their infant will look at them and to the infant's ability to interact in the first hour of life during the prolonged period of the quiet alert state. There is a beautiful interlocking at this early time of the mother's interest in the infant's eyes and the baby's ability to interact and to look eye to eye.

A possible key to understanding what is happening physiologically in these first minutes and hours comes from investigators who noted that if the lips of the infant touch the mother's nipple in the first hour of life, a mother will decide to keep her baby 100 minutes longer in her room every day during her hospital stay than another mother who does not have contact until later.48 This may be partly explained by the small secretions of oxytocin (the "love hormone") that occur in both the infant's and mother's brains when breastfeeding occurs. In sheep,49 dilatation of the cervical os during birth releases oxytocin within the brain, which, acting on receptor sites, is important for the initiation of maternal behavior and for the facilitation of bonding between mother and baby. In humans, there is a blood–brain barrier for oxytocin, and only small amounts reach the brain via the bloodstream. However, multiple oxytocin receptors in the brain are supplied by de novo oxytocin synthesis in the brain. Increased levels of brain oxytocin result in slight sleepiness, euphoria, increased pain threshold, and feelings of increased love for the infant.

Measurements of plasma oxytocin levels in healthy women who had their babies skin to skin on their chests immediately after birth reveal significant elevations compared with the prepregnancy levels and a return to prepregnancy levels at 60 minutes. For most women, a significant and spontaneous peak concentration was recorded about 15 minutes after delivery, with expulsion of the placenta.50 Most mothers had several peaks of oxytocin up to 1 hour after delivery. The vigorous oxytocin release after delivery and with breastfeeding may not only help contract uterine muscle to prevent bleeding but also enhance bonding of the mother to her infant. These findings may explain an observation made in France in the 19th century when many poor mothers were giving up their babies. Nurses recorded that mothers who breastfed for at least 8 days rarely abandoned their infants. We hypothesize that a cascade of interactions between the mother and baby...
occurs during this early period, locking them together and ensuring further development of attachment. The remarkable change in maternal behavior with just the touch of the infant’s lips on the mother’s nipple, the effects of additional time for mother–infant contact, and the reduction in abandonment with early contact, suckling, and rooming-in, as well as the elevated maternal oxytocin levels shortly after birth in conjunction with known sensory, physiologic, immunologic, and behavioral mechanisms all contribute to the attachment of the parent to the infant.

**EARLY AND EXTENDED CONTACT FOR PARENTS AND THEIR INFANT**

Although debate continues on the interpretation and significance of some of the research studies regarding the effects of early and extended contact for mothers and fathers on bonding with their infants, both sides agree that all parents should be offered such contact time with their infants. A Cochrane Review looked at 30 studies involving 1925 participants (mother–infant dyads) and concluded that early skin-to-skin contact for mothers and their healthy newborns reduced crying, improved mother–baby interaction, kept the baby warmer, and women breastfeed successfully.51

Evidence suggests that many of these early interactions also take place between the father and his newborn child. Parke has demonstrated that when fathers are given the opportunity to be alone with their newborns, they spend almost exactly the same amount of time as mothers in holding, touching, and looking at them.

How strongly should physicians and nurses emphasize the importance of parent–infant contact in the first hour and extended visiting for the rest of the hospital stay? Despite a lack of early contact experienced by many parents in hospital births in the past, almost all these parents became bonded to their babies. The human is highly adaptable, and there are many fail-safe routes to attachment. Parents who miss the bonding experience can be assured that their future relationship with their infant can still develop as usual. Mothers who miss out on early and extended contact are often those at the limits of adaptability and who may benefit the most—the poor, the single, the unsupported, and the teenage mothers.

At least 60 minutes of early contact in privacy should be provided, if possible, for parents and their infant to enhance the bonding experience. If the health of the mother or infant makes this impossible, then discussion, support, and reassurance should help the parents appreciate that they can become as completely attached to their infant as if they had the usual bonding experience. If modifications are needed based on medical need, the medical team should do what they can to keep the mother and baby together while maintaining safety for both the infant and mother. The baby should remain with the mother as long as desired throughout the hospital stay so that the mother and the baby can get to know each other. This permits both mother and father more time to learn about their baby and to gradually develop a strong tie in the first weeks of life.

From these many findings are the following recommendations for changing the perinatal period for mother and for the healthy, term infant:

- Every mother should ideally have continuous physical and emotional support during the entire labor by a knowledgeable, caring woman (e.g., doula, obstetric nurse, or midwife) in addition to her partner.
- Childbirth educators and obstetric caregivers should discuss with every pregnant woman the advantages of an unmedicated labor to avoid interference with the infant’s ability to interact, self-attach, and successfully breastfeed.
- Immediately after birth and a thorough drying, an infant who has good Apgar scores and appears normal should be offered to the mother for skin-to-skin contact, with warmth provided by her body and a light blanket covering the baby. The baby should not be removed for a bath, footprinting, or administration of vitamin K or eye medication until after the first hour. The baby thus can be allowed to decide when to begin his first feeding.
- The central nursery should be used infrequently. All babies should room-in with their mothers throughout the short hospital course unless this is prevented by illness of mother or infant. If rooming is not possible due to medical needs, efforts should be made for mother–infant interactions as much as possible.
- Early and continuous mother–infant contact appears to decrease the incidence of abandonment and increase the length and success of breastfeeding. All mothers should begin breastfeeding in the first hour, nurse frequently, and be encouraged to breastfeed for at least the first 2 weeks of life, even if they plan to return to work. Early, frequent breastfeeding has many advantages, including earlier removal of bilirubin from the gut as well as aiding in mother–infant attachment.

**EDITORIAL COMMENT:** While bonding is certainly important for multiple reasons, infant safety is equally important. New mothers are often sleep deprived, recovering from delivery and/or surgery, and possibly on a number of medications that may have a sedative effect. There have been a number of reported cases of newborns with apnea or cardiorespiratory failure related to inadvertent suffocation or entrapment. The risk of these events, referred to as sudden unexpected postnatal collapse, may be decreased with appropriate hospital skin-to-skin and safe sleep policies.

**THE SICK OR PREMATURE INFANT**

Parents of infants requiring neonatal intensive care often experience high levels of stress, and as a consequence, this impairs their abilities to interact optimally with their infants. For many parents, this may be the first time they have had to cope with a significant challenge in their lives. This may lead to depression, impaired recall, dysfunctional parenting patterns, and poorer child developmental outcomes.53–56 The
Family-centered care demands a change from task-oriented, healthcare provider–centered care to a collaborative, relationship-based model of family advocacy and empowerment. Family-centered care is a philosophy often strived for in the NICU, but current practice and policies can often lag behind philosophy. NICU staff verbalize acceptance of families being involved in care, but their actions do not always reflect their words. Studies show a discrepancy between nurses’ knowledge about the necessity of and their current practice of family-centered care. Current practice of family-centered care scored significantly lower than scores representing necessity: NICU staff do not consistently practice what they know to be necessary. Organizational barriers to implementation include: (1) the design of the healthcare system; (2) the lack of emotional support, guidance, and direction for the staff; (3) the lack of recognition, confidence, and support for nursing autonomy and skills to perform family-centered care; and (4) beliefs that dealing with families is stressful, interferes with care of the infant, and is “not part of my job.”

Fenwick’s research reports that mothers perceive their relationship with NICU nurses as either facilitating or inhibiting their ability to mother their infants in the NICU. Actions that facilitate mothering are family centered or family integrated. Facilitative nursing actions include fostering the relationship between mother and infant by: (1) assisting mothers to gain intimate knowledge and caregiving opportunities, (2) educating parents about their infants’ medical condition, (3) providing ongoing positive feedback to parents, (4) acknowledging the importance of the dyadic mother–infant and father–infant relationship, (5) honoring the mother as the infant’s primary caregiver, (6) enhancing mother–infant interaction opportunities, and (7) collaborating with parents and relinquishing control to parents, particularly at the bedside.

The parents are very sensitive to the staff’s attitude toward the infant, as reflected by their comments and the manner in which the staff handle the infant. If the infant is regarded with respect and treated as important, the parent is given the feeling that the infant is seen as valued and worthwhile. This is especially important for parents of an infant with a congenital anomaly; the parents could wonder if their infant is viewed as “damaged goods” by society. In describing the infant to the parent, staff present a balanced picture of both the normal and abnormal aspects of the infant. In discussing the infant with the parents, staff should refer to the infant by name, if they have named the infant; this helps personalize the infant and establish the infant’s unique identity.

**EDITORIAL COMMENT:** The neonatal intensive care unit, of course, is part of a much larger social system. In this regard, the United States has the shortest length of maternity leave, 12 weeks, compared to other countries. Sweden takes the prize for the longest maternity leave, at 420 days, with 80% of wages paid!
To reinforce the caregiving needs of parents, discuss with them their plans to feed their infant. Support and encouragement should be given whether the parents have decided on breastfeeding or bottle-feeding. In most situations, breastfeeding an infant even in the NICU is possible. Many mothers can pump their breasts for milk that eventually will be given to the infant. The breastfeeding or pumping experience helps the mother feel close to her infant and helps her feel that she has some control over what is happening to her infant; she can uniquely contribute to her infant’s care in a way no one else can. Fathers, too, can participate in this activity by their support and interest in the actual breastfeeding or the pumping and milk collection activities. Many mothers can pump and eventually put the infant to breast, but others cannot because of emotional stresses, the condition of the infant, and the length of time until the infant can feed. Regardless of eventual success, the mother should be encouraged to try if she has an interest; then she can feel that she made an attempt to relate to her infant in this way. If a mother does not plan to breastfeed or pump or if she tries but does not continue, she should not be made to feel guilty or that she failed in her role. She is already vulnerable to these feelings.

After the delivery, when the mother is taken to her room without a healthy infant, she usually experiences a void. The interventions of the staff should be flexible and sensitive to the individual needs of the family. Empathy, responsiveness, and an ability to listen to the parents are important at this time.

Encouraging parents to verbalize and express their feelings and concerns (at their own pace), although difficult to do at times, is useful to the parents. Listening is as important to parents as giving them information. In talking to parents, bear in mind that the parents do not remember much of what has been said; it is very difficult for them to assimilate all that has happened, both cognitively and emotionally.

Some parents are very sad, depressed, and tearful, and others may be highly anxious, at times bordering on panic states; others react by having a flat affect, withdrawing, and appearing apathetic. Some parents may exhibit very angry, hostile, confrontational behavior as a way of dealing with their distress. Others may deny the situation by optimistically feeling that “everything will be OK.”

Parents need permission to have their feelings. It is essential to acknowledge to parents that it is normal to be afraid of attaching to an infant who is ill. Giving permission diminishes the guilt that the parents may feel about their behavior being abnormal or about being bad parents because they are afraid. Simple statements such as “Many parents tell us they are afraid of getting close to their baby.” Social workers can provide valuable emotional support to families in helping them deal with their realistic and unrealistic concerns.

Prior studies have demonstrated that when parents experience less stress, they are more able to form early attachments to their sick infants. Mothers with greater stress have less positive attitudes and interactions with their infants than those with less stress. This lack of parenting confidence has been associated with lower levels of child competence and poorer child developmental outcomes. Conversely, multiple studies have shown that positive attitudes and parental confidence are associated with secure infant attachments that lead to increased child competence and better developmental outcomes. Studies have found an alarmingly high rate of psychologic pathology and traumatic stress in parents of infants in the NICU. Lefkowitz et al. had 86 mothers and 41 fathers complete measures of acute stress disorder (ASD) and found that 3 to 5 days after the infant’s NICU admission, 35% of mothers and 24% of fathers met diagnostic criteria for ASD. Additionally, 30 days later, 15% of mothers and 8% of fathers actually met diagnostic criteria for posttraumatic stress disorder. In some units, a psychiatrist is available to regularly meet with parents who wish to speak with him/her; this is an extremely helpful and necessary program. Sensitivity training for patients aimed at recognizing signs of infant stress is associated with improved cerebral white matter development in preterm infants. Thus it is not surprising that supportive interventions can decrease parental stress while infants are in the NICU and thereby promote better mother-infant attachment and improved infant developmental outcomes.

**COMMUNICATING MEDICAL INFORMATION**

Most of the foundational work of family-centered care rests on effective communication. It is well established that specific healthcare provider and patient/parent communication behaviors are associated with improved patient health status, recall, treatment adherence, and satisfaction. The role of the healthcare professionals in communicating medical information is important. Parents need a realistic assessment of the situation that is honest and direct. Acknowledge the infant’s condition and possible problems, but not necessarily every potential problem that can arise.

The principles of family-centered, family-integrated neonatal care clearly promote family participation in every aspect of their infant’s care. Professional attitudes that may interfere with open, honest communication include: (1) assuming that parents are too emotional to assimilate information and make a rational decision, (2) assuming that information about complications and poor outcomes may disrupt attachment to the neonate, (3) assuming that parental guilt and psychologic harm will ensue from decision-making (despite research to the contrary), and (4) cultural and language differences.

Many parents desire and can handle complete, specific, honest, detailed, unbiased, and meaningful information—the same facts and interpretation of those facts as the staff—delivered in a humane and respectful manner. Parents have expressed “remarkably uniform and unambiguous requests … to receive early, honest, and detailed information in a comprehensible and sympathetic manner and to be together when given bad news.”

Individuals vary in their desire to be informed and involved in decision-making. Individuals also vary in the manner in which they assimilate information. Some parents may want extensive information about their situation, whereas others may not. However, physicians have an ethical
and legal obligation to give parents the facts from which to make an informed shared decision about their neonate’s condition, illnesses, outcomes, and the risks and benefits of various interventions.

Poor understanding by parents may be the result of poor communication techniques, contradictory messages, poor parental health, inexperience with medical terminology, denial, language barriers, inability to ask questions, or lack of opportunity to review the information. In one study, parents claimed that a neonatologist had never spoken to them, but, in fact, the conversation did occur and had been recorded. In this study, parents were given a tape recording of their initial conversation with the neonatologist and any subsequent conversations of importance. The audiocassette proved useful: 96% of the mothers and 68% of the fathers listened to the tape again an average of 2.5 and 1.8 times, respectively. Fifty-five percent of parents who listened to the tape had forgotten elements of the conversation, and two mothers did not recall that the conversation had ever occurred.

Research has documented that postpartum women and parents in stressful situations have transient deficits in cognitive function, particularly in attention and memory function. Because verbal communication may be poorly remembered, augmentation with written instructions is recommended. Again, some parents may want and need this type of information, whereas others may not. All communication needs to be culturally and linguistically appropriate.

There are several other guidelines in communicating medical information to parents. As discussed, parents’ perceptions of their infant’s condition are extremely important, remain in parents’ minds, and can affect their relationship with the infant. Parents easily misperceive information given to them. Therefore in beginning any discussion with parents, it is essential to determine and address their perceptions. A staff member might say, “Could you tell me what you understand about your baby’s condition?” Starting this way will give the physician or nurse the opportunity to correct any misinformation or misconceptions and to hear about the parents’ concerns. The perceived morbidity of the baby is a source of stress for both mothers and fathers. Parents’ perceptions of the severity of their infant’s illness are complex, change over time, and are affected by parental anxiety, infant size, amount and type of equipment and treatments, and amount and type of information received from healthcare providers. A team member might specifically ask about the parents’ concerns or worries: “Could you tell me what concerns you have about your baby?” Asking this can make communication between the neonatal healthcare team and parents more meaningful and helpful; unless the team deals with the parents’ anxiety, discussions become one-sided lectures and benefit only the professional. Discussions should be a dialog between parent and professional.

During the course of a discussion and again at the end, it is useful to determine parents’ interpretations of what has been said and modify and clarify as needed. It is more productive to move at a pace that allows the parent to assimilate the information presented. It is important to use simple language that is understandable. For some parents, the use of statistics is helpful; for others, it is not. Statistics can be confusing because they do not apply to the individual case and can be misinterpreted easily. Finally, if a referring physician and the nursery team are both communicating with the parents, it is essential to coordinate the particular approach. It is very confusing to parents and decreases their trust level if they receive conflicting information.

The principles of family-centered neonatal care also advocate full and free access to lay and medical literature pertaining to the neonate’s condition, proposed treatments, and probable outcomes. Medical literature, articles, books, and videos should be available in the NICU or in the hospital library for the parents’ use. Access to the internet has proven to be a source of medical information (some accurate, some inaccurate) for families, as well as professionals. When recommending the internet as a resource, professionals should make parents aware of its benefits as well as shortcomings.

Providing culturally sensitive care in a growing multicultural and diverse society is essential and needs to be a constant pursuit in providing perinatal health care to families who have an infant in the NICU. It is important for the healthcare team to understand the values, beliefs, customs, and behaviors of the particular group(s) they serve. Culture influences beliefs about what causes illness and how that illness should be treated. The perinatal healthcare team needs to address cultural, linguistic, and spiritual competencies to provide family-centered care.

If a language or educational barrier is encountered, a qualified interpreter who is bilingual and ideally bicultural should be utilized. This is especially important in obtaining informed consent. A child or children should not be used as interpreters because they may have inadequate language skills and may be embarrassed by the topics being discussed. Often information that is translated, even by a certified translator, is not understood by families if they are not literate. However, illiteracy does not mean the family is not intelligent. Many parents can comprehend complex information if explained in a relevant manner.

Pictures can augment what is being explained. Providing a list of common medical terms and educational materials in the native language of the parents is another useful tool. At times, despite numerous discussions about the infant’s medical condition, the family may appear unable to comprehend what they have been told. Consider that even if the healthcare provider and family share the same language, the words may have different meanings depending on core cultural beliefs and values and the families’ previous experiences.

Becoming culturally competent healthcare providers is an ongoing developmental process. One should be aware of the dimensions and complexities in caring for individuals from diverse cultural backgrounds. It is important to understand the family’s core cultural dynamics, the meaning of the infant’s illness, and the social context within which these life events are occurring.
INTERVENTIONS FOR FAMILIES OF PREMATURE INFANTS: FAMILY-CENTERED CARE IN THE NICU

Providing the optimal hospital environment for a critically ill newborn clearly involves a great deal of care and consideration for the needs of the family as well. Modern NICU design and planning ideally incorporate features such as healing art, family/social spaces, and respite areas for staff. One randomized, controlled trial in Stockholm found that allowing parents to stay in the NICU reduced the total length of hospital stay by 5.3 days. Every facility, no matter what level of resources, can take steps to improve the environment for infants and their families by developing a unit vision and philosophy that promote the principles of family-centered care. Multidisciplinary groups have created tools and lists of potentially better practices for family-centered care.

Some practices that may be considered for implementing family-centered, family-integrated care include the following:

- The unit vision and philosophy should clearly articulate the principles of family-centered care.
- Leaders at the center and the unit level should clearly promote the principles of family-centered care.
- Parents are not “visitors.” Rather, parents should be treated as essential components of the care team. Policies should be revised to reflect this view. “Visiting policies” should be revised to address nonparent family members and friends, whereas policies related to parents should be more appropriately addressed as participants in care.
- Neonatal care is multidisciplinary and based on mutual respect among providers for their roles and expertise. Parents are integral to care and should be encouraged to participate in patient care rounds, communication with personnel at the change of shifts, and in the bedside care of their infant. Parents should have access to information in their infant’s medical record, and many units have initiated parent documentation into the record.
- The physical environment should provide for the needs of parents. Parents’ needs for accessing information, rest, nutrition, privacy, childcare for siblings, and support for their infants by breast milk pumping are often inadequately addressed.
- Nursery staff should receive the support they need to provide optimal family-centered care. This support includes an environment that allows staff a time to rest to meet their own needs and ongoing education and resources to support family-centered care.
- Families should be incorporated at various levels as advisors. The perspective of experienced families should be integral to the unit administrative activities. These could include parents as teachers during orientation and continuing education of staff, and parent advisory committees to collaborate in planning of new policies or space and ongoing quality improvement activities.

EDITORIAL COMMENT: Family-centered care has benefits for everyone involved. Unfortunately, there has been an increase in violence and disruption from a very small subset of families in hospitals as well. This includes the neonatal intensive care unit (NICU). There are a number of measures NICU leadership can implement to encourage a safe work environment, including early recognition that a problem may be developing. Additionally, the Occupational Safety and Health Administration (OSHA) has developed a number of strategies to reduce the risk of injury and harm, available at www.osha.gov.

Transporting the Mother to be Near her Small Infant

With the development of high-risk perinatal centers, an increasing number of mothers are transported to the maternity division of hospitals with a neonatal intensive care nursery just before delivery or shortly after. If there is not sufficient time to arrange for her transport before she gives birth, it is strongly recommended that the mother be moved as soon as possible.

Supporting the Relationship With the Infant

The establishment of a relationship with their infant and initiating their caregiving role is most important. Ideally, parents have been involved as partners and caretakers since their infant was admitted to the NICU. Several formalized intervention programs have been developed and tested for efficacy in assisting parents of NICU infants in relating to and parenting their vulnerable infants. An early educational-behavioral intervention program for NICU parents (Creating Opportunities for Parent Empowerment [COPE]) was developed and tested in a randomized controlled trial with 260 families. Mothers in the COPE program had significantly less stress in the NICU, more positive interactions with their infants, and less depression and anxiety at 2 months corrected infant age when compared with the control mothers. Other study outcomes included: (1) stronger parental beliefs about their role, (2) parents more able to read their infant’s cues and behaviors, and (3) shorter length of both NICU and hospital stays when compared with the control group. Another randomized study of an early intervention program found that parents who participated had a reduction in parenting stress after birth of their infant. The March of Dimes initiative to encourage family-centered care (NICU Family Support Program) has been studied at eight sites by interviewing parents, NICU staff, and administrators. Findings include: (1) culture change within the NICU resulting in increased family support; (2) enhanced overall quality of NICU care; (3) less stressed, more informed, and confident parents; and (4) increased receptivity of staff to the concept of family-centered care and its benefits. Involvement in caregiving lessens the parents’ feelings of helplessness and frustration and facilitates their identification with their role as parents.
Parents can provide skincare for their infant, learn to read and respond to infant cues, help turn the infant even if a respirator is attached, diaper the infant, and feed the infant. If the parents are separated by distance, they can send family pictures that can be posted at the infant’s bed; periodic pictures of the infant taken by the staff can be sent back to the family. Parents can send clothing, mobiles, simple toys, and even recordings so that the infant can hear the parents’ voices. Some mothers who are pumping send frozen breast milk. All of these reminders help the nursery staff be aware of the real family that is genuinely interested. These personal attempts made by parents that help them feel they are important to their infant’s development should be encouraged. Sometimes foster grandparents or volunteers can hold, feed, and talk to infants whose parents cannot visit frequently. Many units are implementing family-integrated care or intensive parenting units, involving the family in all aspects of care.90

Kangaroo Care

Allowing a mother to hold the infant skin to skin for prolonged periods in the hospital is known as kangaroo care, and it has salutary effects (Fig. 7.3). Several trials have noted that if the usual precautions are taken, such as hand washing, there is no increase in the infection rate or problems in oxygenation, apnea, or temperature control. A significant medical benefit appears to be a significant increase in the mother’s milk supply and success at nursing.91,92 A randomized controlled trial in Madagascar also found a significantly increased proportion of exclusive breastfeeding at 6 months of age had earlier initiated continuous kangaroo mother care.93 Several studies noted that the mother’s own confidence in her caretaking improved along with an eagerness for discharge, and many women reported feeling an increased closeness to the infant compared with a control group of mothers. At the first skin-to-skin experience, the mother is usually tense, so it is best for the nurse to stay with her to answer questions and make any necessary adjustments in position and ensure that warmth is maintained. A few mothers find that one such experience is enough. However, most mothers find repeated kangaroo care experiences especially pleasurable. Paternal attachment is also facilitated by fathers holding their infants and engaging in skin-to-skin contact.6 A study by Sullivan94 indicates that the earlier fathers hold their babies, the sooner they report feelings of love and warmth. The infant may become a reality to the father when he can hold his infant.5

Parent Support

A number of NICUs have formed groups of parents of premature infants who meet once each week or more often for 1- to 2-hour discussions. Documented clinical reports from these centers suggest that parents find support and considerable relief in being able to talk with each other and to express and compare their inner feelings.

Minde et al.95 in a controlled study of a self-help group, reported that parents who participated in the group visited their infants in the hospital significantly more often than did parents in the control group. The self-help parents also touched, talked, and looked at their infants more in the en face position and rated themselves as more competent than the control group in infant care measures. The mothers in the group continued to show more involvement with their babies during feedings and were more concerned about their general development 3 months after their discharge from the nursery.

The use of “graduate parents,” parents who have had an infant in the NICU and who have successfully dealt with and resolved the crisis of the birth of their infant, can be extremely valuable.6,10 They provide support to parents by sharing common feelings, reactions, and experiences about having a hospitalized infant. Graduate parents can provide support and practical assistance for mothers interested in breastfeeding, parents who take their infant home on oxygen, or parents whose infant requires special medical care such as a gastrostomy, colostomy, or gavage feedings. Organized graduate parent groups in large tertiary settings have become a very popular means of providing support, but locating one parent or couple to talk with parents in a small community can be just as helpful. Parent classes and internet resources also can be offered on a variety of topics such as breastfeeding, infant development, sibling and family reactions, discharge, cardiopulmonary resuscitation, coping with the hospitalization, and special medical needs. These classes provide specific, didactic information combined with group discussions that are mutually supportive in nature. Social workers, nurses, and other related healthcare professionals (e.g., respiratory, occupational, and physical therapists) facilitate the group; graduate parents also participate as a resource.

Fig. 7.3 Small immature infant (on ventilator) skin to skin with his mother.
Recently, telemedicine technologies have been used in the NICU to enhance medical, informational, and emotional support for families during and after hospitalization. A telemedicine program incorporates video conferencing and internet technologies to enhance interactions among families, NICU staff, and community healthcare providers. The video conferencing module enables distance learning by the family in their home during the NICU stay and remote monitoring after discharge. A survey found that families using this technology were more satisfied with the unit's physical environment and visitation policy, possibly because of the ability to facilitate visitation via teleconferencing when family members could not be present in the NICU.96

Support for Siblings
The inclusion of other children in the events surrounding the birth of a sick newborn is important. From a sibling's viewpoint, the anticipated birth of a new infant is a stressful time of noticeable physical and psychologic changes within the family. In preparation for the impending birth, the child is told that the mother will be going to the hospital for a few days and will return with a baby brother or sister. With the birth of a premature or sick infant, the mother may go to the hospital unexpectedly, stay a long time, and not return home with the anticipated playmate. Instead of a celebration of the expected happy event, parents are facing the current crisis of their sick infant.

Parents are often unsure about what to tell the other children and whether the children should see the infant. The siblings themselves may feel left out, rejected, or worried that they, too, may get sick. They may be disappointed and angry that they did not get the "playmate" they had wanted. Because parents are unsure about how to manage these issues, it is often helpful for the staff to introduce the topic. Most children's hospitals employ child life specialists who can consult with parents regarding siblings. Child life specialists have extensive knowledge of child development and expertise in talking with children, often using a child's own play in the process of providing support.

Infection control is the responsibility of parents and professionals. Parents must be educated about the dangers of infection and instructed on how to screen their children before entering the nursery. With vigilance, no increased bacterial colonization and no increased incidence of infection occur with sibling visits.97 Because sibling visitation may be beneficial, each NICU must evaluate the center's situation and consider instituting a sibling visitation policy.

Staff and parent response to sibling visitation has been positive in hospitals in which the policy has been implemented. Such a policy may facilitate family integrity and promote mutual support during the stressful time of hospitalization. Another advantage of visitation is that the older siblings do not endure repeated separations caused by parental visits to the hospital but are included as important and special family members. The presence of siblings in a nursery can be a rewarding experience for family and staff alike and perhaps is the ideal example of providing safe yet comprehensive family-centered care.

Preparation for Home
Rooming-in for the Parent of a Premature Infant
When Tafari and Ross in Ethiopia permitted mothers to live within their crowded premature unit 24 hours each day,98 they were able to care for three times as many infants in their premature nursery, and at the end of 1 year, the number of surviving infants had increased 500%. Mother–infant pairs were discharged when the infants weighed an average of 1.7 kg, and most infants were breastfed. Before this, most of the infants had gone home and were bottle-fed, and usually died of intercurrent respiratory and gastrointestinal infections. When the cost of prepared milk amounts to a high proportion of the parents’ weekly income, policies in support of the mother rooming-in and breastfeeding in premature nurseries have a direct impact on infant mortality. In several other countries throughout the world, including Argentina, Brazil, Estonia, and South Africa, mothers of premature infants live in a room adjoining the premature nursery, or they room in. This arrangement appears to have multiple benefits. It allows the mother to continue producing milk, permits her to take on the care of the infant more easily, greatly reduces the caregiving time required of the staff for these infants, and allows a group of mothers of premature infants to talk over their situation and gain from discussion and mutual support.

Torres,99 in a special care unit in the slums of Santiago, Chile, achieved excellent low perinatal mortality and morbidity rates by placing special care units for low-birth-weight infants in the maternity unit, thus maintaining babies under professional observation for only as long as necessary. Technological improvements and the resulting ability to continuously monitor sick premature infants even from a distance has allowed single-room NICUs to become a reality, and parents are encouraged to room-in with their babies in the NICU.

Nesting
In the United States, James and Wheeler first described the successful introduction of a care-by-parent unit to provide a homelike caretaking experience.100 Parents of premature infants received nursing support before discharge.

For several years, “nesting” has been studied—namely, permitting mothers to live in with their infants before discharge. When babies reached 1.72 to 2.11 kg, each mother was given a private room with her baby where she provided all caregiving. Impressive changes in the behavior of these women were observed clinically. Even though the mothers had fed and cared for their infants in the intensive care nursery on many occasions before living-in, eight of the first nine mothers did not sleep during the first 24 hours so they could learn more about their infant's behavior. However, in the second 24-hour period, the mothers’ confidence and caretaking...
skills improved greatly. At this time, mothers began to discuss the proposed early discharge of their infants and, often for the first time, began to make preparations at home for their arrival. Several mothers insisted on taking their babies home earlier than planned.

Early discharge, preceded by a period of isolation of the mother and infant together, may help normalize mothering behavior in the intensive care nursery. Encouraging the increasing possibilities for mother–infant interaction and total caretaking may reduce the incidence of mothering disorders among mothers of small or sick premature infants.

Parents must feel a sense of competency in relating to and caring for their infant. Discharge is an anxiety-provoking event and ushers in the “crisis” of homing, which parents must face and master. To achieve a positive parent–child relationship after the hospitalization, provision of appropriate follow-up support through the home adjustment period is crucial.

The perinatal healthcare team can employ many interventions to assist parents with discharge. In the hospital, adequate teaching of caregiving skills that enable the parent to develop a sense of mastery and competence is important. Parent education regarding the care and needs of their baby is a learning process that begins at admission and continues throughout the inpatient stay. In addition to tasks of care, parents should participate in planning and providing developmentally appropriate care and be able to read and respond to their infant’s cues. If parents do not feel comfortable with their infant, their anxiety can cause adverse interactions. Teaching caregiving skills often can be facilitated in an environment that is less intense and crisis oriented than the NICU. Whenever possible, an infant should be transferred to a setting that is more conducive to the parents’ initiation of the primary caregiving role, such as a special care or transitional nursery.

Adequate discharge planning and follow-up arrangements should include general pediatric care, home health care, nurse home visitors, referral for early intervention services if indicated, and parenting classes, especially for young or psychologically high-risk parents.

**Practical Hints for Parents of Sick or Premature Infants**

- The obstetrician of a high-risk mother should consult the pediatrician early and continue to involve him or her in decisions and plans for the management of the mother and baby.
- If the baby must be moved to a hospital with an intensive care unit, it is always helpful to give the mother a chance to see and touch her infant, even if the baby has respiratory distress and is requiring respiratory support. The team should stop in the mother’s room with the transport incubator and encourage her to touch her baby and look at her at close hand. A positive comment about the baby’s strength and healthy features may be long remembered and appreciated.
- The father should be encouraged to come to the NICU as soon as possible so he can see what is happening with his baby. He uses his own transportation so that he can stay in the premature unit for 3 to 4 hours. This extra time allows him to get to know the nurses and physicians in the unit, to find out how the infant is being treated, and to talk with the physicians about what they expect will happen with the baby in the succeeding days. He can help by acting as a link between the NICU and his family by carrying information back to the mother. He should visit the baby in the NICU before visiting the mother so that he can let her know how the baby is doing. Taking pictures, even if the infant is on a respirator, allows him to show and describe to the baby’s mother in detail how the baby is being cared for. Mothers often tell us how valuable the picture is in allowing them to maintain some contact with the infant, even while physically separated. If an institution has telemedicine or video conference technologies, including the mother remotely in these first visits promotes family-integrated care and helps the mother during the time of separation.
- Transporting both the mother and baby to the medical center that contains the intensive care nursery should be encouraged when possible for their immediate and long-term benefits.
- The intensive care nursery should be open for parental visiting 24 hours each day and should be flexible about visits from others such as grandparents, supportive relatives, and sometimes siblings. If proper precautions are taken, infection transmission will not be a problem.
- Communication is essential. The healthcare workers should communicate with the mother about her condition and about the baby’s condition. This is important before, during, and after the birth of the baby, even if the information is brief and incomplete. Clinically, there may be devastating and lasting untoward effects on the mothering capacity of women who have been frightened by a physician’s pessimistic outlook about the chance of survival and normal development of an infant. For example, when the newborn premature baby is doing well, but the mother is told by a physician that there is a likelihood that the baby may not survive, the mother will often show evidence of mourning (as if the baby were already dead) and reluctance to “become attached” to her baby. Such mothers may refuse to visit or will show great hesitation about any physical contact. When discussing such a situation with the physician who has spoken pessimistically with the mother, it is important to share all concerns with her so that she will be prepared in case of a bad outcome. This may be acceptable once there is a close and firm bond between the mother and infant (which may only occur after an infant has been home for several months). However, while the ties of affection are still fragile and forming, they can be easily inhibited, altered, or possibly permanently damaged. Physicians should be truthful because parents will quickly sense their true feelings, but statements must be based on the facts of the current situation, not on improbable outcomes that are causing concern for the physician. The physician should be forthright about all the medical conditions and express appropriate concern related to...
these problems. Describe what the infant looks like to the medical team and how the infant will appear physically to the mother. Rather than talk about chances of survival and giving percentages, stress that most babies survive despite early and often worrisome problems. Do not emphasize problems that may occur in the future. Try to anticipate common developments (e.g., the need for phototherapy for jaundice in small premature infants).

- It is useful to talk with the mother and father together. When this is not possible, it is often wise to talk with one parent on the telephone in the presence of the other. Discuss how the child is doing with the parents; talk with them more frequently if the child is critically ill. It is essential to find out what the mother believes is going to happen or what she has read about the problem. Move at her pace during any discussion.

**EDITORIAL COMMENT:** Although most families want and appreciate frequent communication, it should be recognized that they can vary considerably in their communication preferences. I’ve had multiple families actually request that I not call them every day, especially as they become “feeders and growers”—they prefer to speak with the nurses daily and the medical team when they come in for rounds. Asking families directly how they would like to handle communication can avoid misunderstandings.

- The physician should not relieve his/her anxiety by burdening the family with unnecessary concerns. For example, if there is a possibility that the child has Turner syndrome, it is not necessary to share this with the parents while the infant is still acutely ill with other problems and while affectional bonds are still weak. If the physician is worried about a slightly elevated bilirubin level that would respond promptly to phototherapy, it is not necessary to dwell on kernicterus. Once mentioned, the possibility of death or brain damage can never be completely erased. Remember, words are like a sword, and families remember forever the remarks of their caregivers. Remember, too, nonverbal communication is also important, and the demeanor of the caregivers will affect the response to information. It is important for the family to understand that they are the most important person on their baby’s healthcare team. Communication is the key to providing parents with the information to have shared decision-making with the medical team. Eliciting the parents’ concerns and leading them in a discussion of treatment options can help facilitate shared decision-making.

- Before the mother comes to the neonatal unit, the nurse or physician should describe in detail what the baby and the equipment will look like. When she makes her first visit, it is important to anticipate that she may become distressed when she looks at her infant. Have a chair nearby so that she can sit down, and a nurse can describe in detail the procedures being carried out, such as the monitoring of respiration and heart rate. The nurse should answer questions and give support given during the difficult period when the mother first sees her infant.

- It is important to remember that feelings of love for the baby are often elicited through contact. Therefore, if possible, try to turn off the lights and remove the eye patches from an infant under phototherapy lights so that the mother and infant can see each other.

- When the immature infant has passed the acute phase, both the father and the mother should be encouraged to touch, massage, and interact with their infant. This helps the parents get to know the baby, reduces the number of breathing pauses (if this is a problem), increases weight gain, and hastens the infant’s discharge from the unit. Initially, if the infant is acutely ill, touching and fondling sometimes result in a decrease in the level of blood oxygen; therefore parents should begin this contact when the infant is stable and the nurse or physician agrees that the infant is ready. Firm massage of preterm infants 15 minutes three times a day results in markedly improved growth, less stress behavior, improved performance on the Brazelton Neonatal Behavioral Assessment scale, and better performance on a developmental assessment at 8 months.¹⁰¹

- The mother and father can receive feedback from their baby in response to their caregiving. If the infant looks at their eyes, moves in response to them, quiet down, or shows any behavior in response to their efforts, the parents’ feelings of attachment are encouraged. Practically speaking, this means that the mother must catch the baby’s glance and be able to note that some maneuver on her part, such as picking up the baby or making soothing sounds, actually triggers a response or quiets the baby. Suggest to parents therefore that they think in terms of trying to send a message to the baby and of picking one up from them in return. Small premature infants do see and are especially interested in patterned objects, and can hear, and evidence suggests they will benefit greatly from receiving messages.

- Continue to study interventions such as rooming-in, nestling, and early discharge as well as transporting a healthy premature infant to be with his mother. It is necessary to test these various interventions in different hospital settings and to evaluate their ability to reduce the severe anxiety that many parents experience during the prolonged hospitalization and the early days following discharge.

- Nurses should support and encourage mothers during these early days and weeks.¹ The nurse’s guidance in helping a mother with simple caregiving tasks can be extremely valuable in helping her overcome anxiety. In this sense, the nurse assumes a role similar to the mother’s own mother and contributes much more than teaching her basic techniques of caregiving. Involving families early in the care of their infants has multiple benefits. Integrating family into care of their infants helps them identify their maternal and paternal roles, promotes attachment, decreases stress, and increases success at home. Family-integrated care and parenting units shift the model of care for neonatal units allows more effective partnership with families.
To begin an intervention with parents early, it is necessary to identify high-risk parents who are having special difficulties in adapting. Generally, these parents visit rarely and for short periods, appear frightened, and do not usually engage the medical staff in any questioning about the infant’s problems. Sometimes the parents are hostile or irritable and show inappropriately low levels of anxiety, many times as a defense mechanism.

As further understanding of the process by which normal mothers and infants interact with each other during the first months and year of life is developed, it appears that some recommendations for stimulation may be detrimental to normal development. Rather than suggesting stimulation, it may be important for a mother naturally and unconsciously to use imitation to learn about and get to know her own infant.

**CONGENITAL MALFORMATIONS**

The birth of an infant with a congenital malformation presents complex challenges to the physician who will care for the affected child and his family. Although previous investigators agree that the child’s birth often precipitates major family stress, relatively few have described the process of family adaptation during the infant’s first year of life. Solnit and Stark’s conceptualization of parental reactions emphasized that a significant aspect of adaptation is the mourning that parents must undergo for the loss of the normal child they had expected. Observers have also noted pathologic aspects of family reactions, including the chronic sorrow that envelops the family of a child with differences. Less attention has been given to the more adaptive aspects of parental attachment to children with malformations.

Parental reactions to the birth of a child with a congenital malformation appear to follow a predictable course. For most parents, initial shock, disbelief, and a period of intense emotional upset (including sadness, anger, and anxiety) are followed by a period of gradual adaptation, which is marked by a lessening of intense anxiety and emotional reaction (Fig. 7.4). This adaptation is characterized by an increased satisfaction with and ability to care for the baby. These stages in parental reactions are similar to those reported in other crises, such as those that occur with terminally ill children. The shock, disbelief, and denial reported by many parents seem to be an understandable attempt to escape the traumatic news of the baby’s malformation, news so different than their expectations that it is impossible to register except gradually.

The intense emotional turmoil described by parents who have a child with a congenital malformation corresponds to a period of crisis (defined as “upset in a state of equilibrium caused by a hazardous event that creates a threat, a loss, or a challenge for the individual”). A crisis includes a period of impact, an increase in tension associated with stress, and finally a return to equilibrium. During such crisis periods, a person is at least temporarily unable to respond with his or her usual problem-solving activities to solve the crisis. Roskies notes a similar “birth crisis” in her observations of mothers of children with limb defects caused by thalidomide.

With the birth of a child with a malformation, the mother must mourn the loss of her expected infant. In addition, she must become attached to her actual living child. However, the sequence of parental reactions to the birth of a baby with a malformation differs from that following the death of a child in another respect. Because of the complex issues raised by the continuation of the child’s life and hence the demands of his physical care, the parents’ sadness, which is initially important in their relationship with the child, diminishes in most instances when they take over the physical care. Most parents reach a point at which they are able to care adequately for their child and to cope effectively with disrupting feelings of sadness and anger. The mother’s initiation of the relationship with her child is a major step in the reduction of anxiety and emotional upset associated with the trauma of the birth. As with all children, the parents’ initial experience with their infant seems to release positive feelings that aid the mother-child relationship following the stresses associated with the news of the child’s anomaly. Lampe et al. noted a significantly greater amount of visiting if an infant with an abnormality had been at home for a short while before surgery for a cleft lip repair.

**Practical Suggestions for Parents of Infants With Differences**

- If medically feasible, it is far better to leave the infant with the mother and father for the first 2 to 3 days or to discharge them. If the child is rushed to the hospital where special surgery will eventually be done, the mother and father will not have enough opportunity to become attached to her. Even if immediate surgery is necessary, as in the case of bowel obstruction, it is best to bring the baby to the mother first, allowing her to touch and handle her, and to point out to her how normal her baby is in all other respects.
• The parents’ mental picture of the anomaly may often be far more alarming than the actual problem. Any delay greatly heightens their anxiety and causes their imaginations to run wild. Therefore it is helpful to bring the baby to both parents when they are together as soon after delivery as possible.

• Parents who are adapting reasonably well often ask many questions and indeed at times appear to be almost over-involved in clinical care. There is more concern about the parents who ask few questions and who appear stunned or overwhelmed by the problem. Parents who become involved in trying to find out what procedures are best and who ask many questions about care often adapt best in the end.

• It’s best to move at the parents’ pace. It is beneficial to be a good listener and ask the parents how they view their infant and to express their concerns, which can then be addressed.

• Each parent may move through the process of shock, denial, anger, guilt, and adaptation at a different pace. If the parents are unable to talk with each other about the baby, their own relationship may be disrupted. Use the process of early crisis intervention and meet several times with the parents. During these discussions, ask the mother how she is doing, how she feels the father is doing, and how he feels about the infant. Then reverse the questions and ask the father how he is doing and how he thinks the mother is progressing. Many times a parent is surprised by the responses of his or her partner. The hope is that the parents not only will think about their own reactions, but also will begin to consider each other’s. For further discussion on this subject, see Case 7.2.

• One of the major goals of postpartum discussions is to keep the family together during this early period and in subsequent years. This is best done by working hard to bring out issues early and by encouraging the parents to talk about their difficult thoughts and feelings as they arise. It is best for them to share their problems with each other. Some couples who do not seem to be close previously may move closer together as they work through the process of adaptation. As with any painful experience, the parents may be much stronger after they have gone through these reactions together. It is helpful when the father stays with his partner during the hospitalization. Sometimes the stresses of having a sick baby will ultimately disrupt the relationship of the parents.

STILLBIRTH OR DEATH OF A NEWBORN

Despite the advances in obstetrical and neonatal care, many mothers encounter a great disappointment with an early miscarriage or the perinatal loss of an infant. A mourning reaction in both parents after the death of a newborn is universal. Whether the baby lives 1 hour or 2 weeks, whether the baby is a nonviable 400 g or weighs 4000 g, whether the baby was planned, and whether or not the mother has had physical contact with her baby, clearly identifiable mourning will be present. Mothers and fathers who have lost a newborn show the same mourning reactions as those reported by Lindemann, who studied survivors of the Coconut Grove fire. Lindemann concludes that normal grief is a definite syndrome. It includes the following aspects:

• somatic distress with tightness of the throat, choking, shortness of breath, need for sighing, and an empty feeling in the abdomen; lack of muscular power; and an intense subjective distress described as tension or mental pain;

• preoccupation with the image of the deceased infant;

• feelings of guilt and preoccupation with one’s negligence or minor omissions;

• feelings of hostility toward others; and/or

• breakdown of normal patterns of conduct.

Originally it was believed that loss of an infant was similar to the loss of a close relative; however, based on clinical studies and observations, it fits far more closely with the concepts proposed by Furman and Lewis. Furman eloquently notes these reactions:

• Internally, the mourning process consists of two roughly opposing mechanisms. One is the generally known process of detachment, by which each memory that ties the family to the person who is deceased has to become painfully revived and painfully loosened. This is the part of the process that involves anger, guilt, pain, and sadness. The second process is commonly called “identification.” It is the means by which the deceased or parts of him are taken into the self and preserved as part of the self, thereby soothing the pain of loss. In many instances, a surviving marriage partner takes over hobbies and interests of the deceased spouse. These identifications soothe the way and make the pain of detachment balanced and bearable.

• For the surviving parents, the death of a newborn is special in several ways. Because mourning is mourning of a separate person, the process can apply only to that small part of the relationship to the newborn that was characterized by the love of a separate person, but there has not been time to build up strong ties and memories of mutual living. It is also not possible for parents—adults functioning in the adult world—to take into themselves any part of a helpless newborn and make it adaptively a part of themselves; the mechanism of identification does not work. But what about the part of the newborn that was still part of the self and that cannot be mourned? To understand this part, one has to look at the different process by which individuals cope with a loss of a part of the self (e.g., amputation or loss of function). Insofar as the newborn remains a part of the parent’s self, the death has to be dealt with as would the amputation of a limb or the loss of function of the parent’s body. Detachment is the mechanism with which the victim deals with such tragedies, but it...
Because of the usual reactions to the loss of a child and the length of time these last. It is desirable to meet a second time with both parents before discharge to go over the same suggestions, which may not have been heard or may have been misunderstood under the emotional shock of the baby's death. The pediatrician or social worker should plan to meet with the parents together again 3 or 4 months after the death to check on the parents' activities and on how the mourning process is proceeding. The autopsy findings may be discussed and any further questions asked by the parents may be addressed. At this visit, the pediatrician or social worker should be alert for abnormal grief reactions, which, if present, may guide the physician to refer the parents for psychiatric assistance. It is important that these recommendations do not become an exact prescription for every parent. As noted by Leon, "Such protocols can lead to a regimented assembly line approach—which impedes attempts to attune to parents individually and empathetically—the very essence of providing support."

For further discussion on this subject, see Case 7.4. Cullberg's report about severe psychiatric reactions following stillbirth or neonatal death in Swedish mothers was published in 1966 when the field of neonatology was in its infancy. Following other reports about parents' turbulent and prolonged mourning reactions, changes in the care of bereaved families were introduced. In a systematic study of 380 women following a stillbirth, Rädestad observed that mothers of stillborn infants had a diminished risk of symptoms 3 years after the death if there was a short time between diagnosis of death and initiation of the delivery, if the mother was allowed to meet and say farewell to her child as long as she wished, and if there was a collection of tokens of remembrance (hand or footprints, lock of hair, and photograph). They noted that mothers living alone may have special needs for support.

Katherine Shear and Harry Shair have written about the concept of "complicated grief," which may occur with ineffective coping after the death of a loved one. They note as follows:

Bereavement is a highly disruptive experience that is usually followed by a painful but time-limited period of acute grief. An unfortunate minority of individuals experience prolonged and impairing complicated grief, an identifiable syndrome that differs from usual grief, major depression, and other DSM-IV diagnostic entities. Underlying processes guiding symptoms are not well understood for either usual or complicated grief. We propose a provisional model of bereavement, guided by Myron Hofer's question: "What exactly is lost when a loved one dies?" We integrate insights about biobehavioral regulation from Hofer's animal studies of infant separation, research on adult human attachment, and new ideas from bereavement research. In this model, death
of an attachment figure produces a state of traumatic loss and symptoms of acute grief. These symptoms usually resolve following revision of the internalized representation of the deceased to incorporate the reality of the death. Failure to accomplish this integration results in the syndrome of complicated grief.\textsuperscript{112}

The clinical relevance of this subject can best be appreciated by the following case examples and the questions they raise. The words chosen in any discussion depend on the needs and problems of individual patients at that moment. Answers are not given as a specific formula, but to show the reader one possible approach to the parents.

### CASE 7.1

Mrs. W had a normal pregnancy until 24 weeks’ gestation, when she unexpectedly went into labor and delivered a 1 lb, 5 oz (600 g) female infant in a community hospital. The baby cried promptly, but then respiratory distress developed, requiring ventilator care, arterial catheterization, intubation, surfactant administration, and transfer to a tertiary level NICU at the medical center.

The following questions should be answered when caring for this mother, father, and infant.

**What is the ideal method of communicating with both parents?**

The best method of communicating with both parents is to have them sit down with you in a quiet, private room. You will be most effective if you can listen to the parents, let them express their worries and feelings, and then give simple, realistic explanations.

**How should advice be given when discussing the situation with the parents? What should they be told about their infant and her chances for survival?**

When first discussing the situation with the parents, advice should be given promptly and kept simple. As soon as possible after the birth, the mother and father can be told that the baby is small but well formed. It can be comforting to mention something positive about their baby or something their infant can do. When it is clear that the baby has respiratory distress, you can explain to the parents that the baby has a common problem of premature infants (“breathing difficulty”) caused by the complex adjustments she must make from life in utero to life outside. This is called respiratory distress syndrome (RDS). In addition, it should be stated that because this condition is common, the neonatologists at the tertiary NICU in a medical center know best how to treat it, and their results with infants who are this weight can be good.

**What should the mother and father be told about the ventilator?**

Some of the parents’ anxiety can be relieved by pointing out that the ventilator is augmenting the baby’s breathing; that is, the baby is still able to breathe, but this is helping. Explaining that the baby is not able to cry audibly when an endotracheal tube is present relieves another common concern.

**Can the parents see the baby before transfer?**

Yes, you can explain that the mother, father, and siblings will be given time and an opportunity to see and touch the baby in the transport incubator with a nurse or neonatologist present to monitor and support the baby, siblings, and parents. Pictures of the baby will be obtained before the transfer.

**Is it wise to discuss breastfeeding and the value of breast milk for a baby that will be transferred?**

Yes, emphasizing the importance of pumping milk right away will increase the odds that Mrs. W will be able to provide breast milk for her baby. Discussing breastfeeding at this time when the parents are extremely anxious about their baby exposes the parents to the reality that their baby will be an essential part of the treatment for her daughter, not only for her nutrition, but also to decrease the risk of infection and to improve the baby’s brain development. It will also enhance the mother’s bonding with her daughter, particularly when Mrs. W begins to directly breastfeed her daughter and repeatedly experiences the let-down reflex.

**What other arrangements should be made before the baby is transferred?**

Communication with both the referring and receiving centers and the obstetrician is necessary. Most obstetricians want to know when a baby is transferred. They can help the family by arranging for the early discharge of the mother, when medically appropriate, so she can go to her baby in the medical center. Sometimes mother and baby can both be transferred.

Baby Girl W is transported to the neonatal intensive care unit (NICU) at the medical center. She receives surfactant and gradually begins to wean off the ventilator. After 4 hours, the ventilator settings have decreased to FiO\textsubscript{2} 27%, peak inspiratory pressure 22 mm Hg, positive end-expiratory pressure 5 mm Hg, and pulse rate 25. An arterial blood gas reveals pH 7.33, PaCO\textsubscript{2} 41 mm Hg, and PaO\textsubscript{2} 62 mm Hg. When the mother and father arrive, the neonatologist meets with them.

The physician asks, “Would you please tell me what the doctors at the community hospital told you and what you understand about your daughter’s condition?” Their answer can guide the discussion. The physician explains that the baby tolerated the transfer well and that they are beginning to decrease ventilator or breathing machine support. She agrees with the diagnosis of RDS and comments that “RDS often runs a course of increasing symptoms for a day or two and then the breathing gradually becomes easier. With RDS there is stress on the whole baby, so as the lungs improve, other organs, such as the...
CASE 7.1—cont’d

intestines, may show problems. Distention or fullness of the abdomen may develop, and it may be necessary to progress slowly with feedings. Throughout the first few days, routine blood tests, ultrasound, X-rays, and other studies may be obtained repeatedly to be certain that the diagnosis and treatment are correct and to check that no other problem such as infection has developed. The overall outlook for your daughter is good."

The physician says that she will be giving their daughter routine care for a premature infant. She says, “When I have had time to complete more tests and observations, if there is any change in what I have told you, I will call you. I will keep you posted on the baby’s progress. I would like you to call at other times if you have questions. I am pleased that you both came in together. In the next days, if one of you is here and I have something new to report, I will plan to talk to one of you on the telephone while the other is in the office with me. I would like you to come to the nursery as often as you can. You are the most important person on her care team. We round every morning as a medical team; you are welcomed and invited to participate in rounds. I want you to become well acquainted with your daughter and her care. Your milk will be a very important part of her treatment, and you may find your milk flows more abundantly when you are with your baby, particularly when you are skin to skin in kangaroo care.”

Can the nurses help the mother adapt to the premature infant?
The nurses can aid the mother in adapting to the premature infant by standing with her and explaining the equipment being used for the baby, by welcoming the mother by name and with personalized comments at each visit and encouraging her to come back soon, by carefully considering the mother’s concerns and feelings, by explaining to her that the baby will benefit from her visits, and by showing her how she assume more of the baby’s care and do the mothering better than the nurses. Together, they may identify events such as loud noises and bright lights that appear to be stressful to the baby, as well as environmental changes that appear to relax her. Then they can plan modifications in positioning, feeding, and times for medications as well as environmental adjustments to increase the amount of time when the baby appears to be free of stress.

What are the normal processes that a mother goes through when she delivers a premature infant, and how can the physicians and nurses assist her?
The premature delivery often occurs before a mother is thoroughly ready to accept the idea that she is going to have an infant. Such a mother is faced with a baby who is thin, small, and very different from the ideal full-sized baby she has been picturing in her mind. She may have to grieve the loss of this anticipated ideal baby as she adjusts to the reality of the premature baby with all her problems and special needs.

All of the equipment and activities of a premature nursery are new and may be frightening to a mother. The tubes, the flashing lights, the alarms, and other instruments used in a premature nursery are disturbing. If the functions of these items are explained to the mother, her concerns may decrease. For example, “The two wires on the baby’s chest and the beeping instrument tell us if the baby slows down in her respirations so we can rub her skin to remind her to keep breathing. This is frequently necessary during the first few weeks with a tiny infant.” It may be helpful for the mother and infant to be together as much as possible in the early days. The mother’s guilt and anxiety, and the fear that touching the infant will harm her, sometimes leads her to turn down an offer to visit the infant. No mother should be forced to visit her infant against her wishes; however, it is important for the hospital personnel to reassure her and encourage her visits, but always to move at the mother’s pace. Offering and encouraging kangaroo care and early involvement can promote attachment.

What should the mother be told when she asks, “How is the baby doing?”
It is a common reflex in physicians and nurses to prepare patients for a possible poor outcome and to think in a problem-oriented manner. It is of great importance to provide encouragement to the mother so that mother–infant affectional ties develop as easily as possible, so it is desirable to approach this question in an optimistic but realistic manner. It is wise to start out by asking the mother how she thinks the baby is doing.

When should these parents take the baby home?
At 2 weeks, Baby Girl W developed an episode of suspected sepsis with abdominal distention that responded to nothing-by-mouth and antibiotics. The cultures were negative. At 4 weeks, Baby Girl W weighs 3 lb, 14 oz (1758 g).

The baby has been breastfeeding one or two times a day for the past 4 days and taking breast milk from the bottle. She is gaining weight and has good temperature control without an incubator. There is no infection in the home. Shortly after the baby responded to the sepsis treatment, Mrs. W called to say she was sick with the flu and would not come to the NICU. She called each day for 10 days, and her husband brought in the breast milk she had pumped. In this case, the timing of going home depended on the mother, whose visiting pattern was regular until the last week. At that time, Baby Girl W’s nurse suggested that the mother spend 3 or 4 hours with her baby, give her a bath, and feed her. Mrs. W agreed, enjoyed this, and spent 6 to 8 hours caring for her baby girl over the next 3 days. Both parents take infant CPR and a class on caring for premature babies. Mrs. W has a crib and equipment to care for her daughter at home, and her husband has canceled his out-of-town trips for the next 3 weeks.

Baby Girl W went home in the winter, so the parents were advised to avoid contact with children with colds. Because she has a sibling younger than 5 years of age, Baby Girl W was given the first injection of palivizumab (Synagis) to be followed by two more injections to protect her against respiratory syncytial virus infection.

Continued
CASE 7.2

Mrs. J, a 25-year-old primiparous mother, delivered a full-term infant after a 12-hour uneventful labor. The infant was found to have a cleft lip and palate. The following questions should be answered concerning the care of this infant and mother.

**Should the father be told about this before the mother has returned to her room?**

Every effort should be made to tell the mother and father together about this problem; however, this is such an obvious defect that the father will notice it and the mother will at least sense that something is wrong. If this is the case, the doctor should indicate that there is a concern but that he wants to check the baby over thoroughly and will then tell both parents about the concern and what will be done about it. It is popularly believed that the father is in much better condition to learn about difficulties right after delivery than the mother, but often a woman is better able to accept news about an illness or abnormality in her baby—in an emotional sense—than the father. Any plan to give one bit of news or a different shading about the prognosis to one parent and not the other interferes with the communication between the parents. It is extremely important to support and encourage communication. The infant should be brought to the parents as soon as medically safe. The obstetrician or pediatrician should be made aware the details of the baby’s health status. The appearance of a baby with an uncorrected cleft palate and lip is shocking for anyone who has not seen this before. Allow the parents time to observe, react, and ask questions. The experienced physician, advanced practitioner, or nurse will point out the underlying structures, emphasize that they are normal, and demonstrate how the surgeon will pull the skin edges of the cleft together to cover the exposed underlying tissue. Before and after pictures of surgically repaired infants are helpful and may enable parents to appreciate why the physician has been so optimistic about the baby’s future appearance and normal developmental potential. It is worthwhile to repeat and emphasize the general good health and well-being of the baby.

**Who should tell the mother: the obstetrician, the pediatrician, the nurse, or the father?**

The obstetrician, whom the mother has known for many months, is usually the best person to tell the mother. He or she needs information from a pediatrician about the nature of the concern and the general health of the baby. Even better, the obstetrician and the pediatrician may go together to tell the parents about the medical concern. If the obstetrician can speak briefly and calmly to the mother, then the pediatrician can continue with a brief explanation about the problem. Under most circumstances, neither the nurse nor the father will be in a position to provide enough reassurance to the mother to make this first encounter progress optimally.

**How should the concern be presented to the parents?**

It is desirable, whenever possible, to emphasize to the parents the normal healthy features of the baby. For example, “Mr. and Mrs. Jones, you have a strong 8-pound baby boy who is kicking, screaming, and carrying out all the normal functions of a healthy baby. There is one concern present that fortunately we will be able to correct, so it will not be a continuing problem for your son. As far as I can tell, the baby is completely well otherwise.”

**Should the baby be present?**

Yes. As shocking as a cleft palate and lip may appear to a mother, exposure to the reality of the concern is important and is usually less disturbing than the mother’s imagination. Letting the mother interact, hold, have the infant skin to skin, as with all infants, can promote attachment.

CASE 7.3

At birth, the male infant of a 28-year-old mother was scrawny, with decreased subcutaneous fatty tissue and axillary and gluteal skinfolds. At 35 weeks’ gestational age, the weight was 3 lb, 4.5 oz (1480 g), more than two standard deviations below the mean and 50th percentile for 31 weeks. The length was in the low normal range, and the head circumference was at the second percentile line. The baby breathed and cried promptly. Examination showed no malformations.

**What other causes should be considered?**

The previous record of the mother was not found. When asked about prenatal care, she indicated that she had attended two prenatal visits with an obstetrician at the medical center. She said she had planned to deliver there, but when labor pains started, she had thought it best to go to the nearby community hospital. This was an unusual course of action. Obstetric patients do not often change obstetrician and hospital with onset of labor.

Shortly after delivery, a well-dressed, polite father arrived and immediately inquired which laboratory tests had been sent on his wife and son. The father remained with his wife during all postnatal care, often answering questions for her. Upon seeing his newborn son attached to an IV line, he insisted, “My child is perfectly well, just small and cold. I want both my wife and son discharged today.”

Perplexed by the excessive anxiety of the family, as well as the continued jitteriness of the baby, the neonatologist sent infant urine and stool toxicology screens, which were positive for cocaine. At this point, the father picked up the baby, and with his wife, started to leave. Security personnel were called and stopped the father. He had a gun in his pocket. Emergency custody for the baby was obtained.

**What other concerns should be checked when a baby is positive for cocaine?**

When the mother was examined, there were large bruises on her trunk. When asked in privacy, she said her husband hit her. She agreed to go into treatment for her cocaine addiction. As an adult, she could not be kept in the hospital if she did not wish
CHAPTER 7  Care of the Parents

CASE 7.3—cont’d

Because of this incident, the hospital has installed surveillance cameras. Some hospitals have coded bracelets for the baby’s arms or ankles, or umbilical tags that set off an alarm if a baby is taken. Others have a hospital public address code for a missing baby, e.g., “Baby White or Code Pink.”

CASE 7.4

A 1 lb, 15-oz (880 g) infant of a 29-year-old mother with a 2-year-old and a 4.5-year-old child died suddenly at 26 hours. The pregnancy was planned. The mother had not held or touched her baby.

**What are the processes this mother and father will go through?**

The parents in this situation will go through intense mourning reactions. It will help the parents to see and hold the baby after the death. They may wish to bathe or undress and dress the baby. There should be no restriction on the time with their infant. The mother and father may desire to have a nurse with them or to be alone and may want relatives or friends or the two siblings to see the baby. If the parents can cry together, they themselves can best help each other. Even though the mother did not handle the infant, she and the father will be expected to show strong mourning responses, which will be intense for 1 or 2 months, and under optimal circumstances will be decreased by 6 months. In the United States, where the expression of emotion is not encouraged, the father will often force himself to hold back his emotions to provide “strong support” for the mother. This is actually harmful because a free and easy communication between the parents about their feelings is highly desirable for the resolution of mourning. On the basis of the studies that have been carried out, the stronger the mourning reaction in the early days and weeks, the more favorable the outcome.

**How can the physician help them?**

It is important for the physician to describe the details of the baby’s death to both parents together within a few hours of the death of the baby. At that time, he should explain the type of mourning reaction they will go through. If possible, the physician should again meet with the parents 3 or 4 days later, or after the funeral, to find out how they are managing, to go over the details once more, and to indicate availability for any questions or problems. At the postpartum checkup, the obstetrician should take time to ask how the parents are managing and should evaluate the normality of their mourning and their communication. When there are other children in the family, the pediatrician should inquire about their responses. Parents are in emotional pain and are distracted with their own thoughts after a perinatal loss. It is desirable to have someone else—a grandparent or a friendly neighbor—be attentive to the surviving children and to listen to their questions and concerns. It should be explained (if appropriate) that changes in the appearance or behavior of their parents are because they feel so badly about the death. This “surrogate parent” should reassure the siblings that the baby died because of its premature birth and that nothing they thought or did caused the baby to be sick or to die.

About 3 or 4 months after the death of the baby, the physician should set aside a time to meet with both parents to present and discuss the autopsy results, review the present status of the parents and their children, and go over what has occurred since the death, their understanding of the death, and the normality of their reactions. If the mourning response is pathologic, the physician should then refer the parents for additional assistance. Using these procedures, Forrest et al. noted significantly less depression and anxiety in parents compared with control subjects. Also, they noted that an early pregnancy (<6 months after the loss) was strongly associated with high depression and anxiety scores at 14 months.

This short enumeration of guidelines may incorrectly convey the impression of a mechanical quality to these discussions, which is not at all our intent. Parents appreciate evidence of human concern and reactions in a physician at times such as these, so it is appropriate for physicians to both show the sadness they feel and to “be there” for the parents.

**SUMMARY**

In most instances, the hospital determines the events surrounding birth and death, stripping these two most important events in life of the long-established traditions and support systems established over centuries to help families through these transitions.

Because the newborn baby completely depends on his or her parents for survival and optimal development, it is essential to understand the process of attachment. Although we are only beginning to understand this complex phenomenon, those responsible for the care of mothers and infants would be wise to reevaluate the hospital procedures that interfere with early, sustained parent-infant contact and to consider measures that promote parents’ experiences with their infant, enhance communication, engage families in the care of their infant, and encourage shared decision-making.
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The reference list for this chapter can be found online at www.expertconsult.com.
/REFERENCES

References


References


