

TRANSITION TO HOME FOR THE LATE PRETERM INFANT

Late preterm infants need to demonstrate maturity in breathing, feeding, and temperature control before they can be discharged to home. Similar to term infants, late preterm infants need to have certain evaluations prior to discharge. Late preterm infants also need some additional screenings. During an infant's hospital stay, staff will educate families about having a late preterm infant so that they are prepared to care for their baby at home. Hospital providers will communicate with the infant's pediatric provider about the hospital course to ensure continuity of care. The primary care provider will continue to monitor the infant's developmental progress and guide families as their child grows.

Evaluations Prior to Discharge

Before a baby is discharged from a hospital in the United States, there are several screening evaluations that are performed in all babies. These include a:

1. *Newborn screening*: This is a blood test that all babies have in the first few days of life. This blood is sent to the state laboratory and tested for many different diseases that are not apparent at birth but may be treatable. Each state determines the specific tests that are obtained. Some examples are: congenital hypothyroidism, sickle cell disease, and disorders whereby infants cannot easily break

down fats, carbohydrates, or proteins (known as a *metabolic disorder*). Some states provide families with a brochure that describes the diseases that are tested. A list of newborn screening tests that are performed in each state can be found at:

<http://www.babysfirsttest.org/newborn-screening/states>

The final test results are reported in approximately 2 weeks. For those infants who are still in the hospital, the results are communicated to the hospital staff. If an infant has been discharged from the hospital, the test results will be sent directly to the infant's pediatric provider. When a baby is 2 weeks of age, families can ask their baby's current careprovider (hospital team or pediatric provider) for the results of the newborn screening test.

If a baby is born preterm, sometimes the newborn screen needs to be repeated because the results are not within the normal range. If families of late preterm infants are aware that this may occur, hopefully, they will be less concerned about repeat testing. If an infant has been discharged home and the test needs to be repeated, the family is usually contacted by the infant's pediatric provider and advised to go to a laboratory that will obtain the blood sample. In most cases, repeat test results are normal.

2. Hearing screening: Although most late preterm babies can hear normally, a small number of babies have some degree of hearing loss. Because it is difficult to detect hearing loss

after a baby is born, all newborns in the United States have a hearing screen prior to discharge home. If the hearing screen results suggest that the baby has a possible hearing loss, further tests by an audiologist will need to be done.

Some late preterm infants are at increased risk for hearing loss that develops in the first few years of life. An additional hearing screening may be recommended prior to 1 year of age in specific situations, such as:

- Severe hyperbilirubinemia (bilirubin ≥ 20 mg/dL),
- Birth weight less than 1500 grams (less than 3 pounds 4 ounces), or
- Exposure to specific medications, such as the antibiotic gentamicin or diuretics, for a long period of time.

If parents are at all concerned about their infant's hearing ability, they should contact their baby's pediatric provider.

3. Car seat screening: All infants born < 37 weeks' gestation will also require a car seat screening prior to discharge home (see Car Safety Screening Chapter).

Vaccinations

Because late preterm infants are born early, they do not receive all of the mother's protective antibodies to help fight infections. Thus, it is extremely important that late preterm infants receive immunizations. Vaccinations are administered based on an infant's age of life, rather than gestational age. Thus, an infant born at 35 weeks' gestation should receive the 2 month set of vaccinations at 2 months of age, similar to a term infant who should also receive

these shots at 2 months of age. Infants do not need to reach a certain weight before receiving vaccines. The vaccine dose is the same for preterm and term infants. Studies have shown that late preterm infants have an excellent response to vaccinations and are protected from potential infections similar to full-term infants.

The Hepatitis B vaccine is the first vaccine that infants will receive. This vaccine is typically given in the hospital, before an infant is discharged to home. It is given in an infant's thigh and may cause some local tenderness at the site of the injection.

Preterm infants are eligible to receive the influenza vaccine after 6 months of age. Preterm infants are given the pertussis vaccine at 2, 4 and 6 months of age. Because late preterm infants have an increased risk of getting an influenza or pertussis infection in the first 6 months of age, it is recommended that parents of late preterm infants receive the pertussis vaccine and, during winter months, receive the influenza vaccine. While mothers usually receive these vaccines during pregnancy, fathers will need to contact their primary care provider to get these vaccines.

Circumcision

For families who want to have their male baby circumcised, this procedure will usually be arranged in the hospital. Depending on the hospital approach, either a pediatrician or an obstetrician will perform this procedure. This procedure is performed when an infant is overall healthy and the size of the penis is adequate for tissue removal. In this surgical procedure, a small amount of skin

covering the tip of the penis is removed. After the procedure, the tip of the infant's penis will appear red and shiny.

A gauze may be placed over the penis immediately after the procedure to help with healing; this gauze typically falls off within 12 hours. Infants may be given oral acetaminophen (i.e., Tylenol is one common brand) every 4 hours for the first 24 hours after the procedure to decrease any discomfort. Each time the infant's diaper is changed, parents should apply a large amount of petroleum jelly either directly onto the infant's penis or in the infant's diaper. A white or yellow coating will appear at the site as the penis heals.

It is rare for a baby to have complications from a circumcision. However, there are specific reasons for a parent to contact the infant's pediatric provider. These include:

- Bleeding,
- The area is getting redder over time,
- A bad smell is coming from the penis,
- A green discharge is coming from the area, or
- If the infant has a temperature over 100°F or 37.8°C.

Medications

Some late preterm infants may receive iron and vitamins while in the hospital. These medications are provided in a liquid form. If these medications are started while the baby is in the hospital, hospital care providers will decide whether they need to be continued after the infant is discharged home. If the medications are recommended at home, the infant's nurse will teach families

how to give the medication to their baby at home. Ideally, before discharge, families should obtain these medications from a pharmacy to make sure that they have purchased the correct dosage and type of medication.

Parent Education

First-time parents will be taught how to take an infant's temperature, breast or bottle feed their baby, and bathe their baby. If parents have any questions about how to care for their baby, nurses and doctors are available to discuss their concerns. Hospital staff want parents to feel as comfortable as possible in the care of their baby.

All infant providers (parents, grandparents, nannies) who will be caring for a baby on a regular basis should receive instructions in infant *cardiopulmonary resuscitation* (CPR). Some hospitals offer infant CPR classes for parents of late preterm infants who require observation in the SCN/NICU. If these classes are not available in the hospital, care providers will let families know about local facilities that provide this course.

Hospital providers will remind parents that it is safest for babies to be placed on their backs when sleeping, known as *Back to Sleep*. While an infant's head may turn to the side, the infant's spine should remain flat on the mattress. Sometimes infants are temporarily placed on their stomachs while they are being observed in the SCN/NICU. While this may confuse parents and suggest that this position is safe, it is not. The reason why this position is sometimes allowed in the SCN/NICU is because a cardiorespiratory monitor is continuously assessing the infant's

heart and lung functions. Thus, if the infant has a problem, the monitor will alarm. However, once an infant is discharged from the intensive care unit, a monitor is no longer used and thus, infants **MUST** be positioned on their backs while sleeping.

In addition to Back to Sleep guidelines, there are other recommendations to ensure that a baby remains safe. While sleeping, the head of the infant's bed should be kept flat. All blankets, stuffed animals, toys, positioners, and bumpers should be removed from the infant's sleeping area. When swaddling an infant, the swaddle should be tight and at or below the infant's shoulder level. If parents use a blanket, it should be tucked tightly around the infant at or below the nipple line. Once an infant is able to get out of the swaddle or blanket, neither of these items should be used again. If an infant is placed in a sleeper sack, a blanket is not necessary. Parents should make sure that the infant's outfit, sleeper sack, swaddle or blanket are not above an infant's chin so that the material cannot block the infant's airway.

Although it is important for parents to make sure that infants do not become cold, it is also important that an infant does not become too warm (see Temperature Control Chapter). Parents need to monitor their infant's environment and skin temperature to determine the appropriate amount of clothing for their baby.

Families can also protect their infant by making sure that their baby is not exposed to smoke in the home or around their baby. Children who are exposed to secondhand smoke are at greater risk

for wheezing, coughing, ear infections, bronchitis, pneumonia, and Sudden Infant Death Syndrome (SIDS).

Parent Perspective

Parents of late preterm infants often have mixed emotions when their infant is getting ready for discharge. While parents are often happy that their infant is ready to go home, they may feel anxious. The nurses and doctors in the hospital will try to teach parents about how to care for their baby. It may be helpful for parents to learn to look at their infant (rather than the monitor) when holding or feeding their baby. This will help families recognize that observation is just as helpful as a monitor to assess an infant's color, breathing, and activity level.

Pediatric Care Provider

For those late preterm infants who are observed in the Postpartum Room or in the Nursery, a pediatric care provider will become familiar with the baby's clinical course. If a baby has been observed in the SCN/NICU, the hospital care provider is responsible for communicating the baby's information to the pediatric care provider. This can be accomplished by providing a verbal report to the pediatric practice and/or sending a written summary of the infant's clinical course. This written summary is termed the *discharge summary*. If families are given a copy of this discharge summary, they should place it in their baby's diaper bag or in the glove compartment of the family car. This copy may prove helpful if a doctor unfamiliar with their baby needs to evaluate the baby. This is particularly useful if a baby has had a complex clinical course in the SCN/NICU.

Infants are typically seen by a pediatric care provider within a few days after discharge. This provider may be a pediatrician, family practitioner, nurse practitioner, or physician assistant. During the first pediatric visit, the clinician will review the infant's hospital course and examine the baby. If the baby is a few days old, the care provider will:

- Check the infant's weight,
- Assess the infant's feeding ability,
- Evaluate the infant for signs of dehydration, and
- Check the infant for jaundice.

The pediatric care provider will provide breastfeeding support and may refer the family to a lactation consultant.

After an infant has been discharged from the hospital, the infant's pediatric care provider is now responsible for the infant. Parents should feel comfortable contacting the healthcare provider at any time during the day or night with any concerns. Parents should contact the provider if the baby is:

- Not feeding well,
- Sleeping excessively,
- Appears more jaundiced, or
- Has a temperature over 100°F (>37.8°C) or less than 97.7°F (<36.5°C).

Parents should not provide anti-fever medications for babies less than 3 months with a high temperature until a pediatric care provider has evaluated the baby.

Developmental Progress

Pediatric care providers closely monitor the development of a late preterm infant during the first few years of life. When assessing the developmental progress of a late preterm infant, providers will use a child's corrected gestational age instead of the infant's age after birth. For example, if an infant is born at 36 weeks' gestation, the baby needs 4 additional weeks before reaching the term gestational age of 40 weeks. Thus, when most children are sitting at an average age of 6 months, we expect this baby born at 36 weeks' gestation to be sitting 1 month later, at approximately 7 months of age. This correction for prematurity is significant in the first few years of life. Some families find it helpful to use the infant's due date when assessing developmental milestones.

To help build strength in an infant's arms and neck, late preterm infants can benefit from *tummy time*. In this activity, parents place an awake infant on his/her stomach on a firm surface, placing themselves or a toy in front of the baby. This activity can be done 2 to 3 times each day for a short time (3 to 5 minutes) when both the observer and infant are completely awake and alert. When a baby falls asleep or the observer can no longer watch the baby, it is important to place the baby on his/her back. The amount of tummy time can increase if the baby enjoys the activity. In addition to strengthening muscles, this activity can also help prevent babies from getting a flat area at the back of their head.

Recently, some medical studies have reviewed outcomes in late preterm infants. These studies suggest that late preterm infants may be at slightly increased risk for delays in their development. Thus, it is important that pediatricians monitor a baby's developmental

progress very closely. If a parent or pediatric care provider has any concerns about a baby's development, a referral to an *Early Intervention Program* can be made. This program is determined by each state and helps to assess a baby's development and provide additional support until the child is 3 years old. Specialists in this program can include an occupational therapist, physical therapist, developmental educator, feeding therapist, and speech specialist. Activities that may be recommended are developmental play, strengthening movements, and stretching exercises.

Some medical studies have also found that a small number of late preterm infants may develop learning or behavioral issues. If a parent has any concerns in these areas, they should discuss this with their infant's care provider.

Conclusion

When a late preterm infant demonstrates maturity in feeding, breathing, and temperature control, the baby is ready to be discharged home. Hospital staff will try their best to anticipate an infant's discharge day and help prepare families. Hospital personnel will also communicate with the infant's pediatric care provider to ensure a smooth transition to home. After discharge, pediatric care providers will closely monitor the infant's developmental progress and direct families to additional support, if needed.