

Premature Newborns (Preemies): An Overview

What is a premature newborn (preemie)?

- Premature newborns (preemies) are babies who are born early. A premature newborn is one who is born before 37 weeks of pregnancy; a preemie can be very early (after only 6 months of pregnancy) or older (after 8 months), but both may have problems that result in the need for specialized care.
- Many newborns who are born prematurely will need neonatal intensive care after birth, and some continue to face challenges or health issues throughout childhood.

How common is premature birth?

One in 8 babies (12.7%) was born prematurely (less than 37 weeks' gestation) in 2005. Of live births, 2% were born very preterm (less than 32 weeks).

What are some characteristics of premature newborns?

Some of the most common long-term problems faced by preemies are

- Lungs
 - ~ The lungs of premature newborns are often not ready to function and can suffer damage during necessary treatment. This form of lung disease is called bronchopulmonary dysplasia (BPD). Many very premature babies with BPD will be discharged from the hospital with supplemental oxygen, often to be used for 6 to 12 months.
 - ~ Parents and care providers need to learn how to use oxygen tanks and associated monitors as they provide these newborns with usual life experiences.
 - ~ Long-term treatment of BPD overlaps with asthma treatment. (See Asthma on page 65 for more details.)
- Apnea
 - ~ When a baby stops breathing, it is called apnea. Premature babies can have apnea because the part of the brain responsible for breathing is immature.
 - ~ In most cases, apnea goes away when newborns reach the age when they would have been born (40 weeks after conception). Rarely does this problem continue after hospital discharge, but in selected cases, babies may be sent home on an apnea monitor, which sounds an alarm warning for changes in breathing or heart rate.
 - ~ Sometimes apnea can be related to gastroesophageal reflux, which requires specific treatment. (See Gastroesophageal Reflux Disease [GERD] on page 91 for more details.)
- Central nervous system
 - ~ Some babies may have brain injuries associated with premature birth, including bleeding into the brain, which can lead to hydrocephalus (water on the brain), cerebral palsy, or other developmental disabilities.
 - ~ All premature newborns need close monitoring for developmental problems during infancy and some may need specialized therapies to improve their functional ability. Please see Cerebral Palsy on page 79 and Hydrocephalus and Shunts on page 111 for more information.
- Vision
 - ~ There can be an overgrowth of blood vessels in the back of the eye in premature newborns that can pull on the delicate lining of the eye called the retina. The retina is the part of the eye responsible for vision.
 - ~ Sometimes this condition resolves on its own as the baby grows; sometimes it causes permanent vision loss.
 - ~ Babies may require laser surgery to stabilize the condition. Even those preemies who do not require surgery have an increased need for glasses as they get older.
 - ~ Premature newborns should have regularly scheduled eye examinations throughout infancy and childhood. (See Visual Impairments on page 139 for more details.)



Premature baby

AAP

➤ *continued*

Premature Newborns (Preemies): An Overview, continued

- Hearing
 - ~ Premature newborns face multiple risk factors for hearing loss. Most babies have their hearing tested before they leave the neonatal intensive care unit (NICU), but they may need periodic testing as they get older as well. (See Hearing Loss and Deafness on page 95 for more details.)
- Gastrointestinal
 - ~ Some babies have an intestinal infection in the NICU that can damage the bowel, and sections of bowel may need to be surgically removed. This can leave a baby with short gut syndrome, which makes it hard for the newborn to digest food properly.
 - ~ Babies with short gut may need small, frequent feedings and a special diet.
- Blood
 - ~ Some premature newborns become anemic (low red blood cell count). They may require blood transfusions while in the NICU or may need iron and extra vitamins.
- Nutrition
 - ~ Preemies frequently need special formula or fortified breast milk early on to grow properly.
 - ~ Some babies continue to have growth and feeding challenges that may require occupational, speech, or feeding therapies, and in some cases, use of feeding devices.
- Infection
 - ~ Preemies may be vulnerable to infections in the first year of life. The most serious are usually viral infections such as flu or respiratory syncytial virus (RSV) that attack the lungs.
- Development
 - ~ The development of premature babies can vary.
 - ~ Some preemies catch up quickly and do things like walk and talk at the same time as their peers who were born at term after a full 9 months. Others may lag behind their peers until 2 or 3 years of age.
 - ~ Some preemies have permanent neurologic damage and developmental delays, which are usually apparent early in infancy.
 - ~ Other preemies, without clearly defined neurologic injuries, show more subtle educational and behavioral problems as they get older. Early childhood experiences may lessen the risk of these problems.
 - ~ Preemies may be small for their age and have long, narrow heads from the pressure on the soft skull bones.
 - ~ Some preemies are poor feeders and grow slowly in weight and height.

Who is the treatment team?

- Preemies will often be followed by a special neonatal follow-up team at the hospital where they were in the NICU. Neonatal follow-up teams might include neonatologists, developmental specialists, and neonatal nurse practitioners.
- Speech, occupational, physical, and respiratory therapists might also be involved in the baby's care.
- Social workers are available to help parents cope with family and social issues.
- These teams may monitor preemies for developmental delays or apnea, or might give special medications like those listed under "Medications."
- Preemies might need to see subspecialists such as pediatric ophthalmologists (eye doctors), pulmonologists (lung doctors), neurologists (brain doctors), or gastroenterologists (stomach and intestine doctors).
- Audiologists (hearing specialists) may be needed to monitor hearing over time.

What adaptations may be needed?

Medications

- Premature newborns should receive immunizations on the same schedule as their term peers.
- In addition, they may receive special injections (palivizumab/Synagis) during winter months for their first year to strengthen their immune system's ability to fight off RSV.
- There are no other routine medications given to premature infants, but those with BPD may receive medications for wheezing, diuretics (water pills), and supplemental oxygen.

Dietary considerations

- Give preemies extra time to eat and digest their food if necessary.
- Some preemies may be on special infant formulas or breast milk fortifiers.

Physical environment

- Find out from parents what challenges their child had from being born prematurely and what challenges still exist.
- Check out the Quick Reference Sheets in this book related to the specific problem that the child still faces such as apnea, GERD, cerebral palsy, or visual or hearing impairments.
- Exposure to colds and respiratory illnesses can be a problem for premature babies with lung disease. Preemies without lung disease will likely do better when faced with respiratory infections. With premature newborns with lung

➤ *continued*

Premature Newborns (Preemies): An Overview, continued

disease, the family may want to consider using small group care to limit the child's exposure to respiratory illnesses in the first year of life. When this is not possible, measures such as cohorting a small group of infants with a primary caregiver in a separate space could be considered. Evidence for the effectiveness of these measures is lacking. Avoid secondary smoke exposure for all infants, but particularly for preemies with vulnerable lungs.

- Premature newborns are at increased risk for sudden infant death syndrome (SIDS). Be sure to place babies to sleep on their backs. A preemie may be even more susceptible to SIDS when placed asleep on his tummy than a term baby.
- Remember to adjust developmental expectations to account for the baby's prematurity (eg, a baby born 2 months early should be acting like a 4-month-old when she is 6 months old).
- Let parents/guardians know if the program staff has any concerns about a baby's hearing or vision, especially if the baby was born prematurely.

What should be considered an emergency?

Premature babies often have a complex medical history after a long newborn hospitalization. Assessment during an emergency department visit may be difficult if that background information is not readily available. The program should have a copy of pertinent medical history in the event the child must be taken to the hospital for immediate evaluation.

What types of training or policies are advised?

- Pediatric first aid training that includes CPR (management of a blocked airway and rescue breathing) with instructional demonstration and return demonstration by participants on a manikin. *Pediatric First Aid for Caregivers and Teachers* is a course designed to teach these skills.
- Specific training related to care, especially apnea monitor training.

What are some resources?

- March of Dimes, www.marchofdimes.com
- Linden DW, Paroli ET, Doron MW. *Preemies: The Essential Guide for Parents of Premature Babies*. New York, NY: Pocket Books; 2000
- Emory University School of Medicine Developmental Progress Clinic On-line Resource Center, www.pediatrics.emory.edu/neonatology/dpc

