

Module 3: Breathing Problems and Other Health Complications

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Introduction to Health Issues Among Preemies

There are many health conditions that affect premature babies. Because they came out of the womb earlier, many parts of their body may need help developing outside of the womb in the NICU. Your baby may have already experienced one or more of these conditions. Many of these conditions may affect your baby while he or she is growing older, so it's good to know more about them so you can know what to expect.

This module provides an overview to learn more about the health conditions that your baby may have experienced in the NICU so you can know how to take better care of him or her.



Respiratory Distress Syndrome (RDS)

There are many causes of breathing difficulties in premature babies. One common issue is called respiratory distress syndrome (RDS). The disease is mainly caused by a lack of a slippery substance in the lungs called surfactant. This substance helps the lungs fill with air and keeps the air sacs from deflating. Surfactant is present when the lungs are fully developed. Most cases of RDS occur in babies born before 37 weeks. The less the lungs are developed, the higher the chance of RDS after birth.

For each baby, the time it takes to heal is different. The disease usually gets worse for about 3-4 days. Then, the baby eventually needs less added oxygen. If a baby has a mild form of the disease and has not needed a breathing machine, he or she may be off oxygen in 5-7 days. If a baby has more severe form of the disease there is also improvement after 3-5 days, but the improvement may be slower and the baby may need extra oxygen and/or a ventilator for days to weeks.

Your baby may have long-term problems if the disease has been severe or if there have been complications. It's good to keep things in mind to help you're your baby healthy. Possible problems may include:

- Increased severity of colds or other respiratory infections, especially for the first two years.
- Increased sensitivity to lung irritants such as smoke, pollution.
- Greater likelihood of wheezing or other asthma-like problems in childhood than babies without RDS.
- Greater chance of hospitalization in the first two years of life than babies without RDS.
- If the RDS was severe, the baby may have injury and scarring of the lung called Bronchopulmonary Dysplasia.

To get more details about RDS [click here](#).



What is Chronic Lung Disease/BPD?

Babies who still need oxygen at 4 weeks before their original due date are considered to have bronchopulmonary dysplasia (BPD) — one of the most common chronic lung diseases in infants in the United States. It is quite common in extreme preemies. They tend to outgrow this condition, which varies in severity, as their lungs grow and mature.

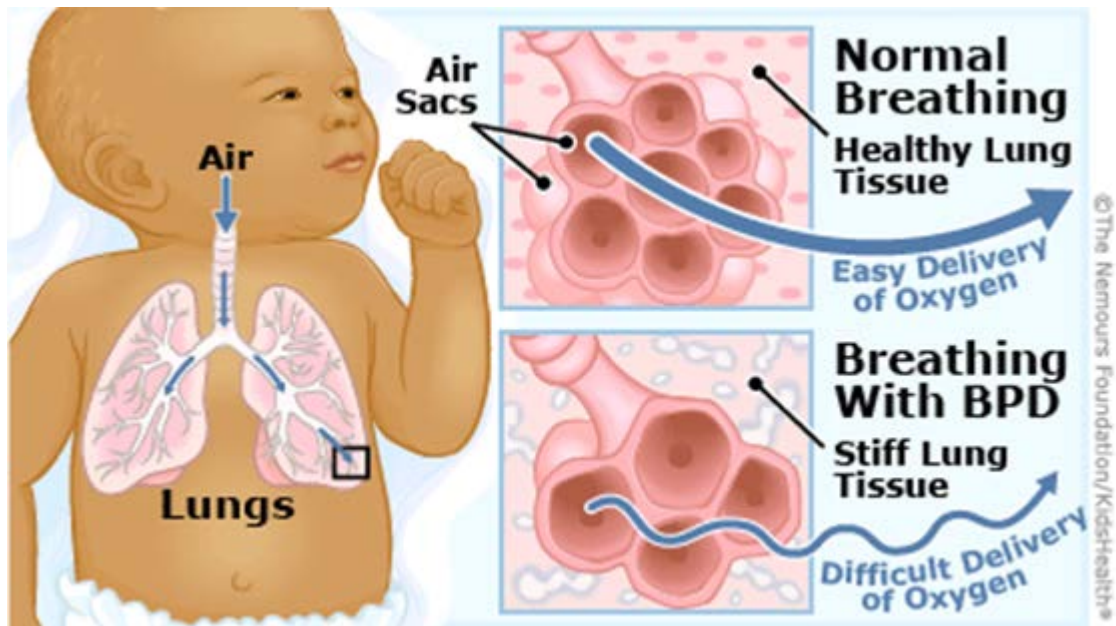
The combination of the premature baby's immature lungs and the treatments (including machines and oxygen) to help the little one breathe can cause damage (or scarring) to the lungs.

Infections and pneumonia can also lead to the condition, so try to take the proper precautions to make sure your baby is not exposed to people or places that are infectious and highly contagious. Milder levels of damage are called chronic lung disease of prematurity (CLD). As babies mature, they grow more lung tissue, which can improve their breathing over time.

Commonly used medicines include diuretics (which make the baby urinate, or pee, and help eliminate excess fluid that can build up in the damaged lungs) and bronchodilators (which relax the muscles that surround the airways and allow them to open up).



What Does BPD Look Like?



BPD Treatment

Babies with BPD also sometimes need ventilators (breathing machines) at home to help them breathe.

Although it's uncommon, in severe cases, the surgical insertion of a breathing tube in the neck (called a tracheostomy) may be required so the baby can go home on a ventilator.

Occasionally, babies need home oxygen therapy for several months. Most children are slowly taken off of supplemental oxygen by the end of their first year, but a few with serious cases may need a ventilator for several years or even their entire lives (although this is rare).



Improvement from BPD

Improvement for any baby with BPD is a slow process. Some babies will improve slowly and over time, and other may not recover at all if their lung disease is very severe.

Lungs continue to grow for 5-7 years, and there can be abnormal lung function even at school age in some cases.

Over time, many babies diagnosed with BPD will recover close to normal lung function. Scarred, stiffened lung tissue will always have poor function. However, as infants with BPD grow, new healthy lung tissue can form and grow, and might eventually take over much of the work of breathing for diseased lung tissue.

Babies who have had BPD are often more vulnerable to respiratory infections such as influenza, respiratory syncytial virus (RSV), and pneumonia. When they come down with an infection, they tend to get sicker than most children do.



Parent's Role in BPD

As a parent of a premature baby, you play a very important role in caring for your baby especially if they have BPD. One important precaution is to reduce your child's exposure to potential respiratory infections. If people are sick, try to keep your baby away from them. If your child needs day care, pick a small center, where there will be less exposure to infections.

Making sure that your child receives all the recommended vaccinations can help protect your baby from problems as well. It is very important to keep your baby away from tobacco smoke or second hand smoke, especially in your home, because it can cause serious breathing problems.

Children with asthma-type symptoms may need bronchodilators to relieve asthma-like attacks. You can give this medication to your child with a nebulizer, which produces a fine spray of medicine that your child then breathes in. Your baby's doctor will give you the necessary tools and tips to help treat your baby's breathing problems.

BPD does not just affect your baby's breathing; it can also affect your baby's growth. Due to breathing problems, your baby may have trouble growing, so you may need to feed your baby a high-calorie formula. Sometimes, babies with BPD who are slower to gain weight will go home from the NICU on gastric tube feedings. Formula feedings may be given alone or as a supplement to breastfeeding.

To learn more about which vaccinations your child needs, visit the [Center for Disease Control](#) which has a list of vaccinations you need to get for your baby as he/she grows.



When to Call the Doctor

When your baby comes home from the hospital, it is still very important that you watch for signs of breathing problems or BPD emergencies (instances in which a child has serious trouble breathing).

Signs that an infant might need immediate care include:

- Faster breathing than normal
- Working much harder than usual to breathe:
 - belly sinking in with breathing
 - pulling in of the skin between the ribs with each breath
- Growing tired or lethargic from working to breathe
- More coughing than usual
- Panting or grunting
- Wheezing
- Problems with feeding like refusing to feed or tiring quickly while feeding
- Pale, dusky, or blue skin color that may start around the lips or nail beds
- Trouble feeding or excess spitting up or vomiting of feedings

If you notice any of these symptoms in your child, call your doctor or seek emergency medical attention right away.



Respiratory Syncytial Virus (RSV)

One of the viruses to be aware of during this time is called RSV, or respiratory syncytial virus. It usually pops up between November and April and is at its worst from January to February.

RSV is so common, that almost everyone has been infected by it by the time they are two years old. Even though most of us has had RSV, we can still get it again and again.

For older kids and adults, RSV usually shows up as your typical cough, runny nose, sore throat and even pink eye. We especially have to worry about how it may affect our little ones.

It is the most common cause of infection of the lungs and airways in the chest in babies less than a year of age and results in up to 120,000 hospital stays each year.

Besides young age, other factors that make it more likely to get a “chest infection” include:

- Prematurity (born before 37 weeks gestation)
- Congenital heart disease
- Exposure to secondhand smoke
- Asthma
- Chronic lung disease (BPD or bronchopulmonary dysplasia)
- Babies younger than 6 months of age, especially if they are in daycare



Tips to Staying Well During RSV Season

- Hand washing, hand washing and more hand washing. This may be the single most important thing that we can do to stop spreading all these germs.
- Find Out about Synagis® and How It Works There is a type of injection that is given monthly for the prevention of RSV in infants who qualify. If your infant was born prematurely or has chronic lung disease (BPD) or congenital heart disease, talk with your doctor to see if this medicine is right for you.
- Build a Protective Cocoon if possible, for all our little ones who fall into the risk factors above, limit exposure to child care centers.
- Quit Smoking Avoid exposure to second hand smoke.



Respiratory Health

- Pay attention to air quality outside. If you can, avoid taking your preemie out on days with poor air quality, especially when pollen is high. Pollen is a common allergen that triggers respiratory issues in many preemies. Avoiding it isn't easy, but will help when possible.
- Have a plan in place so you know what to do if a breathing issue arises. Talk with your child's pulmonologist or pediatrician about signs to watch for. Knowing what your child's "normal breathing" looks like, can help you identify abnormal breathing. Being able to spot faster than usual breathing or breathing that is shallower than usual are important in identifying a concern before it becomes an emergency. Know what you can treat at home and when you need the doctor or emergency room.



Promoting Respiratory Health

- Be sure medications are taken as prescribed. It is extremely important to understand your baby's medication, so make sure you talk to your baby's doctor to get all the information you need. Get as much information as possible and make an informed decision together about what is best for your baby.
- Wash hands frequently, yours and theirs. Using sanitizer and washing hands regularly is one of the best defenses in maintaining respiratory health.
- Change the air filters in your home regularly. Maintaining good air quality at home is a very effective way to avoid airborne triggers of respiratory issues.

Apnea and Bradycardia

After they're born, babies must breathe continuously to get oxygen. Because your baby was born premature, the part of the central nervous system (brain and spinal cord) that controls breathing is not yet developed enough to allow nonstop breathing. This causes large bursts of breath followed by periods of shallow breathing or stopped breathing.

The medical term for this is apnea of prematurity, or AOP. Apnea of prematurity is fairly common in preemies. Doctors usually diagnose the condition before the mother and baby are discharged from the hospital.

Bradycardia is an abnormal slowing of the heart rate. Bradycardia often arises from other problems like low oxygen levels in the blood or apnea.

Unless they are a side effect of another illness, apnea and bradycardia often get better around your baby's original due date. If your baby is ready to go home before that date, mild apnea and bradycardia may need to be managed before discharge.

Treatment and management of your baby's health depends on what your baby's doctors believe is best.

If your baby goes home with a monitor, your baby's doctor will show you how to use the monitor and how to administer infant CPR in case of an emergency.



Necrotizing Enterocolitis (NEC)

Because premature babies do not spend enough time in the womb, many of their organs are not fully developed. Because of this, they are at a higher risk for a number of diseases within the first few weeks of life.

One disease is necrotizing enterocolitis (NEC), which is the most common and serious intestinal disease among preemies. Necrotizing enterocolitis happens when tissue in the small or large intestine is injured or begins to die off. This causes the intestine to become inflamed or, in rare cases, develop a hole (perforation).

When this happens, the intestine can no longer hold waste, so bacteria and other waste products pass through the intestine and enter the baby's bloodstream or abdominal cavity. This can make a baby very sick, possibly causing a life-threatening infection.

NEC typically affects babies born before 32 weeks gestation, but it can occur in full-term infants who have health problems, like a heart defect. Babies with NEC usually develop it within the first 2 to 4 weeks of life.

Most babies who develop NEC recover fully and do not have further feeding problems. However, in some cases, the bowel may perforate and require surgery. Sometimes even if initially no surgery is needed there may be some narrowing or scarring leading to intestinal blockage later that might need intervention.



More Information About Preemie Health Issues

If you want to read more about any of the topics in this module, here are the website references where you can find more information:

Kidshealth is great website that explained a lot of the information shared in this module. [Click here](#) to visit their website.



Hand to Hold is an organization just for families who have premature babies. They have a blog where parents and providers can share helpful tips. Learn more about how to handle respiratory problems by [clicking here](#).



The Department of Health and Human Services in Australia offers an online handbook to premature health conditions. You can visit it by [clicking here](#).

Great job! You're another step closer to finishing the CHECK Prematurity Online Program. Hopefully you now know more about breathing problems and other possible complications your baby may have.

Now you can move on to the next topic, which talks about all of the different providers that can help you and your baby.

