

Bronchopulmonary Dysplasia



What is Bronchopulmonary Dysplasia (BPD)?

Bronchopulmonary Dysplasia (BPD) is a condition that happens when a baby's lungs don't develop fully before they are born. It's also called chronic lung disease. Babies born very early can get BPD because their lungs aren't fully grown. Some of these babies need help breathing for a few days after birth, while others might need help for a longer time.

What Causes BPD?

A baby can have BPD if they are born too early because their lungs are not fully developed yet. This makes it hard for them to breathe by themselves. Sometimes, the help they need to breathe can hurt their lungs more, which can also lead to BPD. Infections, inflammation (swelling), and extra fluid in the lungs can also make it harder for the lungs to grow and work properly.

How is BPD Diagnosed?

We diagnose BPD by looking at how much help the baby needs to breathe at 36 weeks corrected gestational age (which is 4 weeks before their due date). The more breathing support a baby needs, the more serious the BPD is.

Who Treats BPD?

The Children's Hospital Los Angeles (CHLA) infant Chronic Lung Disease (CLD) program cares for babies with BPD. They help babies from the time they are diagnosed in the hospital until they go home and visit the clinic. The BPD Team meets to discuss the best care plan for each baby, making sure the care is right for them.

The BPD Team has many different types of health care providers to provide the best care for your baby. This team has clinical experts for newborns, lung, heart, nutrition, rehabilitation, and social resources.

How is BPD Treated?

Babies with BPD need help to breathe. This help can be extra oxygen through the nose, a machine that gives oxygen and pressure (CPAP or NCIMV) through the nose, or a machine that gives babies breaths through a tube in their airway. Before going home, some babies might need a sleep study to see if they need oxygen at home. Babies with severe BPD might need a breathing machine at home. If your baby needs this type of support, your team will talk to you about a surgery to put a tube in their airway (tracheostomy). This tube helps them use the breathing machine at home. A lung doctor, called a Pulmonologist, will help take care of your baby if they need breathing support at home.

We use different medicines to help babies with BPD. Breathing treatments help open up the airways and decrease inflammation (swelling) in the lungs. We teach parents how to give these breathing treatments at home. We also sometimes give babies with BPD a diuretic, which is a medicine that decreases fluid in the lungs. The lung doctor will manage these medicines after your baby goes home.

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Approved by PFE 11/08/24

Nutrition and Growth in BPD

Nutrition and growth are very important for all premature babies. Dieticians at CHLA make sure your baby gets the right kind and amount of food. They decide how many calories, and what types of calories (protein, fat, sugar), as well as the vitamins and electrolytes your baby needs to grow.

Babies can get their nutrition different ways. Premature babies usually aren't ready to eat by mouth until about 1 to 2 months before their due date. For babies with BPD, the breathing support they need can make it unsafe for them to feed by mouth. For these babies, we use a tube that goes from the mouth or nose into the stomach or intestines. If your baby can't be fed through their stomach, we can give them nutrition through an intravenous line (IV), called total parenteral nutrition (TPN).

If your baby still needs support from the NG tube after a few weeks or months, your team might talk to you about a feeding tube that goes directly into the stomach or intestines. This is called a gastrostomy tube (G-tube) or jejunostomy (J-tube). Even though some babies with BPD need a feeding tube, they can still practice feeding by mouth at home with the help of feeding therapists.

Pain and Discomfort in BPD

As babies get older and spend more time awake and breathing, the ventilator can start to feel uncomfortable. We do our best to reduce pain and discomfort for babies in the NICU. We try to find ways to make them more comfortable before we use medicine.

Development

Babies with BPD might take longer to grow and develop. This can happen because they were born early and need to use a ventilator for a long time. While your baby is in the hospital, physical and occupational therapists will check how your baby is developing. They will make treatment plans just for your baby. The BPD Team might suggest a breathing tube or a feeding tube for your baby to make it more comfortable for them to join in developmental activities and go home from the hospital sooner.

When babies with BPD leave the hospital, we refer them to the Regional Center. The Regional Center helps coordinate therapy services for babies at home. We will also see these babies in our Newborn Follow-Up Clinic. A child developmental-behavioral doctor will make sure your child continues to get the help they need to grow and develop after they go home.

Infections

Premature infants have a higher risk of getting infections and can get very sick when they do. Infants with BPD, especially those on a ventilator, are at high risk for lung infections. These infections need IV antibiotic treatment. We can do some things to lower the risk of infection. This is washing our hands well, not coming into the NICU when sick, and making sure babies get their vaccines on time.

What is Pulmonary Hypertension (PH)?

Pulmonary hypertension (PH) happens when there is high blood pressure in the blood vessels that carry blood from the heart to the lungs. Babies with BPD have a higher risk for PH because their blood vessels are small, and their lungs are stiffer. Doctors check for PH using echocardiograms, which are pictures of the heart. If a baby has PH, we treat it by making sure the lungs have enough breathing help and oxygen. We also give medicine to relax the blood vessels.

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What is Retinopathy of Prematurity (ROP)?

Retinopathy of prematurity is an eye problem that can happen in premature babies. When babies are born early, the blood vessels in their eyes are not fully grown. The extra oxygen that premature babies need for their lungs can cause these blood vessels in their eyes to not grow the right way. Eye doctors, called ophthalmologists, will check the baby's eyes until the blood vessels are fully grown. If the blood vessels don't grow the right way, some babies may need a laser treatment to help fix it.