



Understanding Bronchopulmonary Dysplasia (BPD) in Premature Infants

Welcome to Pediatric Specialists of Virginia (PSV)! This document will explain what BPD is, why it develops, common treatments, and what to expect in terms of prognosis and follow-up care. By understanding BPD, you can better prepare to support your infant's unique health needs both in the NICU and after they go home.

What is Bronchopulmonary Dysplasia (BPD)?

Bronchopulmonary dysplasia (BPD) is a condition of the lungs that affects many infants who are born too early or "premature." BPD causes babies to require extra oxygen or breathing support for an extended period. Infants are not born with BPD, but it is a result of both being premature and requiring long periods of oxygen support. If your premature infant still requires oxygen support at 36 weeks gestation, they are diagnosed with BPD. The severity of BPD depends on how much extra oxygen your infant requires at this time.



Physiology

When a baby is born too early, lung development is interrupted, and the later phases of lung development are missed. These immature lungs can be easily irritated and don't have as many alveoli (air spaces) as they should. The alveoli are fewer, larger, and overinflated, so they don't move well for proper gas exchange. Since these babies have fewer alveoli, they breathe harder and faster to make up for it. Many babies need extra support to breathe, like a ventilator or breathing machine. Over time, when the immature alveoli become injured from the ventilator and extra oxygen, this contributes to the development of BPD.

Risk Factors

- Prematurity (the more premature, the greater risk of developing BPD)
- Birth weight less than 2 pounds (smaller babies have smaller lungs, which increases the likelihood of developing BPD)
- Infants who have required long-term ventilatory support (usually for longer than 28 days)
- Infections
- Presence of a patent ductus arteriosus (PDA)—a common heart defect in premature babies

Typical Treatment

- Each infant at their initial evaluation will receive an individualized plan of care.
- Treatment may include:
 - Breathing support ranging from use of a ventilator to oxygen through a nasal cannula
 - Nutritional support
 - Physical, occupational, and speech therapy
 - Medications
 - Bronchodilators to improve flow of air into the lungs
 - Diuretics to reduce extra fluid in the lungs
 - Antibiotics to control infection and prevent pneumonia
 - Steroids to decrease swelling in the lungs
 - Pulmonary vasodilators to improve blood flow to the lungs

Prognosis

The goal of treatment is to provide life-saving breathing support while enhancing long-term quality of life.

- Prognosis of infants with BPD depends on the gestational age but some heal and grow at different rates. Their lungs will continue to develop and grow for many years after birth. Over time, most infants improve. Some improve within weeks, while others may need to stay for months in the NICU or a step-down unit.
- Infants with BPD may also:
 - Have delayed development
 - Develop pulmonary hypertension (high blood pressure in the lungs)
 - Have gastrointestinal issues like reflux, feeding difficulty, poor growth, or impaired digestion
 - Be at higher risk for severe disease associated with colds, flu, and other illnesses
 - Have persistent breathing issues into adulthood like asthma and/or sleep problems
- Your infant might go home without any treatment, while others may need medications, extra oxygen, or a special diet at home.
- You may need to bring your infant in to see a heart and lung expert for follow-up visits after leaving the hospital.

The Team

Doctors that specialize in the lungs (pulmonologists) will follow your baby during their NICU stay as well as after they are discharged. If your baby is going home on supplemental oxygen, their first visit to our clinic will be within 1 month of NICU discharge and will occur monthly until they are breathing room air. We will continue to follow your baby with BPD closely through young childhood: about every 4 months for their first two years. Even if your baby is not discharged on oxygen, it is important to follow up with the pulmonologists to monitor their progress with BPD.

Contact PSV's Pulmonary Team at pulmonology@psvcare.org or call 703.635.2768.