What is persistent pulmonary hypertension of the newborn (PPHN)? PPHN is a problem in which the blood pressure in a baby’s lungs is too high. PPHN occurs mainly in babies born at full-term or near-term, but it sometimes occurs in babies born prematurely. Although most infants recover from PPHN, it can cause severe problems in some babies.

How can PPHN affect my baby? To see how PPHN affects the body, it first helps to know what happens in a baby’s lungs before and after birth:

<table>
<thead>
<tr>
<th>Before birth</th>
<th>After birth</th>
<th>In PPHN</th>
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<tbody>
<tr>
<td>The baby’s lungs are filled with fluid (the baby receives oxygen from the mother’s placenta).</td>
<td>Blood vessels in the baby’s lungs open (dilate) so that this air can be mixed with blood and then pumped throughout the body.</td>
<td>The blood vessels in the lungs do not open (dilate). This limits the amount of blood flowing through the lungs and decreases the amount of air pumped to the body. Increased pressure caused by the closed blood vessels also creates pressure on the baby’s heart and makes it pump harder. A lack of oxygen may affect the brain and nervous system.</td>
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What causes PPHN? Although we do not know what causes PPHN in every case, we know that certain factors increase a baby’s risk for it. These include other health problems in the baby, such as infection in the lungs (pneumonia), bloodstream infection (sepsis), meconium aspiration syndrome, respiratory distress syndrome (RDS), or a lack of oxygen before or during birth. It also may be caused by problems with the structure of the heart (congenital heart disease), lungs (lung hypoplasia), or other organs involved with breathing. The risk for PPHN also increases for babies of mothers who have had problems during pregnancy, such as premature rupture of membranes (PROM) or low levels of amniotic fluid (oligohydramnios). PPHN occurs more often in babies of mothers who smoke while pregnant.
**What are the signs of PPHN?** A key sign of PPHN is that the baby has trouble breathing. This condition may cause the infant’s skin to turn a bluish color (cyanosis [sahy-uh-NOH-sis]). The heart rate and breathing rate can vary too. In some cases, an ultrasound of the heart (echocardiogram) will show signs of increased pressure in the lungs.

**What is the treatment for PPHN?** The main goal of treatment for PPHN is to improve the baby’s lung and heart function. To do this, your baby may be given extra oxygen and may require breathing help with a ventilator. Efforts also will be made to avoid extra stress on the baby. If your baby continues to have PPHN, he or she may be given a gas called nitric oxide. This gas helps relax the blood vessels in the lungs so more blood can flow through them. The baby also may be given other medicines to help the heart pump blood through the lungs. Some infants may need treatment with an extracorporeal [ek-struh-kawr-PAWR-ee-uhl] membrane oxygenation (ECMO) machine. The ECMO machine takes over the work of the heart and the lungs for a brief time, so these organs can rest and heal. Your baby’s doctors and nurses can give you more details about other special treatments your baby may need.

**What can parents do?** As parents, you can play a key role in your infant’s care. If your infant has PPHN, there are a few things you can do to help your baby:

- Learn as much as you can about PPHN and its treatment. For parents, this can help reduce the stress involved in having an infant with PPHN.
- After you and your baby go home, take your baby to all follow-up visits advised by the doctor. A lack of air sometimes can cause injuries that do not become apparent until your baby is older, so taking your baby for checkups is vital to his or her health. These visits may include hearing screenings, as well as visits with a doctor (called a neurodevelopmental specialist or a developmental pediatrician) who checks your baby’s learning and motor skills.

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**Find out more: these websites may be helpful**

- American Lung Association
  www.lungusa.org
- Centers for Disease Control: facts about RSV
  www.cdc.gov/ncidod/dvrd/revb/respiratory/rsvfeat.htm
- National Institute of Child Health and Human Development
  www.nichd.nih.gov/health/education
- Medline Plus®
  www.nlm.nih.gov/medlineplus
- U.S. Department of Health & Human Services
  www.healthfinder.gov

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**Find the research**

- NICHD Cochrane Neonatal Review Group
  www.nichd.nih.gov/cochrane
- Neonatology on the Web
  www.neonatology.org

This information is for educational purposes only and is not intended to substitute for professional medical advice. Always consult with a health care professional if you have any questions about the health of your baby.