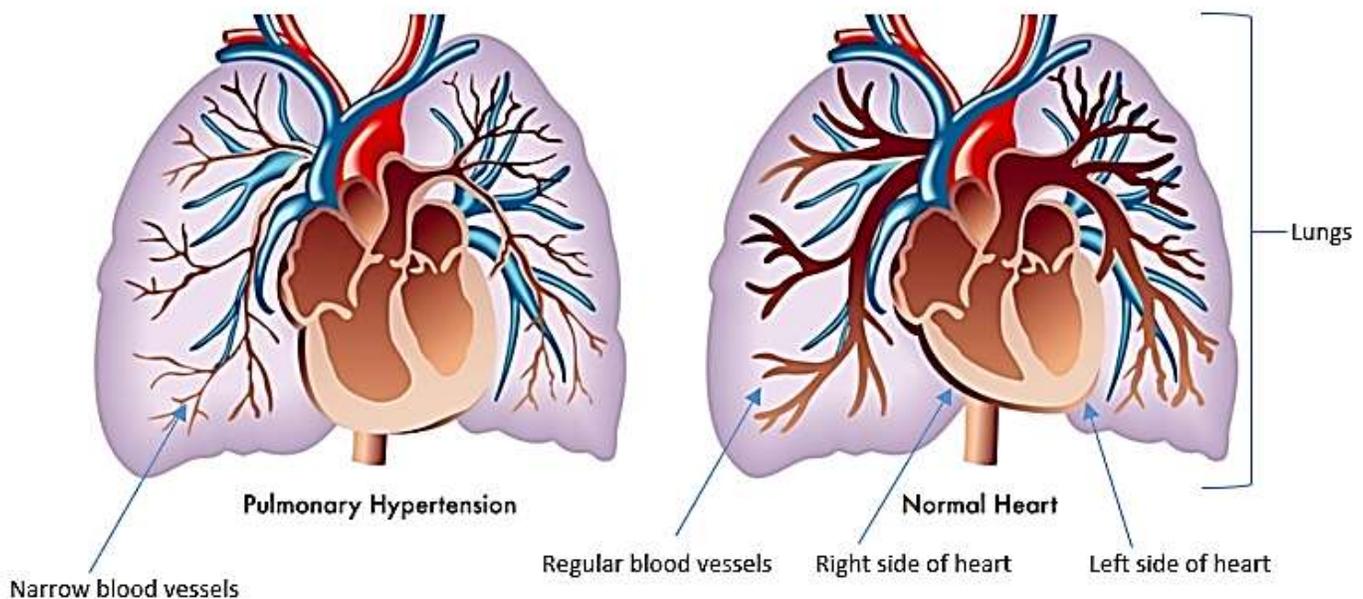




# Pulmonary Hypertension (PH) in Babies with BPD

Some babies with BPD are diagnosed with **“pulmonary hypertension” or PH**, for short. Most of us have heard of “hypertension” or high blood pressure. PH is a bit different. Instead of high blood pressure in the body, “pulmonary hypertension” is specifically high blood pressure in the blood vessels that deliver blood from your baby’s heart to their lungs.

When a baby is born before their due date, they are usually smaller in size and weight than a baby born full-term. Because the baby’s size is smaller, this means the baby’s lungs are smaller, and the blood vessels in the lungs are even tinier. When these vessels are small to start off, they are also at increased risk to become narrowed, scarred or clotted. This can make it more difficult for blood to pass through the vessels from the heart and through the lungs.



## The heart

There are two sides of the heart that work together to provide blood and oxygen to the body.

- The left side of the heart receives blood from the lungs, and does most of the heart’s work by pumping blood filled with oxygen to the entire body.
- The right side of the heart receives blood from the body and pumps it through blood vessels into the lungs where it picks up more oxygen, returns to the left side of the heart where it is again sent out to the rest of the body.



## PATIENT AND FAMILY EDUCATION

- When the blood vessels in the lungs are small, the right side of the heart has to work harder to push blood through these vessels. For this reason, PH not only affects the lungs, but can also affect the heart.

Babies who are born very early, and who have BPD, are at increased risk to develop PH. These infants often require:

- More breathing support with additional oxygen, possibly mechanical ventilation, and/or medication therapy.
- Regular testing to monitor their status, including blood work, x-rays, and ultrasounds of the heart called echocardiograms.
- Possibly a cardiac catheterization, a more invasive procedure to diagnose and measure exactly how much PH is present, and if that PH is affecting the heart. A catheterization can also help select the best types of treatment.
- Specific medications that can be given to help treat PH.

Our practice is to try to diagnose PH by doing an **echocardiogram** when preterm infants are at least a few weeks old – we focus on looking at whether infants have PH about 1 month prior to the mother's original due date, or when the baby would have been 36 weeks of pregnancy. Based on the findings, we sometimes adjust the respiratory support, medications, and/or re-assess with echocardiograms a few weeks to a month later. PH is a rather serious problem associated with BPD, and can change the baby's long-term outcome, so we monitor it very closely.

The most common treatments and/or medications for PH aim to optimize the types of lung supports that are being given.

- The right amount of supplemental, or additional, oxygen can be helpful to improve PH.
- We also need to be careful to avoid too much oxygen, because this could lead to further lung injuries.
- There are also specific medicines that are given to some infants who have PH. Most of these medications help to relax or dilate the blood vessels in the lungs. This lowers the blood pressure in the lungs and makes it easier for the heart to pump blood to the lungs.
  - The available medications all work differently and have different side effects.
  - Some medications can be given orally or with food, while others are delivered through an IV, or are inhaled to be given directly into the lung.
  - The best medications for each baby may be different and depend on how severe the PH is, and how it is affecting a baby's heart and lungs.

**If there is evidence of PH, we typically consult our Pulmonary Hypertension Team (who focus on this problem) to see your baby and make recommendations. This team will continue to work with you and your child over time, after leaving the hospital.**