Why is my baby having trouble breathing?

Babies breathe to move air in and out of the body. The lungs move oxygen from the air into the blood through tiny sacs called **alveoli**. The body needs oxygen to stay alive.

Some babies are born with lungs that don't work well. One problem is called **hypoxic respiratory failure**, or **HRF**. As a result, the baby is not getting enough oxygen into the blood.
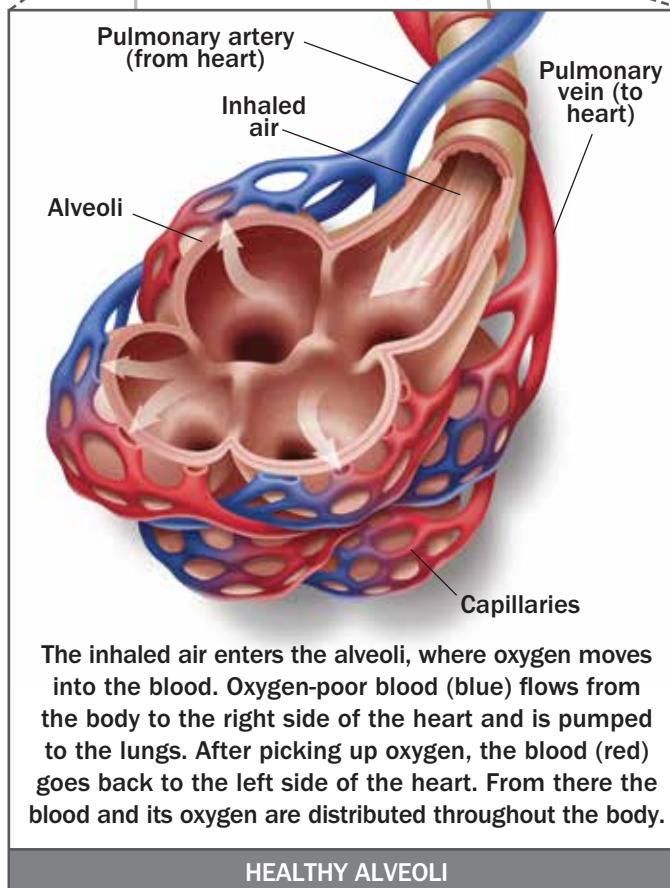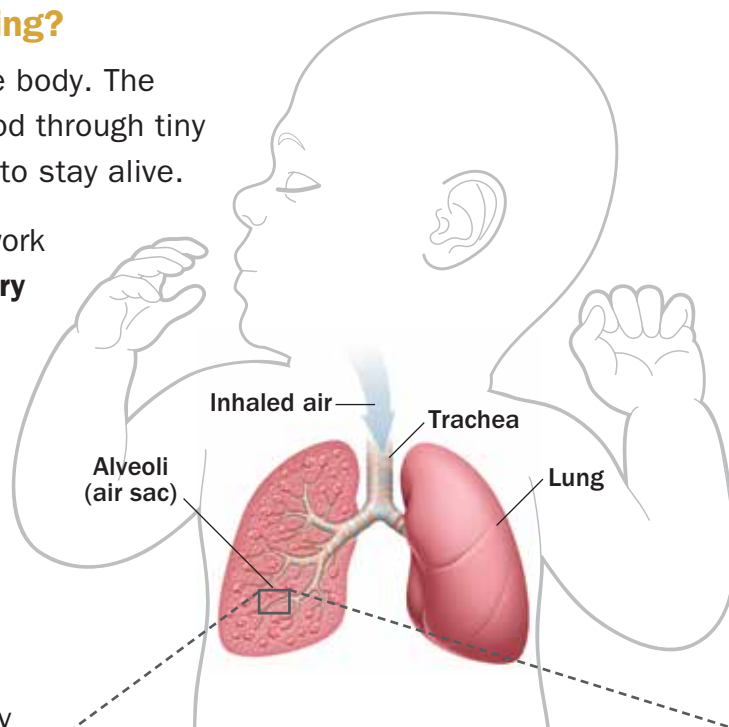
What causes HRF?

HRF can be caused by many things. Examples are:

- Meconium aspiration – infant breathes in a mixture of stool (meconium) and amniotic fluid around the time of delivery

- Pneumonia – lung infection

- Sepsis – infection throughout the body

- Respiratory distress syndrome – baby's lungs don't make enough surfactant. This liquid helps keep the alveoli open so that oxygen can be used

- Hernia in the diaphragm – hole in the diaphragm, which is a muscle that helps the lungs do their job

- **PPHN (persistent pulmonary hypertension of the newborn)** – high blood pressure in the lungs

- **Prematurity** – born before the baby's due date

How common is HRF?

HRF affects about 18 in 1000 babies born in the United States.* It is more common in babies who are born prematurely.

*As measured by overall rate of mechanical ventilation

Inhaled air — Trachea

Alveoli (air sac)

Lung

Pulmonary artery (from heart)

Pulmonary vein (to heart)

Inhaled air

Alveoli

Capillaries

The inhaled air enters the alveoli, where oxygen moves into the blood. Oxygen-poor blood (blue) flows from the body to the right side of the heart and is pumped to the lungs. After picking up oxygen, the blood (red) goes back to the left side of the heart. From there the blood and its oxygen are distributed throughout the body.

HEALTHY ALVEOLI

Treating Hypoxic Respiratory Failure

What treatment will my baby receive?

Treatment will vary based on the cause of HRF and how your baby is doing. Possible treatments include:

- Extra oxygen – given by nasal cannula (nose tube) or mask:
  - **CPAP (continuous positive airway pressure)** – a treatment that uses mild pressurized air to keep the lungs open
  - **Mechanical ventilator** (in more severe cases) – a machine that helps your baby breathe using a tube
- **Surfactant** – a medicine that helps keep the alveoli open. It is used for babies with respiratory distress syndrome, one cause of HRF
- Inhaled or intravenous (IV) treatments to improve how the lungs work
- Antibiotics – medicines that fight infections

How will I know how my baby is doing?

Your health care team will keep you up-to-date on your baby. They have several ways to measure breathing and lung health, including:

- **Vital signs** (heart rate, breathing rate, blood pressure, and oxygen saturation) and lab tests
- Settings on the mechanical ventilator – level of breathing support
- **Oxygenation index** – a formula that the health care team uses to measure how well the baby's lungs are working

What will happen next?

Many babies respond well to treatment for HRF. Each baby is different. Talk to the health care team. They can answer any questions you have about your baby.

Glossary

Alveoli – tiny sacs in the lungs that move oxygen from the air into the blood

CPAP (continuous positive airway pressure) – a treatment that uses mild, pressurized air to keep the lungs open

HRF (hypoxic respiratory failure) – baby is not getting enough oxygen

Mechanical ventilator – a machine that helps your baby breathe by pushing air in and out of the lungs

Oxygenation index – formula the health care team uses to measure how well the baby's lungs are working

Prematurity – born before the baby's due date

PPHN (persistent pulmonary hypertension of the newborn) – high blood pressure in the lungs

Surfactant – medicine that helps keep the alveoli open so that oxygen can be used

Vital signs – heart rate, breathing rate, blood pressure, and oxygen saturation

Ask the health care team when you have questions—they are there to help.

Please visit www.nicu-pet.com to download additional copies.

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Signature:_____ Date: _____ Time: _____