

Understanding Respiratory Failure



Why is my baby having trouble breathing?

Babies breathe to fill their lungs with air. 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 respiratory failure. It means that the baby isn't getting enough oxygen into the blood.

What causes respiratory failure?

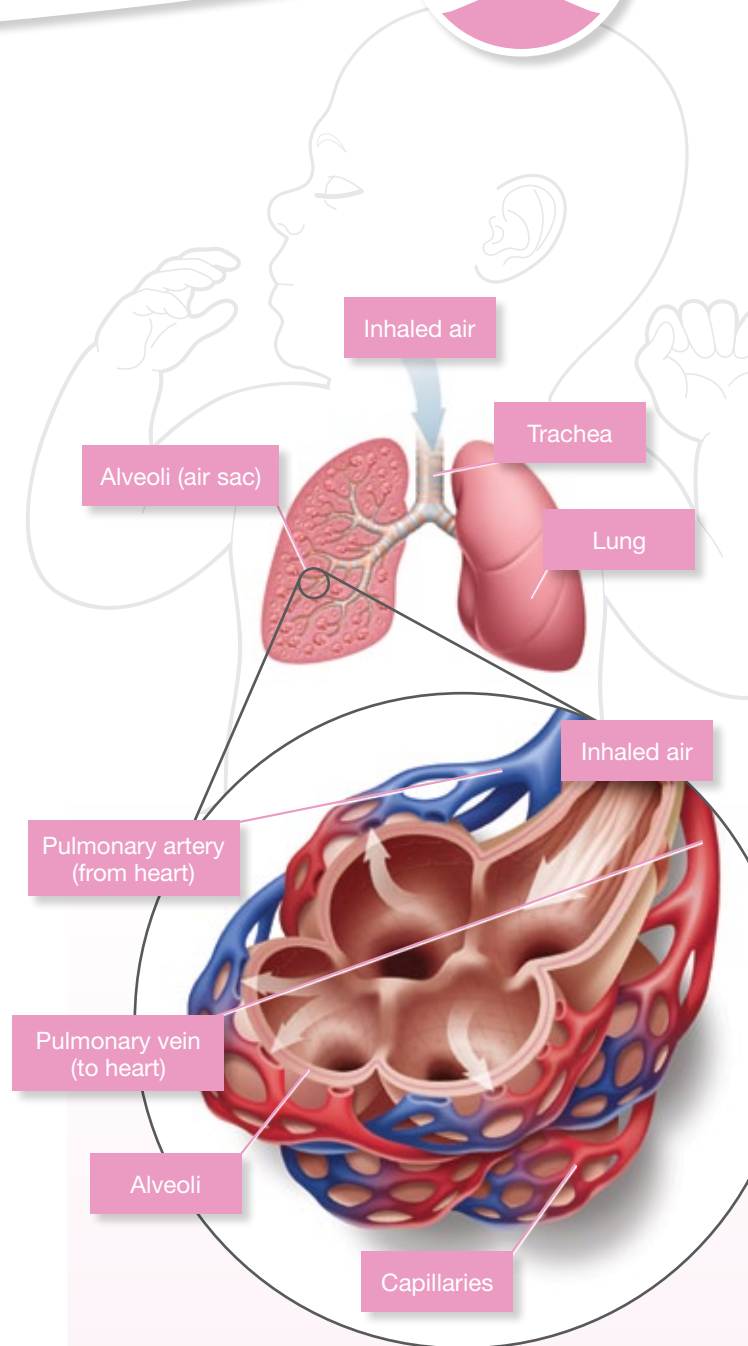
Respiratory failure can be caused by many things.

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)** – high blood pressure in the lungs

How common is respiratory failure?

Approximately 2% of babies born in Australia require assisted ventilation. This is more common in babies who are born prematurely.



Healthy Alveoli

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.

Treating Respiratory Failure

What treatment will my baby receive?

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

- **Extra oxygen** – usually given through a nose tube or a mask
- **CPAP (continuous positive airway pressure)** – a treatment that uses pressurised air to keep the alveoli in the lungs open
- **Mechanical ventilation** – a machine that helps your baby breathe using a tube. The tube goes through the baby's nose or mouth and into their wind pipe
- **Surfactant** – a liquid that helps keep the alveoli open. It is used for babies with respiratory distress syndrome, one cause of respiratory failure
- Inhaled, intravenous (IV) and oral 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:

- **Blood gases** – measuring pH, oxygen and carbon dioxide
- **Vital signs** – heart rate, breathing rate, blood pressure and oxygenation saturation
- Settings on the mechanical ventilator

What will happen next?

The majority of babies will do well however each baby responds differently to treatment. Talk to the healthcare team as 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

ECMO (extracorporeal membrane oxygenation)

a machine that temporarily does the work for the baby's lungs so they can heal. ECMO requires surgery and can only be done at some hospitals

Respiratory Failure

baby is not getting enough oxygen

Mechanical ventilator

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

PPHN (persistent pulmonary hypertension)

high blood pressure in the lungs

Surfactant

liquid that helps keep the alveoli open so that oxygen can be used

Ask the healthcare team
when you have questions
– they are there to help.

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