



## **Respiratory Diseases in Neonates**

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New-borns who have difficulty in breathing immediately after birth may have respiratory illness. There are many types of breathing problems that affect new-borns, including Transient tachypnea in new-borns, infant Respiratory Distress Syndrome (RDS), Bronchopulmonary Dysplasia (BPD), external links to meconium aspiration syndrome, persistent pulmonary hypertension in newborns, pneumonia and aspiration.

The type of dyspnoea in a new-born depends on the cause. Preterm birth, especially 32 weeks before pregnancy, often leads to respiratory distress syndrome in new-borns. Bronchopulmonary Dysplasia (BPD) occurs when a premature baby continues to need oxygen after reaching 36 weeks of gestation.

Due to various conditions, babies can have difficulty breathing shortly after birth. Before a baby is born its lungs are filled with fluid. In most babies, this water disappears soon after birth, but it may not disappear as quickly as needed.

Respiratory distress syndrome affects most babies born before the 32nd week of pregnancy. This is because premature babies cannot produce enough surfactants. Surfactants are foamy substances that completely dilate the lungs and allow new-borns to breathe air after birth. Also, keep the lungs open so that the lungs do not collapse when the baby exhales.

Persistent Pulmonary Hypertension (PPHN) in new-borns causes high pressure in the blood vessels of the new-born's lungs, making it difficult to absorb oxygen from the breathing air. This leads to dyspnoea and rapid respiratory rate.

Pneumonia is an infection of the lungs caused by bacteria, viruses, or fungi. New-borns may experience mild to severe symptoms, depending on the cause and the timing of treatment initiation.

Apnoea is when your baby stops breathing for a few seconds. This slows the heartbeat of the baby's heart (bradycardia) and can appear pale or bluish (cyanosis). Apnoea has many causes, and for some babies, the provider cannot determine the exact cause.

Symptoms of respiratory distress in new-borns usually appear at birth or in the first few hours thereafter. Common warning signs are irregular breathing or heart rate (fast or slow), groan, the nostrils swell with every breath, a bluish tint on baby's skin and lips, pull the muscles between the ribs when breathing. If the new-born has breathing problems, the healthcare provider needs to act quickly to find out what is wrong. Breathing problems in many types of new-borns can be treated if detected early. There are many ways providers can find out if a new-born has respiratory illness.

A physical examination can help you find symptoms of dyspnoea. Lung imaging tests such as chest x-rays show how well the lungs are dilated and whether the disease affects the size and function of the heart. X-rays are used to diagnose most types of respiratory disorders in new-borns. Echocardiography and other heart tests can check for possible congenital heart disease.

When a baby is born, it shifts from living in the womb to the outside world. This requires a lot of changes, especially in the body of the lungs. To be able to breathe outside the womb, the new-born's lungs must adapt shortly after birth. In the endometrium, the foetal lungs are filled with fluid. Instead of the foetus "breathing", the blood flowing through the placenta supplies the foetus with oxygen and other nutrients. The lungs are usually not fully developed until the 36th week of pregnancy. When a baby is born, hormonal changes and labour itself prevent the baby's lungs from producing water. When new-borns take their first breath, the air they inhale into the lungs pushes out the remaining fluid, allowing blood to flow into the lungs. In addition, the new-born's lungs produce a foamy substance called a surfactant, which helps keep the lungs dilated even when the baby exhales.

Treatment of new-borns with breathing problems usually begins as soon as the baby is born. Most new-borns with symptoms of respiratory illness are immediately transferred to the Neonatal Intensive Care Unit (NICU). Respiratory support, for example, oxygen therapy is used to help the new-born breathe until the lungs are able to produce enough surfactant on their own. Many babies receive respiratory assistance from a Continuous Positive Airway Pressure (nCPAP) device that gently pushes air from the nostrils into the lungs.

If you have difficulty breathing in your new-born despite using nCPAP, you can use surfactant replacement therapy. It may be necessary to use the respiratory tract to administer a surfactant to the baby. In this case, the potential complications will help your baby's healthcare provider weigh the risks and benefits of the procedure. Antibiotics helps to treat breathing problems caused by bacterial infections such as pneumonia. Treatment with caffeine is still being studied, but for many infants it reduces the need for mechanical ventilation and reduces the risk of bronchopulmonary dysplasia, especially in apnoeic new-borns. Moisture and nutrients help prevent malnutrition and promote growth. Nutrition is important for lung growth and development.

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