

**Hyaline Membrane Disease (HMD)
Or
Respiratory Distress Syndrome (RDS)**

PATIENT/FAMILY INFORMATION SHEET

How does normal breathing happen in my baby?

With each breath taken by your baby, the alveoli (tiny air sacs) in the lungs expand with air. The inside of the alveoli are coated with a substance called surfactant which prevents the alveoli from collapsing completely between breaths.

What is Hyaline Membrane Disease (HMD)/Respiratory Distress Syndrome (RDS)?

HMD/RDS is the most common lung condition affecting premature babies. Premature babies can have both immature lung tissue and a lack of surfactant. The inadequate amount of surfactant causes alveoli to collapse when your baby breathes out. It is hard for your baby to re-inflate the collapsed alveoli when he breathes. The lack of surfactant and resulting inflammation is called HMD/RDS.

What are the symptoms of HMD/RDS?

If your baby has HMD/RDS, he may have several of the following symptoms:

- Rapid breathing (tachypnea)
- Blue color to skin (cyanosis)
- Pulling in of the ribs and center of the chest with each breath (retraction)
- Uneven abdominal breathing/seesaw breathing
- Grunting (an "ugh" sound with each breath)
- Widening of the nostrils with each breath (nasal flaring)

How is HMD/RDS diagnosed?

HMD/RDS can be very mild to severe. Your doctor will diagnose this condition through the following:

- Mother's history (preterm labor, maternal diabetes)
- Baby's physical exam
- Chest x-ray
- Blood gas analysis (the amount of oxygen in your baby's blood)

How is HMD/RDS treated?

Specific treatment for your baby depends on your baby's medical history, severity of HMD/RDS, and overall health.

- In mild cases, it can be managed by giving extra oxygen to the baby through a tiny catheter placed in baby's nostrils to deliver oxygen, called a nasal cannula.
- In moderate cases, your baby may need Continuous Positive Airway Pressure (CPAP). CPAP is oxygen delivered under a small amount of pressure usually through little tubes that fit into the nostrils. Delivering oxygen under pressure helps keep the baby's air sacs or alveoli open.
- In moderate or severe cases, your baby may need mechanical help with breathing. This is done by inserting a tiny tube into his wind pipe. This process is called intubation. Once intubated, your baby may be placed on a breathing machine (respirator) to administer breaths to the baby.
- Once the baby is on the respirator, surfactant (a medication that replaces the substance that is lacking in your baby's lungs) may be administered through the airway tube in his wind pipe. This helps the alveoli expand more easily.
- Your baby may have an Umbilical Catheter placed. This is done by placing a very small, soft catheter (tube) into one or two of the blood vessels in the baby's umbilical cord. This is not a painful procedure for your baby. These catheters are used for:
 - Giving medications like antibiotics
 - Giving extra nutrients since he will not be eating normally
 - Obtaining frequent blood samples from your baby without using a needle. These blood samples are necessary to make sure your baby is receiving the correct amount of oxygen and to adjust the settings on the respirator when necessary.

How long does HMD/RDS last?

The recovery period is different for all babies. The condition is most severe in the first 2 to 3 days after birth. Then the baby gradually needs less added oxygen. If a baby has mild disease and has not needed a breathing machine, he may be off oxygen in 5-7 days. If a baby has more severe disease, the condition may last 2 to 3 weeks. The speed of recovery depends on the following:

- The size and prematurity of your baby
- The severity of the condition
- Presence of any infection
- Presence of any heart condition

How can I tell if my baby is getting better?

- Your baby is breathing easier
- Your baby is needing less oxygen.
- Your baby is put on lower settings for CPAP or the respirator and will finally be taken off of these machines.

Are there long term effects from HMD/RDS?

Long term effects are more likely if the condition has been severe or if there have been complications. Possible problems may include:

- Increased severity of colds or other respiratory infections, especially for the first two years.
- Increased sensitivity to lung irritants such as smoke and pollution.
- Greater likelihood of wheezing or other asthma-like problems in childhood.
- Greater likelihood of hospitalization in the first two years of life due to respiratory syncytial virus (see additional Patient Fact Sheet for RSV).
- If the RDS was severe, the baby may have injury and scarring of the lung called Chronic Lung Disease.

Source: www.neonatology.org
www.marchofdimes.org
www.kidshealth.org
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