Respiratory Distress Syndrome: Information for Parents

Respiratory distress syndrome (RDS) also is known as hyaline membrane disease (HMD). This condition makes it difficult for the baby to breathe on his or her own.

RDS happens in babies whose lungs have not yet fully developed. It is caused when the baby does not have a slippery, protective substance called *surfactant* in the lungs. Surfactant helps the lungs inflate with air and then keeps them from collapsing when the baby exhales. Surfactant is a normal substance found in fully developed lungs.

The earlier the baby is born, the less developed the lungs are and the higher the chance of developing RDS. RDS is most commonly seen in premature infants born before 30 weeks gestation. It is very rare in full-term babies.



Other things can increase the risk of the baby developing respiratory distress syndrome:

* a brother or sister who had RDS
* when the mother has diabetes (high blood sugar levels) or an infection (chorioamnionitis)
* cesarean section, especially when mother has not experienced labor
* complications that decrease blood flow to the baby before he or she is born:
  + problems with the placenta
  + problems with the umbilical cord
  + a mother who smokes
* multiples in pregnancy (twins/triplets, etc.); the second and third babies are at higher risk
* quick labor (less than 3 hours).

The symptoms usually appear within minutes of birth, but sometimes they do not appear for several hours. Some of the symptoms include

* bluish color of the skin and mucus membranes (cyanosis)
* brief or prolonged periods where the baby stops breathing (apnea)
* a whining or grunting sound when the baby exhales
* nose “spreads out” when the baby inhales (nasal flaring)
* agitated or very weak and limp baby
* shallow and/or rapid breathing
* difficult breathing
* chest that appears to “sink in” with breathing (retractions).

Babies with the worst symptoms appearing in the delivery room will have a breathing tube placed; your baby may receive a form of surfactant (the slippery substance his or her lungs did not produce) down the breathing tube into the lungs to help him or her breathe more easily. Your baby may require more of the surfactant later.

Some babies need only one dose, and other babies need as many as four doses. The breathing machine allows the baby to rest while the lungs have a chance to grow and recover.

Babies with less severe symptoms receive help breathing from nasal continuous positive airway pressure (CPAP).

This type of support gives pressurized air through the

nose and helps the baby take a deep breath and keep the lungs inflated.



The neonatal intensive care unit (NICU) staff will watch closely to make sure your baby rests and continues to breathe easily. If your baby needs more help breathing, he or she may need to have a breathing tube placed. Your baby may get a dose (or more) of surfactant.

Your baby’s healthcare team usually knows within a few hours if more help to breathe is necessary. The signs and symptoms they look for are

* low blood oxygen levels (desaturations or blood gases)
  + requires more oxygen
* difficulty breathing (retractions, grunting, nasal flaring)
  + requires more pressure from the nasal CPAP or ventilator
* worsening apnea (more episodes, longer episodes, or more effort to stimulate the baby to breathe again).

Other treatments that may be used include

* high-frequency ventilation
  + a breathing machine that breathes very fast but may be less harmful to the fragile lungs
* medications to help the baby breathe easier
  + caffeine or theophylline stimulates the baby to breathe
  + lasix (furosemide) or other diuretics to help get rid of extra fluid
  + blood pressure support medications.

Babies with RDS have to be monitored very closely. Your baby may need X rays and small amounts of blood drawn to test his or her oxygen levels.

It is very important that all babies with RDS receive excel- lent supportive care. The following will help to decrease how much oxygen your baby needs:

* dim lighting, quiet room, and few disturbances
* gentle handling
* maintaining ideal body temperature.

Babies with RDS are too sick to eat from a bottle, so they receive nutrition through the IV fluids we give. We may try to feed your baby through a tube inserted into the nose or mouth that goes down into the stomach. At first the amount of food will be very small. Breast milk has the best nutrients and antibodies for your baby. Breast milk will help your baby recover better.

When RDS is the only problem and your baby responds well to the treatments, he or she will start to recover within about 3 days. The full recovery usually takes about 7–10 days, but sometimes a little longer.

Some of the complications associated with RDS, prematurity, or the treatments are

* chronic lung disease, also called bronchopulmonary dysplasia
* bleeding in the lungs, head, or brain
* higher risk of developing an infection
* pneumothorax or other air leaks
  + *Pneumothorax* is when air is found in the chest but outside of the lung.
* necrotizing enterocolitis
  + an infection in the bowel
* patent ductus arteriosus
  + A blood vessel in the heart that is normally open before the baby is born but closes after birth either stays open or reopens after birth.