When Your Child Has Pediatric Acute Respiratory Distress Syndrome (ARDS)

Acute respiratory distress syndrome (ARDS) is a severe lung condition. It can happen within days after a serious illness or injury. In some children, it may occur without another illness or injury. In premature newborns, it may occur if the lungs don't have enough of a substance called surfactant. ARDS causes lungs to become inflamed and the small air sacs in the lungs (alveoli) to fill with fluid. The lungs then can't work well enough to bring oxygen into the body. In some cases, it can lead to ongoing health problems and death.

What causes pediatric ARDS?

In babies who are born early, their lungs may not have enough surfactant. This is a substance that coats the insides of the small air sacs in the lungs (alveoli). Without enough surfactant, the alveoli can't work normally.

Pediatric ARDS can also happen after an illness or injury, such as:

- Severe body inflammation (sepsis)
- Breathing stomach contents into the lungs (aspiration)
- Breathing water into the lungs in a near-drowning
- Lung infection such as pneumonia
- Chest injury that bruises the lungs
- Breathing in smoke or other fumes
- Severe burns or bleeding
- Other severe injury

Certain things can make a child more at risk for ARDS. These include:

- Recent high-risk surgery, such as heart or abdominal surgery
- Having a large blood transfusion

Symptoms of pediatric ARDS

Symptoms can include:

- Shortness of breath
- Fast breathing
- Coughing
- Fever
- Fast heart rate

- Chest pain when inhaling
- Blue tint to nails and lips

Diagnosing pediatric ARDS

Pediatric ARDS is a diagnosis that includes evidence of acute inflammatory lung injury with low oxygen, increased fluids in the lungs, and chest X-ray findings. The healthcare provider will ask about your child's health history and give them a physical exam. They will listen to your child's lungs with a stethoscope. A crackling sound may mean your child has fluid in the lungs. Your child may have tests. These are to check for signs of ARDS or other conditions that can cause fluid in the lungs. Tests may include:

- **Chest X-ray.** This test can show fluid in the lungs.
- **Echocardiogram.** This imaging test looks at the heart as it beats. It's done to check for signs of heart failure.
- **Blood tests.** These check blood oxygen level and look for signs of infection.
- **Sputum culture.** This test is done on mucus from the lungs. It checks for signs of lung infection, such as bacteria.

Treatment for pediatric ARDS

Experts are still learning the best ways to treat pediatric ARDS. The most common treatment for ARDS is mechanical ventilation. This means having a breathing machine send oxygen-rich air into your child's lungs. In some cases, a child may be given a face mask or breathing tube under the nose. In most cases, a tube is put through a child's mouth and throat, and down into the lungs. The tube is connected to a machine called a ventilator that gives your child air. It can be adjusted to give as much air as needed. Your child may need to be on a ventilator for a week or more.

Your child will also likely be given medicine to relieve pain and cause them to sleep (sedation) while the tube is in place in the throat. This is because the tube is uncomfortable, and your child will need to not move too much while it's in place.

Your child may also be given other types of treatment including:

- Surfactant sent directly into the lungs
- Liquid nutrition through a tube that leads to your child's stomach
- Liquid nutrition through a tube put in a vein in your child's chest or arm
- Antibiotics to treat an infection
- Medicine to prevent stomach bleeding
- Medicine to help remove fluid from the body (diuretic)
- Steroids. The use of steroids in ARDS is controversial. Talk to your healthcare provider about this option.

When your child starts to recover, they will be weaned off the ventilator. This means less air will be used and your child's lungs will do more work. Weaning is done carefully over

days. The breathing tube is removed when your child's lungs are working well enough.

Possible complications of pediatric ARDS

ARDS can cause scarring of the lungs (fibrosis). It can cause organ failure from lack of oxygen to the organs. It can also cause death.

Life after pediatric ARDS

After ARDS, some children may have problems such as less lung function. Your child may feel weak and get tired more easily. Many children recover from ARDS. But recovery can take time.

- Your child may need to use oxygen at home.
- Your child may also need other home-based services, such as physical and occupational therapy.
- ARDS can cause emotional stress for both the child and family. Talk with the healthcare team about talk therapy (counseling) and ARDS support groups.
- For follow-up care, your child should see a healthcare provider who has experience with ARDS. Talk with the provider about what to do for fever and other illness where your child seems sick but may not need to go to the emergency room.

Call 911

Call 911 right away if your child has these symptoms:

- Shortness of breath
- Fast breathing
- Coughing
- Fast heart rate
- Chest pain when inhaling
- Blue tint to nails and lips