

APNEA IN PREMATURE INFANTS

Apnea (AP-nee-ah) in premature infants is a pause in breathing that lasts 20 seconds or more. If a pause in breathing lasts less than 20 seconds and makes your baby's heart beat more slowly (bradycardia), it is called apnea. If the pause in breathing makes baby turn pale or bluish (cyanotic), it can also be called apnea. Most premature infants outgrow this problem by the time they are 2 to 6 months of age.

REASONS WHY

There are several possible reasons why your premature infant has periods of apnea or bradycardia. Most reasons have to do with premature birth. When a baby is born early, some of the body systems, such as the respiratory, cardiac, and nervous system, are not mature or well developed. Because they're immature, the body systems don't always work as they should.

In full-term infants the brain, nerves, and chemicals in the body control breathing automatically. These controls are not fully developed in premature infants.

Most premature infants are "periodic breathers." This means they have periods of fast breathing followed by periods of very slow breathing. Often there are short periods when there is no obvious breathing (you can't see your baby breathing!).

CAUSES FOR PERIODS OF APNEA

Because of the immature nervous system, a premature infant is more likely to have apnea or bradycardia after eating or when having a bowel movement. Grunting or pushing to have a bowel movement stimulates the vagus (VA-gus) nerve. The vagus nerve, in turn, slows breathing and/or the heart rate. A stomach full of formula or air also stimulates the vagus nerve and sometimes causes apnea or bradycardia.

In some cases of apnea the air passages to the lungs become blocked. This happens because the tissues around the airway are very soft and flexible in premature infants. Gravity may cause the tissues to block the air passages when the infant is lying in certain positions. If this happens, the baby doesn't get air into the lungs, even though his chest may rise and fall. This may make the baby's heart slow down. The baby's neck muscles may also be underdeveloped. If these muscles are weak, they can't support the baby's head. The baby's chin can then get pushed against the neck, blocking the flow of air.



Picture 1 Most premature infants outgrow apnea by the time they are 2 to 6 months old.

OTHER CAUSES OF APNEA

Apnea can be caused by many other problems the premature infant may have. These include:

- The room is too hot or too cold (making the baby too hot or too cold).
- Seizures
- Lack of oxygen for any reason
- Infections

In these cases, the cause of apnea or bradycardia can usually be treated.

WHAT WE CAN DO

Even though we may not know what causes your baby to stop breathing, there are some things we can do to help prevent complications. We can:

- Give your baby medicine to stimulate regular breathing patterns.
- Place your baby on a monitor to detect pauses in breathing. Although the monitor is placed to detect apnea and/or bradycardia, *it does not cure apnea and will not prevent SIDS (Sudden Infant Death Syndrome) or death.* Apnea in premature infants is not related to SIDS.
- Teach you how to hold and position your baby to allow for proper breathing.
- Teach you what to do if your baby stops breathing at home (such as CPR for infants).

WHAT TO EXPECT

Remember that this is usually a temporary condition. If a monitor is needed, it will be kept on your baby until the risk of apnea or bradycardia is gone. That is usually until there has been:

- No true apnea or bradycardia that requires stimulation for 1 to 2 months at home.
- No medicines are needed (including oxygen).

The time to stop using the apnea monitor is different for each baby and family. Your nurses and doctor will discuss this with you at each clinic visit and help you to make the best decisions for you and your baby.

Warning: Continue to use the monitor until a doctor tells you it can be stopped.

WHAT YOU CAN DO

Apnea comes on quickly and without warning. The monitor placed on your baby is especially made to alert you to any possible periods of apnea or bradycardia. The best thing parents can do is be prepared. The doctors and nurses will teach you how to take care of your baby's special needs. You should:

- Read carefully all information given to you.
- Ask any questions you may have.
- Take part in your child's care.
- Tell us what you are thinking and feeling.

We know this may be a difficult time for you and your family. Remember that it's a temporary condition. Together we can help your baby grow and develop as a normal, healthy child.

If you have any questions, please ask your doctor or nurse or call the Apnea Team at (614) 722-4531.