

Apnea and Bradycardia

What is apnea?

Apnea is a pause in breathing that has one or more of the following characteristics.

- Lasts more than 15-20 seconds.
- Is associated with the baby's color changing to pale, purplish or blue.
- Is associated with bradycardia or a slowing of the heart rate.

What is bradycardia?

Bradycardia is a slowing of the heart rate, usually to less than 80 beats per minute for a premature baby. Bradycardia often follows apnea or periods of very shallow breathing. Sometimes it is due to a reflex, especially with the placing of a feeding tube or when the baby is trying to have a bowel movement.

Is all apnea due to prematurity?

No, apnea of prematurity is by far the most common cause of apnea in a premature infant. However, apnea can be caused or increased by many problems including infection, low blood sugar, patent ductus arteriosus, seizures, high or low body temperature, brain injury or insufficient oxygen.

Why do premature babies have apnea?

Premature babies have immature respiratory centers in the brain. Premies normally have bursts of big breaths followed by periods of shallow breathing or pauses. Apnea is most common when the baby is sleeping.

Will apnea of prematurity go away?

As a baby gets older, his or her breathing will become more regular. The time line is variable. Usually apnea of prematurity markedly improves or goes away by the time the baby nears his or her due date.

How is apnea treated?

Several treatments are possible. A baby may be treated with one or more of the following:

- Medications that stimulate breathing. Commonly used drugs include theophylline, aminophylline or caffeine.
- CPAP or continuous positive airway pressure. This is air or oxygen delivered under pressure through little tubes into the baby's nose.
- Mechanical ventilation (breathing machine). If apnea is severe, the baby may need a few breaths from the ventilator every minute. These might be given at regular intervals or only if apnea occurs.
- Periodic stimulation.

How do you know if a baby has apnea?

A baby's respirations are monitored continuously if he or she is at risk for apnea. An alarm will sound if there is no breath for a set number of seconds.

What happens if the monitor sounds?

- A nurse will observe the baby to see if he or she is breathing, if there is a change in color or the heart rate is falling. False alarms occur often.
- The nurse may stimulate the baby if the baby needs a reminder to breathe.
- If there is a change in color, the nurse may give the baby extra oxygen.
- If the baby still doesn't breathe, the nurse may give the baby a few breaths with a bag and mask or extra breaths on the mechanical ventilator.

Does the baby have to stay in the hospital until apnea goes away completely?

Most infants are over their apnea completely when they go home. However, some babies reach all other criteria for discharge before their apnea is completely gone and may be candidates for home apnea monitoring. A baby may be considered for home apnea monitoring if:

- He or she has apnea that is short and recovers without any stimulation.
- He or she has no color change or bradycardia with the apnea.
- The apnea is not expected to go away in the next several days.
- The home nursery has a home apnea program.
- Parents have a phone and live near emergency help.
- A parent and a second person have completed home apnea training and a course in cardiopulmonary resuscitation of a baby.
- The baby's doctor approves home apnea

Once apnea goes away, will it come back?

Apnea of prematurity is a result of immaturity. Once a baby matures and the apnea resolves, it will not return. If a baby has breathing pauses after apnea goes away, it is not apnea of prematurity. The breathing pauses are due to some other problem and need to be discussed with a physician because it is not common.