

# Apnea

## 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
- Lasts less than 15 seconds, but has either slowing of the heart rate or color change with it.

## 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, gastroesophageal reflux, 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. Preemies 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 your baby gets older, his/her breathing will become more regular. The time course is variable. Usually apnea of prematurity markedly improves or goes away by the time the baby nears his/her due date. Sometimes it will last until the baby is a month beyond the due date.

## How is apnea treated?

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

- Medications that stimulate breathing. The most common drugs used are caffeine and theophylline.
- 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 the 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.
- Vapotherm (highly humidified air/oxygen) or nasal cannula. This delivers airflow through the nose; thought to work similarly to CPAP.
- CPAP ventilations-breaths are delivered through the baby's nose. Not as effective as regular ventilation, but may be tried first.

## How do I know if my baby has apnea?

Your baby's respirations are monitored continuously if s/he 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 your baby to see if s/he is breathing, if there is a change in color or if the heart rate is falling. False alarms occur often.
- The nurse may stimulate your baby if your baby needs a reminder to breathe.
- If there is a change in color, the nurse may give your baby extra oxygen.
- If your baby still doesn't breathe, s/he may give the baby a few breaths with an oxygen bag and mask, or extra breaths on the mechanical ventilator.

### **Does my baby have to stay in the hospital until the 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. Some babies are candidates for home apnea monitoring. Your baby may be a candidate for home apnea monitoring if:

- Your baby's apnea is short and he/she recovers without any stimulation
- Your baby has no color change or severe bradycardia (heart rate to 40's or 50's) with the apnea
- The apnea is expected to go away in the next several days
- You, and usually a second person, have completed home apnea training and a course in cardiopulmonary resuscitation of a baby
- Your baby's doctor feels this is a good idea for your particular baby

### **Once apnea goes away, will it come back?**

Apnea of prematurity is a result of immaturity. Once a baby matures and apnea resolves, it will not return. If a baby should have breathing pauses after apnea goes away, it is not apnea of prematurity. It is due to some other problem and needs to be discussed with your baby's physician. However, preterm infants may be more susceptible to apneic spells with upper respiratory infections. If this should occur, talk to your baby's doctor right away.

### **Is apnea of prematurity related to sudden infant death syndrome (SIDS)?**

No, these are two entirely different problems. Most babies who die of SIDS are born at term and have normal newborn stays. Babies who have needed newborn intensive care for any reason are at a slightly higher risk of SIDS than other babies. Apnea of prematurity does not determine this risk.