CONDITION

Infantile apnea

Infantile apnea means repeated pauses in a baby's breathing that may reduce oxygen or slow the heart rate.

WHAT IT IS
Repeated breathing pauses during infancy

BODY SYSTEM
Breathing and nervous system

MAIN SYMPTOMS
Breathing pauses, color change, limpness, slow heart rate

WHAT CAUSES IT
Prematurity, blocked airway, illness, or altered breathing control

HOW IT IS DIAGNOSED
Observed episodes, oxygen monitoring, and cause-directed tests

MAIN TREATMENT
Breathing support and treatment of the underlying cause

CAN IT BE CURED?
Sometimes - maturation or cause treatment stops episodes

IS IT AN EMERGENCY?
Sometimes - blue color, unresponsiveness, or breathing difficulty

LONG-TERM OUTLOOK
Often resolves, but outlook follows the underlying cause

Overview

Infantile apnea means that a baby has pauses in breathing. It is a condition or clinical finding, not one specific disease. The importance of a pause depends on how long it lasts, whether it happens repeatedly, and whether the baby's oxygen level, heart rate, color, or responsiveness changes.

Apnea is different from periodic breathing , a common pattern in young infants. With periodic breathing, a baby takes several breaths, pauses briefly, and then starts breathing normally again. The pauses are usually short and do not cause a color change, limpness, or difficulty recovering.

Doctors may consider a pause to be apnea when it lasts about 20 seconds, or when a shorter pause is accompanied by a slow heart rate, low oxygen level, pale or blue-gray color, or

reduced responsiveness. The exact meaning depends on the baby's age and clinical situation.

Apnea is especially common in babies born early. This is called apnea of prematurity . Their brains and breathing systems are still maturing, so the signal to breathe may briefly become irregular. Apnea can also result from a blocked airway, infection, seizures, medicines, or another health condition.

A brief resolved unexplained event, or BRUE , is not another name for infantile apnea. BRUE describes a sudden, short event involving breathing, color, muscle tone, or responsiveness that has ended and remains unexplained after assessment.

Symptoms

The main sign is an observed pause in breathing. Some episodes are noticed by a caregiver, while others are detected by hospital equipment that measures breathing, oxygen, and heart rate.

Signs that may occur with apnea include:

In obstructive apnea, the baby may try to breathe but air cannot move freely through the nose or throat. The chest may continue to move. In central apnea, the brain briefly stops sending the usual signal to breathe, so there is little or no breathing effort. Mixed apnea includes features of both.

Normal skin color can be difficult to judge, particularly in dim lighting. On darker skin, reduced oxygen may be easier to see as a blue-gray change in the lips, tongue, gums, or nail beds rather than the face.

- No visible chest movement or airflow
- Blue-gray, very pale, or dusky skin or lips
- A slower-than-expected heart rate
- Limpness or reduced responsiveness
- Gasping, choking, snorting, or noisy breathing
- Difficulty returning to a regular breathing pattern

Causes and risk factors

The most common setting is premature birth. The earlier a baby is born, the less mature the brain's breathing control is likely to be. Apnea of prematurity usually reflects this immaturity,

but healthcare teams still look for illness or another new cause if episodes begin, return, or become more frequent.

Other possible causes include:

Feeding, swallowing problems, or milk entering the airway may cause coughing, choking, and changes in breathing. Reflux is often blamed for apnea, but ordinary infant reflux has not been shown to explain most apnea episodes. A careful assessment is needed rather than assuming reflux is the cause.

Risk is higher in premature infants and in babies with airway, neurological, heart, or lung conditions. Exposure to tobacco smoke can irritate the airway and worsen breathing problems, although it does not explain every apnea episode.

- A blocked or unusually narrow upper airway
- Respiratory infections or serious infections elsewhere in the body
- Seizures or other nervous system conditions
- Low blood sugar, abnormal body salts, or other metabolic problems
- Anemia, meaning too few oxygen-carrying red blood cells
- Heart or lung conditions
- Exposure to medicines that suppress breathing, including opioids like oxycodone or morphine
- Problems controlling body temperature
- Complications around birth that affected oxygen supply

Diagnosis

An infant who is not breathing normally is assessed and supported first. Once the baby is stable, diagnosis begins with a detailed description of what happened. Useful details include the length of the pause, the baby's color and movements, whether the episode occurred during sleep or feeding, and how the baby recovered.

In hospital, cardiorespiratory monitoring can record breathing and heart rate. A pulse oximeter measures oxygen in the blood through a sensor placed on the skin. Staff may need to review the recording because movement, loose sensors, and other technical problems can trigger false alarms.

Testing is guided by the baby's age, examination, medical history, and pattern of episodes. It may include blood or urine tests, infection testing, an electrocardiogram to check heart

rhythm, or imaging. An electroencephalogram, or EEG, may be used if seizures are suspected.

A sleep study, also called polysomnography , can measure breathing effort, airflow, oxygen, heart activity, and sleep patterns. It may be used when sleep-related airway obstruction or another sleep breathing disorder is suspected.

Not every baby with a brief event needs extensive testing or hospital admission. For a lower-risk BRUE, guidelines recommend avoiding many routine tests that are unlikely to explain the event. Premature infants, very young infants, babies with repeated events, and those with concerning examination findings may need closer observation or further testing.

Treatment and management

Treatment depends on the type of apnea, its severity, and its cause. During an episode, hospital staff may provide gentle stimulation, reposition the airway, give oxygen, or support breathing. More persistent episodes may require positive airway pressure, which uses air pressure to help keep the airway and lungs open, or temporary mechanical ventilation.

Caffeine is commonly used in hospital for apnea of prematurity. It stimulates breathing and can reduce episodes while the baby's breathing control matures. The dose and length of treatment are decided by the neonatal team and should not be adjusted at home without medical direction.

If another condition is causing apnea, treatment focuses on that problem. This may involve treating an infection, correcting low blood sugar, managing seizures, or addressing an airway problem. Obstructive sleep apnea may require assessment by sleep, airway, or ear, nose, and throat specialists.

Some babies are discharged with a home monitor, but this is reserved for selected situations. A monitor can sound an alarm when it detects certain breathing or heart-rate patterns, but it does not prevent apnea or sudden infant death syndrome. False alarms are common, and every caregiver should receive clear instructions on what the monitor measures and how to respond.

Families may also be offered infant cardiopulmonary resuscitation training before discharge. This training supports emergency readiness but does not mean a serious event is expected.

Complications

During a significant episode, oxygen can fall and the heart rate can slow. Prompt recognition and breathing support help limit these effects.

Frequent or prolonged low oxygen may be concerning, especially in a baby who is already medically fragile. However, it can be difficult to separate the effects of apnea from the effects of premature birth or the illness causing it. An apnea diagnosis alone does not predict a child's later development.

Complications can also come from the underlying condition. For example, an infection, seizure disorder, or airway abnormality has its own risks and expected course.

Repeated alarms and uncertainty can disrupt sleep and cause substantial stress for families. Before going home, caregivers should know which alarms need immediate action, who to contact about equipment problems, and what follow-up is planned.

Prevention

Apnea of prematurity cannot always be prevented because it results mainly from an immature breathing system. Apnea caused by an inherited condition or an anatomical airway problem may also be unavoidable.

Some infections that affect breathing can be reduced through recommended immunizations, hand hygiene, and avoiding close contact with people who are unwell. Keeping the baby away from tobacco smoke and vaping aerosol protects the developing lungs and airway.

Safe sleep practices do not treat infantile apnea, but they reduce the risk of sleep-related infant death. Place the baby on their back for every sleep, on a firm, flat sleep surface without pillows, loose blankets, positioners, or soft objects. Use a separate infant sleep space in the caregiver's room when possible, following current safe sleep advice.

Consumer breathing monitors, smart socks, and movement alarms have not been shown to prevent sudden infant death syndrome. They should not replace safe sleep practices or a medically recommended monitoring plan.

Living with it and what to expect

Apnea of prematurity usually becomes less frequent as the brain and breathing system mature. For many premature babies, it resolves near the expected due date. Babies born extremely early may continue to have episodes beyond that point, so the timing cannot be predicted from age alone.

Before discharge, neonatal units generally observe whether clinically important episodes have stopped for an appropriate period. The team also considers feeding, growth, temperature control, oxygen needs, and the baby's overall medical condition.

Apnea caused by a temporary illness may stop after that illness improves. When apnea is related to an airway, neurological, heart, or lung condition, the longer-term course follows the underlying problem. Some babies need specialist follow-up, repeat sleep testing, breathing support, or monitoring.

At home, follow the baby's written discharge plan. Attend routine appointments even if there have been no further episodes. Follow-up may review breathing, feeding, growth, development, medicines, and any monitoring equipment.

Most families can gradually settle into ordinary routines once episodes resolve. Anxiety may last longer than the medical problem, especially after a frightening event. Asking the care team to review the emergency plan or monitor data can help clarify what is and is not concerning.

When to get medical help

Call emergency services immediately if a baby:

Place the baby on a firm, flat surface. If the baby is not breathing normally, start infant CPR if you have been trained and follow emergency-dispatch instructions. Do not shake the baby or place anything in their mouth.

Seek urgent medical assessment for a first unexplained breathing pause, repeated pauses, new choking with feeds, worsening noisy breathing, poor feeding, unusual sleepiness, or a clear change from the baby's usual pattern. A rectal temperature of 38°C or higher in a baby younger than 3 months also needs prompt medical assessment.

For a baby with diagnosed apnea who appears well, use the written follow-up and monitoring plan. Contact the regular care team about increasing alarms, equipment concerns, medicine questions, or episodes that are changing but do not require emergency help.

- Is not breathing or is only gasping
- Has blue-gray lips or tongue
- Is limp, unresponsive, or very difficult to wake
- Has severe breathing difficulty or cannot recover normally
- Has a prolonged episode or repeated episodes without full recovery

Common questions

Is it normal for a newborn to stop breathing for a few seconds?

Brief pauses can occur as part of periodic breathing, especially during sleep. The baby should remain a normal color and restart breathing without difficulty. A longer pause, repeated episodes, blue-gray color, limpness, or poor recovery needs medical assessment.

Is infantile apnea the same as sudden infant death syndrome?

No. Apnea is an observed pause in breathing. Sudden infant death syndrome describes the unexplained death of an infant after a full investigation. Home apnea monitors have not been shown to prevent it.

Does reflux cause apnea in babies?

Ordinary reflux is common, but it does not explain most apnea episodes. Choking, coughing, or color changes during feeds may point to a swallowing or airway problem and should be assessed rather than assumed to be reflux.

Will my premature baby grow out of apnea?

Apnea of prematurity often resolves as breathing control matures, usually around the baby's expected due date or sometimes later. The neonatal team looks at the pattern and severity of episodes rather than relying only on age.

Can a baby go home with apnea?

Some babies can go home after significant episodes have stopped and other discharge goals are met. Selected babies may go home with monitoring or treatment. Caregivers should receive equipment training, an emergency plan, and follow-up arrangements.

Should I buy a breathing monitor?

Consumer monitors are not a substitute for medical assessment and do not prevent sudden infant death syndrome. If monitoring is medically needed, the baby's care team should recommend suitable equipment and explain how to use it.

Sources

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