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# Understanding End Tidal Carbon Dioxide Monitoring

## What is end tidal carbon dioxide monitoring?

End tidal carbon dioxide (ETCO<sub>2</sub>) monitoring is a painless, noninvasive way to assess your breathing (respiration). It's used in many medical settings and situations. It's also called capnometry or capnography.

ETCO<sub>2</sub> monitoring assesses the carbon dioxide (CO<sub>2</sub>) levels that you breathe out (exhale). Healthcare providers use CO<sub>2</sub> levels as a way to see how well the heart is pumping blood. They also use them to see how well blood is flowing (circulating) through the lungs.

ETCO<sub>2</sub> monitors give continuous, real-time details about how a person is breathing. They analyze each breath you take. The devices can show if breathing becomes fast, slow, or shallow. They provide an early warning if you are starting to have trouble breathing. This lets healthcare providers act quickly if any possible problems are found.

## How is ETCO<sub>2</sub> monitoring done?

There are 2 types of CO<sub>2</sub> monitoring devices: mainstream and sidestream.

- **Mainstream devices.** These are used only for people with breathing tubes.
- **Sidestream devices.** These can be used for people with or without breathing tubes.

A sidestream ETCO<sub>2</sub> monitoring device is made up of:

- **Plastic tubing.** This is worn on your face and connected to a monitor.
- **An electronic monitor (capnography monitor).** This records the information from your exhaled breath.

To use the device, a thin plastic tube with small plastic prongs is fitted under your nose then draped over your ears. The small plastic prongs go into your nostrils. A small, round plastic piece also sits in front of your mouth. Samples of your exhaled breath are taken from your nose and mouth.

The other end of the tube is attached to the monitor. Your exhaled breath samples are sent to the monitor. A sensor analyzes your CO<sub>2</sub> levels breath-by-breath for any changes. The monitor will set off an alarm if your breathing becomes fast, slow, or shallow.

## When is ETCO<sub>2</sub> monitoring used?

ETCO<sub>2</sub> monitoring can give an early alert to healthcare providers that someone may be having trouble breathing. It can also assess a person's responses to different treatments. It's used in many situations such as:

- For people with acute respiratory distress or other breathing problems
- For people in the intensive care unit (ICU)

- When a breathing tube is inserted (intubation)
- When taking someone by ambulance to the emergency room
- When someone has been given general anesthesia, sedation, or certain opioid pain medicines
- During cardiopulmonary resuscitation (CPR) for cardiac arrest
- Before, during, or after surgery

This type of monitoring can also help when assessing people who:

- Are having seizures
- Have sepsis

## **When wearing an ETCO<sub>2</sub> monitoring device**

- Don't take off the tubing.
- If the tubing falls off, put it back on. Or ask a healthcare provider to help you.
- Your provider will let you know when it is OK to eat and drink while you are wearing the tubing and being monitored.
- Your provider will tell you when you don't need to wear the tubing anymore. They will remove it for you.