

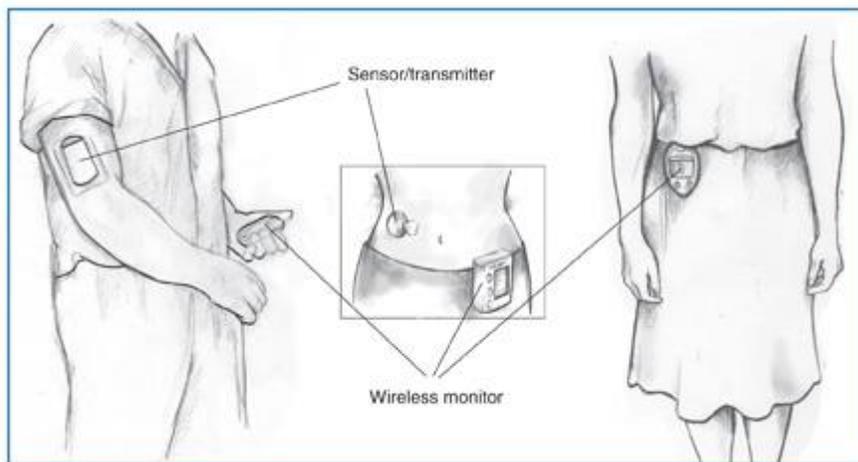
What is continuous glucose monitoring?

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<http://diabetes.niddk.nih.gov/dm/pubs/glucosemonitor/>
<http://diabetes.webmd.com/continuous-glucose-monitoring>

A continuous glucose monitoring system (CGMS) is an FDA-approved device that records blood sugar levels throughout the day and night. There are several approved devices -- Medtronic's MiniMed device, DexCom, and the Navigator, for example -- that can provide up to 288 blood sugar measurements every 24 hours. The system is used to measure an average blood sugar for three to seven days (depending on the model you have), while the person with diabetes continues daily activities at home.

How Continuous Glucose Monitoring Works



CGM systems provide glucose measurements as often as once per minute. The measurements are transmitted to a wireless monitor.

First, a tiny glucose-sensing device called a "sensor" is inserted just under the skin of the abdomen. The insertion is quick, and is usually not painful. It's very similar to insertion of an insulin pump catheter. Tape is used to hold it in place.

The sensor measures the level of glucose in the tissue every 10 seconds and sends the information via a wire to a cell phone-sized device called a "monitor" that you attach to a belt or the waistline of your pants. The system automatically records an average glucose value every five minutes for up to seven days.

Results of at least four finger stick blood sugar readings taken with a standard glucose meter and taken at different times each day are entered into the monitor for calibration. Any insulin taken, exercise engaged in, and meals or snacks consumed are both entered into a paper-based "diary" and then recorded into the monitor. They are recorded by pushing a button to mark the time of the meals, medication, exercise, and other special event you wish to record.

After the three- to seven-day time period, the sensor is removed at the doctor's office and the information stored in the CGMS is downloaded into a computer. You and your doctor or diabetes health care team can then review your blood sugar levels in relation to the other data collected and make any necessary adjustments in your diabetes management plan. The information will be presented as graphs or charts that can help reveal patterns of glucose fluctuations.

When a Continuous Glucose Monitor Is Used

The continuous glucose monitor is not intended for day-to-day monitoring or long-term self-care, and it is not a replacement for standard blood sugar monitoring. It is only intended for use to discover trends in blood sugar levels. This helps your health care team make the most appropriate decisions regarding your treatment plan.

The main advantage of continuous glucose monitoring is that it can help identify fluctuations and trends that would otherwise go unnoticed with standard HbA1c tests and intermittent finger stick measurements.

For example, the device can capture dangerously low overnight blood sugar levels, which often go undetected, reveal high blood sugar levels between meals, show early morning spikes in blood sugar, evaluate how diet and exercise affect blood sugars, or provide a review of the effects of changes made to your treatment by your health care team.

Your doctor can prescribe the procedure as often as he or she believes it necessary to properly evaluate your blood sugar patterns. Continuous monitoring is reimbursed by Medicare and covered by many private insurance plans (check with your individual carrier). Additionally, there are professional and personal CGMs being used.



People who use CGM systems can download data to a computer to see patterns and trends in their glucose levels.

CGM systems are more expensive than conventional glucose monitoring, but they may enable better glucose control. CGM devices produced by Abbott, DexCom, and Medtronic have been approved by the U.S. Food and Drug Administration (FDA) and are available by prescription. Special software is available to download data from the devices to a computer for tracking and analysis of patterns and trends, and the systems can display trend graphs on the monitor screen.

After the three- to seven-day time period, the sensor is removed at the doctor's office or Diabetes Center and the information stored in the CGMS is downloaded into a computer. You and your doctor or diabetes health care team can then review your blood sugar levels in relation to the other data collected and make any necessary adjustments in your diabetes management plan. The information will be presented as graphs or charts that can help reveal patterns of glucose fluctuations.

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