Hormone Health NETWORK
Keep your body in balance

Continuous Glucose Monitoring

WHAT IS CONTINUOUS GLUCOSE MONITORING?

Continuous glucose monitoring, also called CGM, is a new way for people with diabetes to monitor glucose levels. CGM measures glucose levels in the fluid between body cells every few minutes throughout the day and night. Most people who use CGM have type 1 diabetes, and many also use an insulin pump.

The most common way to check blood glucose levels is to prick a finger to get a drop of blood (called a fingerstick) and then to test the blood with a blood glucose meter. People use the results of blood glucose tests to make decisions about food, medicines, and exercise.

CGM has a number of advantages over fingerstick testing. CGM
- Allows a person to check glucose levels without a blood sample
- Checks levels every one to five minutes
- Tells the user
  - What glucose levels are now
  - What glucose levels have been over a set number of hours
  - Whether glucose levels are on their way up or down
  - How quickly glucose levels are rising or falling

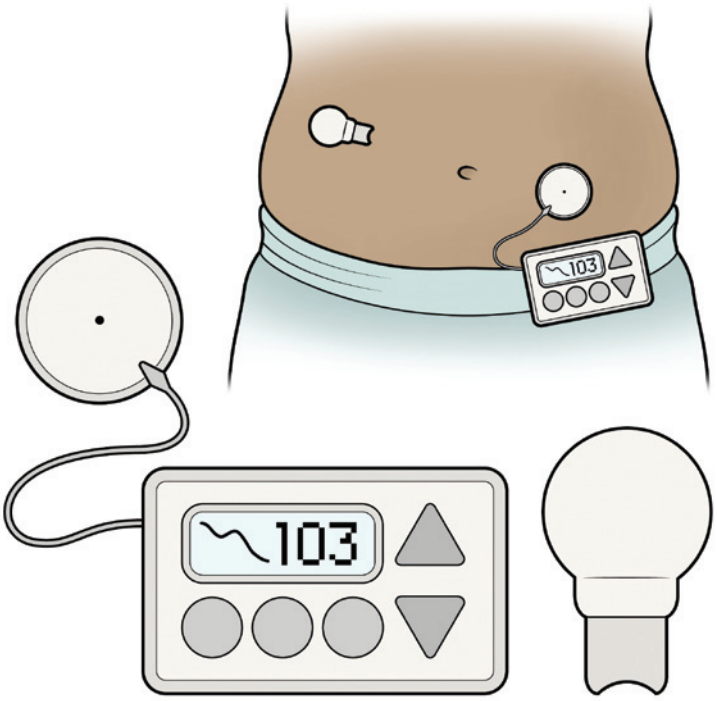
In addition, a CGM system sounds an alarm when glucose levels are too high or too low. Users can set the alarm to fit their personal glucose targets.

DID YOU KNOW?

Although CGM is not as accurate as fingerstick testing, it can provide much more information about blood glucose levels.

HOW DOES CGM WORK?

A CGM system consists of three main parts:
- A small, disposable **sensor** is inserted under the skin to measure glucose in the body fluid. The sensor is replaced every 3 to 7 days, depending on the model.
- The **transmitter** is a small device that attaches to the sensor and is placed on the skin. It uses radio waves to send information about glucose levels to a wireless monitor, also called a receiver.
- The **monitor**, a device the size of a cell phone, shows information about glucose levels on a screen. Users wear the monitor on a belt or keep it in a pocket. The monitor includes



the alarm that warns of out-of-target glucose levels. In some models, information can be displayed directly on an insulin pump.

To make CGM readings more accurate, users enter the results of fingerstick blood glucose tests into the monitor about twice a day. This process (called calibration) is like setting a watch to match the correct time on a clock.

CGM systems provide several kinds of reports about glucose levels. For example, one report graphs average glucose levels for several hours or a whole day and night. CGM systems also allow users to note when they ate meals or took medicines, which can help them understand their glucose trends.

WHY IS CGM USED?

Fingersticks only show glucose levels at certain points in time. Fingerstick testing is like seeing photos of glucose levels to get a sense of what happened that day. In contrast, CGM shows the ups and downs of glucose levels around the clock. It's like watching a movie of glucose levels. Information about glucose trends helps users take steps to keep blood glucose levels in a safe range. Users can share reports from the CGM system with their health care team to guide any adjustments to their diabetes management plan. (On-the-spot insulin adjustments still need to be based on fingerstick testing.)

WHAT CAN PEOPLE EXPECT FROM CGM?

Studies have shown that CGM can help people with type 1 diabetes keep blood glucose levels on target without an increased risk for episodes of severe low blood glucose (hypoglycemia). Staying on target can mean fewer health problems, day-to-day and in the long run.

Some people may decide that CGM is not for them. They find it hard to get used to having a sensor under the skin and dealing with alarms. Some may be overwhelmed by the amount of information CGM provides. Also, CGM is not as accurate as fingerstick testing, since glucose measures in the body fluid lag behind glucose measures in the blood. This difference can be an issue in detecting hypoglycemia or when glucose is fluctuating, such as after meals. CGM users should still confirm any results with a fingerstick before taking steps to correct high or low glucose levels.

CGM systems can be costly. A starter kit can be $1,000 or more, and the disposable sensors run about $10 to $15 per day. Health insurance may or may not pay for CGM.

WHAT SHOULD YOU DO IF YOU ARE INTERESTED IN CGM?

It's best to talk it over with your doctor. If your doctor recommends CGM, you may be able to try out a system before buying one.

Questions to ask your doctor

- **Should I try continuous glucose monitoring?**
- **What are the advantages and disadvantages of CGM for me?**
- **How often should I be checking my blood glucose levels?**
- **How much will CGM cost?**
- **Should I see a diabetes educator?**
- **Should I see an endocrinologist for my care?**

RESOURCES

- Find-an-Endocrinologist: *www.hormone.org* or call *1-800-HORMONE (1-800-467-6663)*
- Find a diabetes educator (American Association of Diabetes Educators): *www.diabeteseducator.org/DiabetesEducation/Find.html*
- Diabetes information from the Hormone Health Network: *www.hormone.org/diabetes*
- National Diabetes Information Clearinghouse (National Institutes of Health): *http://diabetes.niddk.nih.gov/dm/pubs/glucosemonitor/index.aspx*
- The American Diabetes Association: *www.diabetes.org* (search for "consumer guide" to find CGM information)
- Mayo Clinic: *www.mayoclinic.com/health/diabetes/DS01121*

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The Hormone Health Network offers free, online resources based on the most advanced clinical and scientific knowledge from The Endocrine Society (*www.endo-society.org*). The Network's goal is to move patients from educated to engaged, from informed to active partners in their health care. This fact sheet is also available in Spanish at *www.hormone.org/Spanish*.

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