Minimally Invasive and Noninvasive Meters[3]

Currently, the FDA has approved 1 minimally invasive meter and 1 noninvasive glucose meter. Neither of these should replace standard blood glucose testing. These meters are used to obtain additional glucose values between finger stick tests.

Continuous Glucose Monitoring System

This consists of a very small tube inserted just under the skin. The tube collects small amounts of liquid which is passed through a sensor to measure the amount of glucose in the blood. This system cannot be used for daily monitoring because it collects measurements over a 72-hour period and then must be downloaded by the user or health care provider. The system can identify trends in raised glucose levels so a user would know the best time to do standard finger stick tests. A prescription is necessary to buy a continuous glucose monitoring system.

Glucose Monitoring Watch

This device is worn on the arm like a wristwatch. It pulls tiny amounts of fluid from the skin and measures the glucose in the fluid without puncturing the skin. The device requires 3 hours to warm up after it is put on. It can then provide up to 3 measurements per hour for 12 hours. It displays results that can be read by the wearer; however, these readings are not meant to be used as replacements for finger stick tests. The results are meant to show trends and patterns in glucose levels and are useful for detecting and evaluating episodes of hyperglycemia and hypoglycemia. A prescription is necessary to buy a glucose monitoring watch.

Medicare Coverage for Diabetes Supplies[5]

If the patient is eligible, Medicare Part B may help to pay for glucose monitors, blood sugar test strips, lancets, lancing devices, and glucose-control solutions for checking the accuracy of diabetes test equipment. To get supplies paid for under Medicare, the patient must have a prescription from his or her doctor.

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Blood Glucose Monitoring Equipment

Diabetes

To test how well a person is managing his or her blood sugar, he or she will need to use a blood glucose meter, called a glucometer. This device will tell the person what his or her blood glucose level is at any one point in time. It is very important for people to keep a log of their results so they can track their progress over time and show their health care provider how well their body is responding to their diabetes care plan.[1]

A complete testing kit, which includes a glucometer, test strips, lancets, and a log book, can be purchased at a pharmacy without a prescription.[2]

3 Steps to Check Blood Glucose Level

1. **Prick** The person will stick a finger with a special needle, called a lancet, which will produce a drop of blood. There are spring-loaded lancing devices that make this process less painful. He or she must be sure to wash his or her hands (or any other site being lanced) with soap and water.[1]
2. **Collect** Once the person has pricked a finger, he or she will place a drop of blood on a disposable test strip and insert the test strip into a blood glucose meter. The test strips are coated with chemicals that combine with glucose in the blood.[3]
3. **Read results** Blood glucose meters are small battery-operated, computerized machines (about the size of a cell phone) that tell users what their blood glucose level is by measuring it from the drop of blood they provide. Their blood glucose level will show up as a number on a screen (similar to a calculator).[1] This represents their blood glucose level at the time of testing.

Getting Accurate Results[1]

Experts agree that blood glucose meters are accurate and precise. However, mistakes can be made by the person doing the blood check. Here are some things that can cause a meter to give a poor reading:

- A dirty meter
- A meter or strip that's not at room temperature
- An outdated test strip
- A meter not set up for the current box of test strips being used
- A blood drop that's too small
- User error
- A meter that needs calibration (See the Testing Your Meter for Accuracy box)

Tip: People should have their skills checked by their health care team at least once a year to avoid making errors.[1]

Target Blood Glucose Levels for People Who Have Diabetes[2]

Before meals
70 to 130 mg/dL

1 to 2 hours after the start of a meal
less than 180 mg/dL

The Latest Advances in Blood Glucose Meters

There are many different types of blood glucose meters available. Newer meters often have features that make them easier to use than older models. People should work with their health care providers to choose the one that is right for them.

- **Talking meters** Several meters "speak" to the user which makes it easier to follow instructions and get test results. These are perfect for people who have visual impairments.[4]
- **Bilingual meters** speak both English and Spanish.[4]
- **Combination meters** allow users to check both their blood glucose levels and their blood pressure.[4]
- **Continuous meters** provide round-the-clock readings to help users better manage their diabetes throughout the entire day.[4]

Other features that are available include:

- Alarms that warn of low blood glucose levels and/or alert the user to take a reading after a meal[4]
- Strip-release buttons that eliminate the need to touch a used strip[4]
- Results-storing capabilities and daily, weekly, and monthly averages[4]
- The ability to download data from the meter and store the results on a personal computer or share it with a secure diabetes-management Web site[4]
- No manual coding which means the user doesn't need to insert a code or a code chip[4]
- Automatic activation once the test strip is inserted[4]
- Bright backlighting which allows for testing in low-light environments[4]
- Error codes that appear on the meter when there is a problem with the meter, the test strip, or the blood sample on the test strip[3]

Testing Your Meter for Accuracy[3]

There are 2 ways to test the accuracy of a meter:

1. Test Quality-Control Solutions

A test solution is used in place of blood and is placed on a test strip and run through the meter. The result is then compared with the number listed on the test quality-control solution. If the numbers match, the meter and test strip are working properly. If they don't match, the system may not be accurate. Contact the manufacturer for advice.

2. Electronic Controls

With this method, a cartridge or special "control" test strip is placed in the meter, and a signal indicates if the meter is working. If the meter is not working properly, contact the manufacturer for advice.