



# Continuous Glucose Monitoring Systems

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## LOCATION/AFFILIATION

UVA Diabetes Education and Management Program – Division of Endocrinology

## APP(S), DEVICE(S), OR PLATFORM(S) USED

- Smartphones (all iPhone, most Androids)
- Sensors

## PROGRAM DESCRIPTION

We use a variety of technological devices with patients, one of these being continuous glucose monitoring systems. These are devices that provide patients and clinicians an abundance of feedback and data, especially compared to the data gathered from cumbersome glucose meters and finger sticks. The sensor measures glucose, in interstitial fluid, a little different than blood sugar, but very close in terms of numerical accuracy. The FDA has approved correction dosage of insulin based on a sensor glucose number, so it is very reliable. A sensor system will give a glucose number and also be able to tell a patient where they are “headed”, if they are trending up or down with their levels, and the rate they are doing so. The sensor gives the patients guidance in **real-time**.

The sensor is worn by the patient for a duration of time, dependent of the brand of sensor. There are both professional and personal sensors. Professional sensors are placed by clinicians in their office. Normally this is a blinded experience for the patient, who will wear the sensor for a week or 2. Retrospective data is analyzed, by which insulin dosing decisions can be made, suggestions around lifestyle, etc. Personal CGM's gives the patient biofeedback about daily choices they make and how those impact their blood sugar. This real-time data helps reduced risk of long-term complications and increases personal empowerment and responsibility. The patient learns how to manage risk and make healthier choices in regards to food intake, physical activity, etc. based on the real-time data and trend graphs they are receiving. The patient may have a reader that reads the sensor, or a receiver to which the sensor is continuously pushing data. The reader or receiver could be downloaded as an app to a Smartphone, which is very convenient for the patient to view the data.

Another advantage is that clinicians can access data remotely. Patients can send data to the clinicians from their home, so it is incredibly helpful for remote management. It is advantageous for clinicians also in the amount of data that is potentially available, and the ease of accessing this data. Clinicians can bill for placement of the sensor, for interpretation of data, and also bill for training patients on how to use their personal CGM – Medicare covers this, as well as certain insurance companies, but not all. There are billing codes specific to all of these.