Improving Care and Treatment for Those with Diabetes

Understanding Diabetes

Diabetes is a condition that occurs when blood sugar (glucose) levels are too high. The three most common types are Type 1, Type 2, and gestational diabetes. In **Type 1 diabetes**, the immune system destroys the pancreatic cells that make insulin, so people must take insulin daily to survive. **Type 2 diabetes**, the most common form, occurs when the body doesn't use insulin properly or doesn't make enough, leading to high blood sugar. **Gestational diabetes** develops during pregnancy and usually goes away after birth, though it increases the risk of developing Type 2 diabetes later in life. **Prediabetes** means blood sugar levels are higher than normal but not high enough for a Type 2 diagnosis, increasing the risk of both Type 2 diabetes and heart disease.

136 Million	**5 - 10 %**	**90 - 95 %**
Americans have **diabetes** or **prediabetes**	of people with diabetes have **Type 1**	of people with diabetes have **Type 2**

When diabetes is not controlled, patients' high blood glucose levels can lead to serious health complications and even death. In fact, diabetes is the eighth-leading cause of death in the United States. According to the CDC, 38 million Americans have diabetes, while 98 million – over one-third of U.S. adults – have prediabetes, and more than 80 percent are unaware of having prediabetes.

How Diabetes Impacts Health

Over time, diabetes can damage the heart, blood vessels, eyes, kidneys, and nerves.

- Adults with diabetes are **two to four times more likely** to have a stroke or heart disease due to high blood glucose damaging blood vessels and nerves.

- Diabetic retinopathy, caused by damage to the retina's small blood vessels, is a **leading cause** of adult blindness.

- Nerve damage and poor foot circulation increase the risk of ulcers, infections, and amputations. Diabetes accounts for **over 60 percent** of non-traumatic lower-limb amputations.

- Chronic kidney disease affects about **one in three adults** with diabetes, making kidney damage a common complication.

Medtech's Role in Improving Diabetes Care

Early diagnosis and treatment of diabetes can lead to improvements in the long-term health outcomes of patients. AdvaMed members are developing new technologies that make day-to-day life healthier and easier for those living with diabetes and allow patients to manage their diabetes more effectively, improving their care outcomes in the process. These include continuous glucose monitors (CGMs), which automatically track glucose levels day and night, allowing persons with diabetes to see where their glucose values have been, where they are now, and where they are going, compared to the older traditional blood glucose monitors (BGMs).
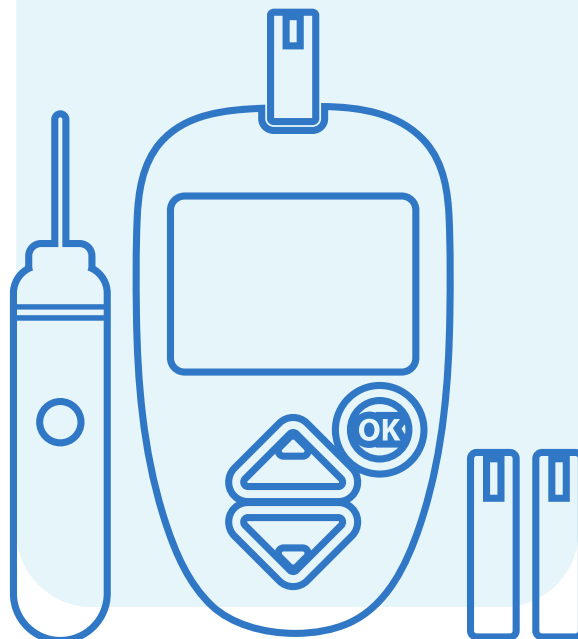
BGMs are the most common alternative to CGMs, but they only provide point-in-time data and often miss important high or low blood glucose level episodes. Thanks to advancements in medical technology, CGMs can fill in important data gaps and even alert the patient in real time of a high or low glucose episode so they can immediately bring their glucose back into an optimal range. CGMs generally consist of a sensor/transmitter that is worn on the body to measure glucose data and a reader or smartphone that allows users to view current and past glucose readings.

CGMs are often used with insulin pumps, which are small, computerized devices that deliver insulin as needed, including in bolus doses close to mealtime, to control the rise of blood sugar after a meal, mimicking the body's normal release of insulin.

It is now possible to combine CGMs and insulin pumps into an automated insulin delivery (AID) system, which can also be referred to as a loop or an artificial pancreas. With an AID system, patients can rely on their CGM readings to guide their insulin pump, requiring less user input than when the two technologies are separate.