Educate Yourself About Diabetes During Diabetes Awareness Month

by COLLEEN KELLY

Diabetes Awareness Month

November is Diabetes Awareness Month.

As a certified diabetes educator that works with people with diabetes – type 1 diabetes, type 2 diabetes, and gestational diabetes – I naturally thought this would be a perfect month to share some statistics regarding the prevalence of diabetes, as well as discuss symptoms of diabetes, and how diabetes is diagnosed.

If you're reading this, you may already have diabetes or maybe you are reading this because you're scared that you have diabetes and aren't quite sure what to do, or how to bring it up to your physician.

I want you to know that you are not alone.

Diabetes by the Numbers

Did you know that at least 30 million Americans are living with diabetes? Unfortunately, 25 percent of these people are unaware they have it.

The prevalence of diabetes is on the rise – 1 out of 3 people will develop diabetes in their lifetime. That means that 33 percent of Americans will eventually have some type of diabetes. And it will most likely be type 2 diabetes because 90 percent of people with diabetes have type 2 diabetes.

If you thought that there were a lot of people with diabetes, there are about 84 million people with prediabetes, which is "condition in which blood glucose levels are higher than normal but are not high enough for a diagnosis of diabetes."

So, now that you know how common diabetes is, let's discuss the symptoms of diabetes.

Symptoms of Diabetes

Often, people do not know they have diabetes until their blood sugar levels are very high. I have heard diabetes called a "silent" disease because it can go undetected for a long time if your physician is not screening you.

When your blood sugar levels are only slightly elevated, it is not uncommon to have no symptoms at all. When your blood sugar levels become quite elevated, you begin to have symptoms.

Symptoms of diabetes may include:

- Increased thirst, hunger, and/or urination
- Weight loss without trying

- Dry mouth
- Fatigue
- Headaches
- Vision changes

If you note the symptoms above, it is time to make an appointment with your physician. It is likely that your physician will order lab work, as well as a urine test and possibly a finger-stick blood sugar level test.

The physician will assess the values from all of this information, in addition to the symptoms you've discussed, and his or her assessment skills, to reach a diagnosis. They will likely diagnose with you type 1 or type 2 diabetes.

So… What Is With the Labs?

I've had plenty of patients wonder how their physician was able to diagnose them with diabetes with a simple blood test. Diabetes is such a life-altering diagnosis. After all, blood tests can be wrong, right?

Well, any blood test can be wrong. But… the way diabetes is diagnosed is pretty foolproof these days.

One way that we can diagnose type 2 diabetes is the **glycated hemoglobin (A1C) test**. You may hear your physician call it simply the "A1C" or the "hemoglobin A1C."

- The **glycated hemoglobin (A1C) test** is an average of your blood sugar for the past two to three months. It measures the blood sugar that attaches to your hemoglobin – so if your blood sugar has been high, your A1C will be high. To make a definitive diagnosis of diabetes, an A1C must be 6.5% or above.

Once you have been diagnosed with type 2 diabetes, the A1C is drawn periodically to assess how well your blood sugar levels are controlled.

- A **random blood sugar test** can also be used. A random blood sugar (regardless of what was eaten before the blood draw) that is 200 mg/dL (11.1 mmol/L) or higher is diagnostic of diabetes – especially when coupled with any of the symptoms listed above.
- A **fasting blood sugar test** is drawn after not consuming caloric food or beverages overnight. A fasting blood sugar level of less than 100 mg/dL (5.6 mmol/L) is considered normal. A level of 100 to 125 mg/dL (5.9 to 6.9 mmol/L) is considered prediabetes. Higher than 126 mg/dL (7 mmol/L) on two separate occasions is diagnostic for diabetes.
- An **oral glucose tolerance test** is also drawn after an overnight fast. The fasting blood sugar is first drawn. Then a sugary beverage is consumed, and blood sugar levels are drawn periodically over the next two hours. According to Mayo Clinic, "A blood sugar level less than 140 mg/dL (7.8 mmol/L) is normal. A reading between 140 and 199 mg/dL (7.8 mmol/L and 11.0 mmol/L) indicates prediabetes. A reading of 200 mg/dL (11.1 mmol/L) or higher after two hours may indicate diabetes."

Next page: Learn about the history of diabetes from past to present, and more.

The History of Diabetes in the 20th and 21st Century

We've come a long way in the treatment of diabetes – from vials, diabetic pens to insulin pumps. Over the past ten years to fifteen years, there's been more drug classes introduced to treat elevated blood glucose and tools to help manage your diabetes than ever before.

Below you'll learn how diabetes treatment has evolved since the 20th and 21st century.

The 20th Century

- **1910.** Sir Edward Albert Sharpey-Schafer studies the pancreas and discovers insulin.
- **1921.** Elliot Joslin (1870-1962) identifies obesity as being related to diabetes, and describes diabetes as an “epidemic.” Frederick Banting, MD, and Charles Best, MD, extract insulin from dog pancreases. After testing the insulin on other dogs, it is purified and tested on humans. The men go on to win the Nobel Peace Prize in 1923.
- **1923.** Eli Lilly and Company begin to produce insulin commercially.
- **The 1930s.** A distinction is made between diabetes that required insulin and diabetes that can be treated without the use of insulin.
- **1940.** The American Diabetes Association (ADA) is founded. The ADA was established to address the increasing incidence of diabetes and the complications it caused; it is still in existence today and still works at these causes. The ADA was established to address the increasing incidence of diabetes and the complications it caused; it is still in existence today and still works at these causes.
- **1949.** Insulin metabolism is discovered. Insulin works like a “key” to unlock the “door” to the cell, allowing glucose to enter the cell so that the cell may transport it throughout the body for energy. Standardized insulin syringes are introduced.
- **1950.** The terms “type 1” and “type 2” diabetes are proposed to differentiate the two types of diabetes but are not adopted until 1970. The “exchange system” is introduced by the American Dietetic Association and the US Public Health Service, and divides food into groups based on carbohydrates, fats, and protein.
- **1953.** Urine blood glucose testing strips are introduced.
- **1959.** A way to differentiate “insulin-dependent” and “non-insulin dependent” diabetes is introduced. A radioimmunoassay blood tests are available and detect insulin in the blood.
- **1961.** Glucagon is now available to treat severe hypoglycemia; Eli Lilly and Company produce it.
- **1964.** Blood glucose testing strips are introduced, and these testing strips are color coded.
- **1971.** Insulin receptors are identified on cell membranes. Scientists discover that people with missing or defective insulin receptors may have type 2 diabetes.
- **1972.** U100 insulin is introduced.
- **1976.** The first insulin pump is invented.
- **1977.** The glycosylated hemoglobin (A1C) is developed and becomes the gold standard for measuring long-term diabetes control.
- **1978.** Although diabetes has since been differentiated as “insulin-dependent” and “non-insulin dependent,” it is not labeled as type 1, type 2, gestational, or diabetes associated with other syndromes or conditions.
- **1980.** The term “diabesity” is introduced; according to Diapedia, “The subsequent epidemic of diabesity may be attributed to rising affluence in many parts of the globe, reduced physical activity, and increasing lifespan (type 2 diabetes favors the over-60s).”
- **1983.** Second-generation sulfonylureas enter the market – meaning fewer side effects.
- **1989.** The ADA releases its first Standards of Care.
- **1993.** The Diabetes Control and Complications Trial (DCCT) shows that keeping blood glucose levels in control promotes the reduction of complications, such as retinopathy and nephropathy.
- **The Mid-1990s.** The incretin hormone GLP-1 is identified, leading to research on its effect on blood glucose control.
- **1995.** Metformin is released to the public and becomes the gold standard for type 2 diabetes blood glucose control.

Diabetes in the 21st Century

- **2002.** Prediabetes is defined as an A1C level of 5.7% to 6.4%.
- **2005.** Byetta, the first GLP-1 receptor agonist in its class, is released.
- **2006.** Januvia, the first DPP-4 inhibitor, is released.
- **2008.** The ACCORD, ADVANCE, and VADT trials are completed. The trials showed failed to show that “a benefit of intensive glycemic control on cardiovascular outcomes in people with type 2 diabetes who are at high cardiovascular risk. The results from these studies lead to clinical recommendations that call for a more individualized approach for setting glycemic goals and treatment targets.”
- **2013.** Invokana, the first SGLT-2 inhibitor, is released.

- **2017.** The CANVAS Program, which studied Invokana’s effect on heart outcomes, found that the drug has positive cardiovascular outcomes and renal protective benefits. It's the first diabetes medication that is found to promote heart health, as opposed to being heart-neutral – which is a groundbreaking therapy. Further studies are being performed on the other SGLT-2 inhibitor medications. Medtronic introduces the 670G insulin pump – the world’s first hybrid closed-loop insulin pump. The pump uses continuous glucose monitoring (CGM) to detect fluctuations in blood glucose levels. The person wearing the pump must still enter carbohydrates and calibrate the pump, but the pump makes micro basal rate adjustments, acting like a pancreas.

The Bottom Line…

November is Diabetes Awareness Month, so if you are concerned that you may have diabetes, feel empowered to discuss your concerns with your physician.