



# Understanding your Lab on Diabetes

## History of HbA1c for diagnosis of diabetes

The first step in a changing attitude towards HbA1c occurred in July 2009. An International Expert Committee, with members appointed by the American Diabetes Association (ADA), the European Association for the Study of Diabetes (EASD), and the International Diabetes Federation (IDF), had convened in 2008 to consider current and future means of diagnosing diabetes in nonpregnant individuals. In their conclusion, the committee presented its principal finding that the "HbA1c assay may be a better means of diagnosing diabetes than measures of glucose levels."<sup>1</sup> The Committee recommended that an HbA1c diagnostic level of 6.5% be set in order to assist with the ultimate goal of identifying and subsequently treating individuals who are at risk for complications

from diabetes.

In January 2010, the ADA, for the first time, officially recommended the use of HbA1c for diagnosis of diabetes based on clinical evidence showing that HbA1c was standardized and more reliable than glucose.<sup>2</sup> The ADA agreed that an HbA1c of 6.5% should be used for diagnosis and additionally suggested a range of 5.7% to 6.4% to be used for the identification of those at risk for diabetes. The ADA stated that the HbA1c test "should be performed in a laboratory using a method that is NGSP-certified and standardized to the DCCT assay."

## How does the A1C test help you stay healthy?

If your blood glucose stays too high over a long period of time, it can cause blood vessel damage and lead to serious health problems. **Often,**



**there are no symptoms** to warn you when your blood glucose has been staying too high. To know for sure whether your blood glucose is staying at a healthy level or not, you need to have an A1C test at least twice a year. For many people with diabetes, the A1C should be less than 7. You and your health care team will decide on an A1C goal that is right for you. When your A1C number is too high, it's a warning that you need to work on getting your blood glucose lower to help protect your health. The closer you can get to the goal number for your A1C, the better your chance of preventing or delaying health problems that can happen when you have diabetes. Your doctor, diabetes educator, nutritionist, and others on your health care team can give you information and advice on what to do to get your blood glucose under better control. Your plan might include being more active, working on eating the right foods at the right times in the right amounts, and taking medications if prescribed.

### High blood glucose and high blood pressure are harmful to your kidneys.

If your blood glucose stays too high for a long time, it can damage the tiny blood vessels in your kidneys. High blood pressure can make the damage to these blood vessels worse. When your kidneys get damaged in this way, proteins leak from your kidneys into your urine.

- This urine test is sometimes called a test of "kidney function". It looks for a type of protein called "albumin". Having too much albumin in your urine means that your kidneys may be damaged.
- Damage to your kidneys can be serious, and it can even cause your kidneys to stop working. Having this urine test of kidney function helps protect your health by finding possible kidney damage at an early stage when it is easier to treat.

If kidney problems become serious, it can lead to

need for kidney dialysis or kidney transplant. To help keep from having serious kidney problems, do your best to keep your blood glucose and blood pressure at healthy levels.

When you have diabetes, the nerves throughout your body can get damaged, and nerve damage tends to be more common in the feet. Nerve damage can make your feet feel numb. If you develop sores or tender spots on your feet, you may not notice them right away if your feet are numb. Unless you notice sores and start treating them right away, they can get worse and take a long time to heal. To help foot problems, keep your blood glucose and blood pressure at healthy levels and make sure that your shoes fit well.

### Cholesterol and triglycerides are types of fat that are found in your blood.

Cholesterol is pronounced "koh-LESS-ter-all". Triglycerides is pronounced "try-GLISS-er-ides." Cholesterol includes both "good" cholesterol (also called HDL cholesterol) and "bad" cholesterol (also called LDL cholesterol). If your cholesterol and triglycerides are not at the right levels for good health, you have a greater chance of getting heart disease or stroke. The goals for healthy levels of cholesterol and triglycerides can vary from person to person, so it's important to check with your doctor to see what your doctor to see what your goals should be.

- For "bad" cholesterol (LDL cholesterol), you want your number to be *low* enough. For people with diabetes, this usually means **less than 100**.
- For "good" cholesterol (HDL cholesterol), you want your number to be *high* enough. For men with diabetes, this usually means **higher than 40**. For women with diabetes, this usually means **higher than 50**.
- For triglycerides, you want your number to





this usually means **less than 150**.

To get to healthier levels of cholesterol and triglycerids, you may need to make changes in your lifestyle (diet and exercise). Your doctor might prescribe medication. There is a connection between cholesterol and blood glucose. When blood glucose stays too high, it can lead to higher levels of "bad" cholesterol and triglycerides. When you eat better and become more active, it can help you to improve your cholesterol numbers and keep your blood glucose at a healthy level.

### Checking your weight

Studies show that *more than half* of Americans are overweight. Often, people who have Type 2 diabetes are overweight when they first find out they have diabetes. Being overweight makes you more likely to get Type 2 diabetes. Being overweight also makes you more likely to get heart disease and many other health problems. When you are healthy weight, it is easier for you to keep your blood glucose and blood pressure at healthy levels. When you are able to keep your blood glucose and blood pressure at healthy levels, you help prevent the serious health complications of diabetes. Having your weight checked at every office visit is part of quality care for diabetes and a good reminder about how your

weight affects your health. If you need to lose weight, ask for help from members of your health care team. Set goals for weight loss that are realistic and do your best to stay active and eat healthy foods.

### Blood pressure

Diseases that damage the heart and blood vessels, including stroke, are the biggest cause of death for people with diabetes. Keeping blood pressure at a healthy level lowers the risk of heart attack and stroke. It also lowers the chance of dying from heart disease. Goals for blood pressure can vary, so ask your doctor what your goal should be. It's important to have your blood pressure checked at each office visit, because there are *usually no symptoms* to let you know if your blood pressure is too high. If your blood pressure numbers are too high, ask your health care team about what you can do to help get the numbers down. Often, this will mean lifestyle changes, such as healthier eating and being more active. Your doctor may prescribe blood pressure medication as well.



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