

# Information for People with Diabetes



international change to  
**HbA<sub>1c</sub> results**

Supported by the  
Diabetes Federation of Ireland



**100** mmol/mol  
11.3%

**90** mmol/mol  
10.4%

**80** mmol/mol  
9.5%

**70** mmol/mol  
8.6%

**60** mmol/mol  
7.6%

**50** mmol/mol  
6.7%

**40** mmol/mol  
5.8%

## What is HbA<sub>1c</sub> and what does it measure?

Haemoglobin (known as Hb) is present in the red cells of everybody's blood (it is the Hb of HbA<sub>1c</sub>). This is what makes your blood red. Glucose sticks to the haemoglobin in the red blood cells to give what is known as HbA<sub>1c</sub>. This happens by way of a complicated chemical reaction. The more glucose there is in the blood, the more glucose is attached to the haemoglobin. The amount of haemoglobin in your red cells with glucose attached is a good indication of the average glucose levels in your blood over the previous six to eight weeks. Your doctor will use the HbA<sub>1c</sub> results to monitor how well your diabetes is controlled.

## What does it not measure?

The HbA<sub>1c</sub> test is not a measure of the blood glucose at a moment in time - as you get when you test your blood using your own blood glucose meter. Your home blood glucose monitoring allows you to track your blood glucose level at different times of the day. In contrast, HbA<sub>1c</sub> takes a long-term measure of your blood glucose control and expresses it in a different way.

## Why measure HbA<sub>1c</sub>?

The HbA<sub>1c</sub> test tells you and your doctor what your blood glucose control has been and whether you are on target to keep your risk of developing the complications of diabetes as low as possible. The better your blood glucose control, the less chance there is of you developing the complications of diabetes.

## How often is HbA<sub>1c</sub> measured?

How often HbA<sub>1c</sub> is measured is usually decided by your doctor. This will depend on many factors, including the type of diabetes you have and the way you have been managing your diabetes.

## What are the current HbA<sub>1c</sub> units and targets?

For many years the way of measuring HbA<sub>1c</sub> has been aligned to that used in the Diabetes Control and Complications Trial (DCCT). The test is known as HbA<sub>1c</sub> (DCCT) and the results are given as a percentage.

Your doctor is likely to have agreed a specific HbA<sub>1c</sub> target value with you to suit your particular circumstances.

### What is changing in regard to HbA<sub>1c</sub>?

Laboratories in Ireland are about to change the way HbA<sub>1c</sub> results are reported. The International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) has put in place a new reference measurement system for the worldwide standardisation of HbA<sub>1c</sub>. This will make comparing HbA<sub>1c</sub> results from different laboratories and clinical research trials throughout the world much easier. These developments are supported by the international diabetes organisations. The new name for the test will be HbA<sub>1c</sub> (IFCC).

### What are the new HbA<sub>1c</sub> (IFCC) units?

The HbA<sub>1c</sub> (IFCC) results will be reported in new units called mmol/mol (pronounced "millimoles per mole") rather than as a %. The range of HbA<sub>1c</sub> values in people without diabetes will be 20 to 42 mmol/mol. For people with diabetes the target levels will generally be a little higher and will be set by your medical team, usually in agreement with you.

### How will the HbA<sub>1c</sub> results change?

The HbA<sub>1c</sub> (IFCC) results will be very different from the familiar HbA<sub>1c</sub> (DCCT) results, but the test will still give you the same basic information about what your glucose control has been over the last six to eight weeks. The following short table gives some examples of how the results compare.

HbA <sub>1c</sub> (DCCT) (%)	HbA <sub>1c</sub> (IFCC) (mmol/mol)
6.0	42
6.5	48
7.0	53
7.5	59
8.0	64
8.5	69
9.0	75

The fact that the HbA<sub>1c</sub> (IFCC) result is higher does not mean there has been more glucose in your blood or that your diabetes was more poorly controlled. It is just a different way of expressing the same level of diabetes control.

The HbA<sub>1c</sub> (IFCC) numbers are very different from blood glucose values which are similar to the reading you obtain with your meter and this will reduce the risk of you confusing the results of both of these measurements.

### **When will this change happen?**

From 1st July 2010, all HbA<sub>1c</sub> results in Ireland will be given in the familiar HbA<sub>1c</sub> (DCCT) % format and in the new HbA<sub>1c</sub> (IFCC) mmol/mol format. So, for example, the report carrying your HbA<sub>1c</sub> result might read as follows:

HbA <sub>1c</sub> (IFCC)	53 mmol/mol
HbA <sub>1c</sub> (DCCT)	7.0%

The dual reporting of the HbA<sub>1c</sub> (DCCT) results alongside the new HbA<sub>1c</sub> (IFCC) results will continue until the end of 2011. It is likely that you will only have three or four HbA<sub>1c</sub> measurements made during the period of dual reporting so it is important that you become accustomed to the HbA<sub>1c</sub> (IFCC) numbers from early on.

If you have any questions or concerns about these important changes, please ask your doctor, diabetes nurse specialist, practice nurse or another member of your healthcare team to assist you.