Haemoglobin A1c Testing (HbA1c)

A guide for patients and healthcare professionals

University Hospitals of Leicester NHS Trust
Introduction

The Diabetes Team have produced this booklet to help you to understand your diabetes, how it will affect you and how to stay healthy. Keeping your diabetes under good control is the key to staying healthy.

Haemoglobin A1c Testing

Checking blood glucose levels (blood glucose monitoring), at various times of the day helps manage your diabetes, but this method is not sufficient to check on your overall diabetes control; this requires taking a blood sample, either at the hospital or at your G.P.’s, which tells you what your average blood glucose level has been over the past 2-3 months.

This blood test is also called Haemoglobin A1c (HbA1c) you may have also heard this test called:

1. A1c
2. HbA1c
3. Glycohaemoglobin
4. 3 month blood glucose test
What is HbA1c?

Haemoglobin is a protein found in red blood cells. In the bloodstream, glucose sticks to the red haemoglobin pigment forming A1c (HbA1c).

Each red blood cell lives for 8-12 weeks. During this time, the glucose builds up, therefore, the more glucose there is in the blood, the more will stick to the haemoglobin.
What does HbA1c measure?

HbA1c measures how much glucose is stuck to the haemoglobin in your blood.

This provides guidance as to what your average blood glucose level has been for the past 2-3 months.

The HbA1c result is given as in millimoles per mol (mmol/mol) (it was previously given as a percentage (%))

- If your result is higher than normal, the chances of developing diabetic complications are increased.
- If your result is lower than normal, the chances of developing diabetic complications are decreased.

Target Levels and Conversion Chart for HbA1c

Individual targets for HbA1c should be discussed with your healthcare professional (HCP) but agreed guidelines say to aim for 48 mmol/mol (6.5%) at diagnosis rising to 59 mmol/mol (7.5%) depending on your diabetes treatment and how long you have had diabetes.

<table>
<thead>
<tr>
<th>Current HbA1c (%)</th>
<th>New HbA1c (mmol/mol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.0</td>
<td>42</td>
</tr>
<tr>
<td>6.5</td>
<td>48</td>
</tr>
<tr>
<td>7.0</td>
<td>53</td>
</tr>
<tr>
<td>7.5</td>
<td>59</td>
</tr>
<tr>
<td>8.0</td>
<td>64</td>
</tr>
<tr>
<td>9.0</td>
<td>75</td>
</tr>
</tbody>
</table>

From 1st June 2011 HbA1c results will ONLY be given in mmol/mol instead of percentages (%).
How can HbA1c testing help you?

An HbA1c higher than 59 mmol/mol (7.5%) is a warning sign that your diabetes needs better control.

If your HbA1c is too high, your diabetes treatment may need to be increased, and/or you need to make lifestyle changes, e.g. food/exercise.

Research has shown that good blood glucose control can help prevent the risks of developing complications, including:

- kidney disease
- eye disease
- heart disease
- stroke
- nerve damage
- amputations
- circulatory problems

Where can you have an HbA1c test?

A venous blood sample can be taken either at your GP’s and sent to the lab. However this will mean you have to wait for a week to get the results. Some doctors can, however, perform HbA1c tests in their surgery by taking a drop of blood from a finger prick. These results can be seen in a few minutes and so can be discussed straight away.
How often should I have an HbA1c test?

The National Institute for Health and Clinical Excellence (NICE) recommends that HbA1c should be measured at **2-6 monthly intervals** depending on the following:

- **Acceptable levels of control and stability of changes in blood glucose control and/or changes in therapies**
- **HbA1c targets should be set between 48 mmol/mol and 59 mmol/mol, (6.5%-7%) based on the risks of complications**
- **An HbA1c less than 48 mmol/mol (6.5%) represents very good diabetes control, and is acceptable as long as there are no problems with hypoglycaemia**
## Your Record

*My Diabetes Doctor / Nurse is:*

<table>
<thead>
<tr>
<th>Date</th>
<th>HbA1c (your Target................ mmol/mol &amp; %)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Target</strong> 48-59 mmol/mol (6.5%-7.0%)</td>
</tr>
<tr>
<td></td>
<td><strong>Caution</strong> 59-64 mmol/mol (7.5%-8.0%)</td>
</tr>
<tr>
<td></td>
<td><strong>Stop Review</strong> 75+ mmol/mol (9.0%-10%)</td>
</tr>
</tbody>
</table>
Contacts

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Leicestershire Diabetes website
www.leicestershirediabetes.org.uk

Diabetes UK website www.diabetes.org.uk

University Hospitals of Leicester NHS
Caring at its best

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