Test Information

Change in reporting of HbA1c

What is happening and why.
The way in which HbA1c results are reported from all IMVS Pathology laboratories is going to change in the near future.

What is HbA1c?
Glucose in the blood binds irreversibly to haemoglobin in red blood cells, forming HbA1c. Red blood cells have a lifespan of 8–12 weeks, so HbA1c gives a measure of what the average blood glucose level has been in the previous 2-3 months.

Why measure it?
Increased HbA1c is associated with increased risk for diabetic complications, in particular retinopathy, neuropathy and kidney disease. Because blood glucose levels vary throughout the day and from day to day, HbA1c is usually measured every 3-6 months.

What are the current HbA1c results and targets?
HbA1c results are currently reported as a percentage of total haemoglobin. For most people with diabetes, the HbA1c target is below 7.0%. Targets should be set for an individual, taking into consideration their risk of hypoglycaemia, cardiovascular status and co-morbidities. Thus higher targets might be appropriate in an elderly patient with significant co-morbidity, and lower targets would be set in pregnancy.

What is changing and why change?
IMVS Pathology is about to change the way in which the HbA1c results are reported. An international consensus statement recommends that dual reporting of haemoglobin A1c (HbA1c) levels — in the current units (percentage) and Système International (SI) units (mmol/mol). This recommendation is supported by the Australasian Association of Clinical Biochemists, the Australian Diabetes Educators Association, the Australian Diabetes Society and the Royal College of Pathologists of Australasia.

The SI units are a true measure of HbA1c and remove potential confusion between HbA1c values and blood glucose. This will make comparing HbA1c results from different laboratories and from research trials throughout the world much easier. This also ensures a more accurate HbA1c is delivered to clinicians for patient care.

What are the new HbA1c results?
The way the results will be given is very different from the old results, but the test will still give the same basic information about what the glucose control has been over the last 2-3 months. The measurement will be in millimoles HbA1c per mol Hb (mmol/mol) instead of percentage (%). Patient reports will contain results in both units. Here is how the new results compare:

<table>
<thead>
<tr>
<th>DCCT - HbA1c (%)</th>
<th>IFCC - 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>
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<td>7.5</td>
<td>58</td>
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<tr>
<td>8.0</td>
<td>64</td>
</tr>
<tr>
<td>9.0</td>
<td>75</td>
</tr>
</tbody>
</table>
How is it calculated?

When HbA1c results are expressed as % haemoglobin, the equation describing the relationship is:

IFCC-HbA1c (mmol/mol) = [DCCT-HbA1c (%) - 2.15] x 10.929

The two units can be inter-converted according to the table above. A unit conversion calculator has been built on the QAAMS website:


When will this happen?

In line with International and Australian recommendations (AACB, RCPA, ADS, ADEA) for the standardisation of HbA1c assays, SA Pathology will commence dual reporting of HbA1c in IFCC unit (mmol/mol) with the current NGSP/DCCT derived unit (%) within the next few months.

So for example, the report of your HbA1c result might read:

Old HbA1c 6.9%
New HbA1c 51 mmol/mol

The fact that the number is higher does not mean there is more glucose in the blood. It is just a different way of expressing the same thing.

References
