

Macleod Diabetes & Endocrine Centre Royal Devon & Exeter Hospital

HbA_{1c} – new units

Glycated haemoglobin (HbA_{1c}) is used to measure overall blood glucose control of people with diabetes. The traditional units of measurement were % - that is, the percentage of total haemoglobin.

Several years ago, a new unit of measurement was recommended internationally. Since June 2009, HbA_{1c} has been reported in both old and new units. It is anticipated that only the new units will be reported from late 2011 onwards.

Why the change?

1. Technical reasons, to ensure that HbA_{1c} values reported in one laboratory are directly comparable to results from another laboratory.
2. A secondary benefit is that it avoids confusion with average blood glucose:
 - Many patients assume that an “HbA_{1c} of 7.5” means that their average blood glucose is 7.5 mmol/L. This is not true.
 - Reporting the same result as 58 mmol/mol should eliminate this confusion.

Converting old into new units

Use this table. The third column also shows the estimated average blood glucose for each level of HbA_{1c} – note that this is not completely accurate in all patients.

Old HbA _{1c}	New HbA _{1c}	Estimated average blood glucose
6%	42 mmol/mol	7.0 mmol/L
6.5%	48 mmol/mol	7.8 mmol/L
7%	53 mmol/mol	8.6 mmol/L
7.5%	58 mmol/mol	9.4 mmol/L
8%	64 mmol/mol	10.2 mmol/L
9%	75 mmol/mol	11.8 mmol/L
10%	86 mmol/mol	13.4 mmol/L
11%	97 mmol/mol	14.9 mmol/L
12%	108 mmol/mol	16.5 mmol/L
13%	119 mmol/mol	18.1 mmol/L

If you are interested:

- new HbA_{1c} = (old HbA_{1c} – 2.15%) x 10.929
- estimated average glucose = (old HbA_{1c} x 1.59) – 2.59