

Changes to laboratory reporting of HbA_{1c}

Since the beginning of August 2009, general practitioners and nurses will have noticed the change to dual reporting of HbA_{1c} results. Previously, results had only been reported in percentages (%), but now are being reported with molar units (mmol/mol) alongside (Table 1).

This practice of dual reporting will continue for two years after which time laboratories will likely only report molar units.

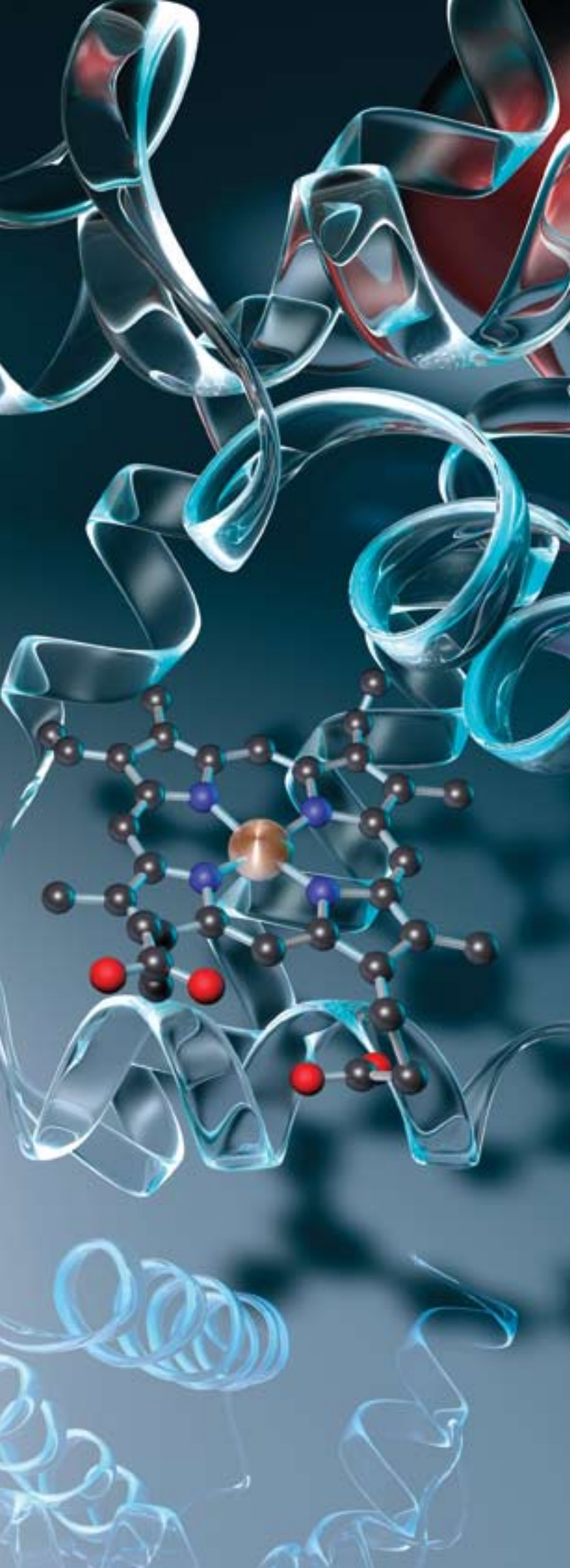
The reason for this change to molar units backdates to August 2007 when there was international agreement that a change in HbA_{1c} units was needed.¹

The equivalent for the current HbA_{1c} target of 7% is a new HbA_{1c} target of 53 mmol/mol.

There is some concern that patients or their carers may become confused with the change in reporting of their HbA_{1c} results and that their diabetic control may deteriorate due to lack of understanding of the new molar units. It is hoped that the dual reporting system will allow time for both practitioners and their patients to become familiar with the new units, interpretation and utilisation.

Table 1: Comparison of HbA_{1c} units

Percentage units (%)	Molar units (mmol/mol)
6.0	42
6.5	48
7.0	53
7.5	59
8.0	64
8.5	69
9.0	75
9.5	80
10.0	86
10.5	91
11	97



Kilpatrick's Kludge* and other conversion formulae

An easily remembered way to approximate the conversion from % to molar units is by using "Kilpatrick's Kludge": $\cdot 2 - \text{minus } 2, \text{ minus } 2$.

For example: for the HbA_{1c} result of 8%, the mmol/mol result is eight minus two (6), minus two (4) equaling 64 mmol/mol.

$$8\% = 64 \text{ mmol/mol}$$

8 - 2 = 6
6 - 2 = 4

Diabetes UK provide the following conversion equation³ between conventional HbA_{1c} % results and HbA_{1c} molar units:

$$\text{HbA}_{1c}(\text{mmol/mol}) = (\text{HbA}_{1c}(\%) - 2.15) \times 10.929$$

*A kludge is a workaround, a quick-and-dirty solution, a clumsy or inelegant, yet effective, solution to a problem

References

1. Hicks J, Muller M, Panteghini M. Consensus statement on the worldwide standardisation of the HbA_{1c} measurement. *Diabetologia*. 2007; 50:2042-3.
2. Kilpatrick E. Changing times: International standardisation of HbA_{1c} reporting. *Journal of Diabetes Nursing*. 2009; 13:199(1).
3. Diabetes UK. National Diabetes Support team. The Association for Clinical Biochemistry. HbA_{1c} Standardisation for Laboratory Professionals.

Available from: <http://www.acb.org.uk/docs/HbA1cLabProfessional.pdf>. Last accessed: 17 September 2009.