

# HbA1c

Item Number 66551 (non-pregnant), 66554 (pregnant)  
Use of HbA1c in the management of diabetes mellitus.

## INTRODUCTION

HbA1c testing forms an important part of the management of diabetes mellitus as it provides an indication of the effectiveness of glycaemic control for the interval of 10 to 12 weeks before the test. Regular measurement of HbA1c is beneficial in the ongoing management of diabetic patients as achieving better glycaemic control has been shown to reduce diabetic nephropathy and neuropathy.<sup>1</sup>

The HbA1c testing method used by TML Pathology meets the requirements recommended by the internationally recognised Diabetes Control and Complications Trials (DCCT) Research Group.

## ABOUT THE TEST

HbA1c, also referred to as glycated Hb, glycosylated Hb or glycohaemoglobin, is the result of a reaction between plasma glucose and adult haemoglobin (HbA). When this reaction occurs, the haemoglobin becomes glycated – a process which is irreversible in the body. The proportion of haemoglobin in the HbA1c form, reflects the average plasma glucose concentration over the proceeding 10 to 12 weeks (that is over the normal lifespan of a red blood cell).

## TEST INDICATIONS

*General Practice Management of Type 2 Diabetes* recommends that HbA1c should be measured on an individual basis according to diabetes control and other risk factors such as ethnicity; not more frequently than three monthly.<sup>2</sup> The Medicare Benefits Schedule<sup>3</sup> permits reimbursement for up to four tests per annum (six tests for pregnant patients).

Assessment with HbA1c should be a regular part of diabetic care.

Revised HbA1c target levels were released in an Australian Diabetes Society Position Statement in 2014.<sup>4</sup>

## HbA1c TARGETS

≤42mmol/mol (≤6%)	Female type 2 DM patients planning a pregnancy, aim for the tightest achievable control without severe hypoglycaemia before and during pregnancy. For Type 1 DM patients, if this tighter control cannot be achieved safely then aim for ≤7%
≤48mmol/mol (≤6.5%)	Patients without known cardiovascular disease, a long duration of diabetes, severe hypoglycaemia or another contraindication
≤53mmol/mol (≤7%)	<b>General Target</b>
≤58mmol/mol (≤7.5%)	Children and adolescents with type 1 diabetes mellitus
≤64mmol/mol (≤8%)	Patients with reduced hypoglycaemia awareness or major co-morbidities

In 2007, the International Federation of Clinical Chemistry recommended a change of HbA1c reporting units from the National Glycohaemoglobin Standardisation Program (NGSP) method reported as a percentage, to the Systeme International d'unités (SI units), mmol/mol. This was adopted in an Australian Position Statement in 2009<sup>5</sup> and then updated in 2011<sup>6</sup> with a recommendation for a 2-year transition period of dual reporting before progressing toward the use of SI units only.

TML Pathology will continue to report both values to assist doctors.

## TEST LIMITATIONS

The HbA1c test relies on the assumption of normal adult haemoglobin and normal red cell lifespan.

If either of these assumptions is invalid, for example, through the presence of a genetically-determined haemoglobin variant or other conditions (e.g., renal failure or abnormal cardiac valves) which cause shortening of the red cell lifespan, the HbA1c result may be misleading.

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# HbA1c



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## HOW TO ORDER

Request 'HbA1c' OR 'Glycated Hb'.

## TURNAROUND TIME

Test is performed daily with results available next day.

## COST

This test is bulk billed subject to Medicare guidelines and criteria. If Medicare guidelines and criteria aren't met, an out-of-pocket fee may apply.

## FURTHER INFORMATION

For further information please contact your Medical Liaison Officer.

1. UK Prospective Diabetes Study (UKPDS) Group. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). *Lancet* 1998; 352: 837-853
2. The Royal Australian College of General Practitioners. General practice management of type 2 diabetes. 2016-18. East Melbourne, Vic: RACGP, 2016
3. Australian Government Department of Health. Medicare Benefits Schedule Book Category 6. July 2016
4. Gunton et al. A new blood glucose management algorithm for type 2 diabetes: a position statement of the Australian Diabetes Society. *Med J Aust* 2014; 201 (11): 650-653
5. Cheung et al, Position statement of the Australian Diabetes Society: individualisation of glycated haemoglobin targets for adults with diabetes mellitus. *Med J Aust* 2009; 191(6): 339-344
6. Jones et al., Change of HbA1c reporting to the new SI units. *Med J Aust* 2011; 195 (1): 45-46

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