

TYPE 2 DIABETES MELLITUS (T2DM) AND CHRONIC KIDNEY DISEASE

QUICK REFERENCE GUIDE

Diagnostic criteria for T2DM

T2DM is characterised by hyperglycaemia resulting from defects in insulin secretion, insulin action or both.¹

American Diabetes Association (ADA) diagnostic criteria for T2DM¹

	Fasting plasma glucose (FPG)	2-hour plasma glucose
Normal	mmol/l < 5.6* mg/dl < 100*	mmol/l < 7.8 mg/dl < 140
Impaired fasting glycaemia (IFG)	5.6–6.9*	100–125*
Impaired glucose tolerance (IGT)	< 7.0	< 126 7.8–11.0 140–199
Diabetes mellitus (DM)	≥ 7.0	≥ 126 ≥ 11.1 ≥ 200

*WHO criteria² normal FPG: < 6.1 mmol/l (< 110 mg/dl)
IFG: 6.1–6.9 mmol/l (110–125 mg/dl)

Kidney damage

Glomerular filtration rate (GFR) describes the flow rate of filtered fluid through the kidney.

CrCl is the volume of blood plasma that is cleared of creatinine per unit time and is a useful measure for approximating the GFR and therefore kidney function.

Urinary values and kidney status^{3,4}

	Spot albumin (mg/l)	Albumin excretion (mg/24 hrs)	ACR (mg/mmol)
Normal	< 30	< 30	< 2.5 (males) < 3.5 (females)
Microalbuminuria	30–300	30–300	2.5–30 (males) 3.5–30 (females)
Clinical proteinuria (Macroalbuminuria)	> 300	> 300	> 30

Creatinine clearance (CrCl) and kidney status⁵

Renal insufficiency	CrCl (ml/min)
Mild	50–< 80
Moderate	30–< 50
Severe	< 30

Chronic kidney disease (CKD)

- Defined as:³
 - Kidney damage (proteinuria, haematuria or anatomical abnormality)
 - Glomerular filtration rate (GFR) < 60 ml/min/1.73 m² present on at least two occasions for ≥ 3 months (irrespective of the presence/absence of kidney damage)
- All individuals with kidney damage are classified as having CKD, irrespective of GFR levels (GFR can be normal or increased) as they are at risk of developing renal failure and cardiovascular disease³

Stages of CKD

The Renal National Service Framework has adopted the US National Kidney Foundation Kidney Disease Outcomes Quality Initiative (NKF-KDOQI) classification of CKD.³

Classification of CKD stages³

CKD stage	Description	GFR (ml/min/1.73 m ²)
1	Kidney damage with normal or ↑ GFR	≥ 90
2	Kidney damage with mild ↓ GFR	60–89
3	Moderate ↓ GFR	45–59
A		30–44
B		
4	Severe ↓ GFR	15–29
5	Kidney failure, ESRD	< 15 or dialysis

How to convert HbA_{1c} concentrations

From 1 October 2011, all HbA_{1c} results will be given as mmol/mol, instead of a %.⁶

HbA_{1c} conversions⁷

HbA _{1c} (%)	HbA _{1c} (mmol/mol)
4.0	20
4.5	26
5.0	31
5.5	37
6.0	42
6.5	48
7.0	53
7.5	58
8.0	64
8.5	69
9.0	75
9.5	80
10.0	86
10.5	91
11.0	97

HbA_{1c} (mmol/mol) = [HbA_{1c} % - 2.15] x 10.929

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