



What are the different indicators of blood glucose levels?

Haemoglobin A1c (HbA1c) - this test gives an average of blood glucose levels over the past 2-3 months. It is often used to diagnose and monitor diabetes.

	<u>UK</u>		<u>Other Countries</u>	
	mmol/ mol	%	mmol/mol	%
Normal	<42	<6.0	<39	<5.7
Pre-diabetes	42 - 47	6.0 - 6.4	39 - 47	5.7 - 6.4
Diabetes	≥48	6.5	≥48	≥6.5

Normal, Pre-diabetes, Diabetes

	<u>Normal</u>		<u>Pre-diabetes / Non-diabetic hyperglycaemia</u>		<u>Diabetes</u>	
	mmol/L	mg/dL	mmol/L	mg/dL	mmol/L	mg/dL
Fasting blood glucose (after at least 8 hours of no eating)	3.9 - 5.5	70 - 99	6.1 - 6.9* (< 7.0 - Impaired glucose tolerance)	110 - 125 (< 126 - Impaired glucose tolerance)	≥7.0	≥126
Postprandial (2 hours after eating)	<7.8	<140	7.8 - 11.0	140 - 199	≥11.1	≥200
Random (anytime of day):	<7.8	<140	-	-	-	-

*As defined by World Health Organization but thresholds may vary across different countries

- Normal blood glucose levels:
 - This depends on timings in relation to meals and may vary depending on various contexts. Therefore, it needs to be assessed with a trained clinician.
- Pre-diabetes:
 - This is an intermediate stage where blood glucose is higher than normal but not yet high enough to be classified as diabetes.
- Diabetes:
 - A diagnosis of diabetes is made when blood glucose levels are consistently above the normal range.

Complications of diabetes

	mmol/ L	mg/dL
Hypoglycemia (low blood glucose) <ul style="list-style-type: none"> • Symptoms may include shakiness, sweating, confusion, dizziness, and fatigue. • Severe hypoglycemia can lead to loss of consciousness and requires immediate treatment. 	≤3.9	<70
Hyperglycemia (high blood glucose) <ul style="list-style-type: none"> • Symptoms may include increased thirst, frequent urination, fatigue, blurred vision, and slow wound healing. 	>10.0	>180

Important points:

- Time of day and when you last ate can significantly influence blood glucose levels, so these factors must be considered when interpreting the results.
- Individual variation exists, so a healthcare provider should interpret your results based on your medical history and other factors.
- Regular monitoring is essential for managing blood glucose, especially for people with diabetes or pre-diabetes.

References

- World Health Organization (WHO) (2006) Definition and diagnosis of diabetes mellitus and intermediate hyperglycaemia. Available at: <https://www.who.int/publications/i/item/definition-and-diagnosis-of-diabetes-mellitus-and-intermediate-hyperglycaemia>
- World Health Organization (WHO) (2011) Use of glycated haemoglobin (HbA1c) in the diagnosis of diabetes mellitus. Available at: [https://www.who.int/publications/i/item/use-of-glycated-haemoglobin-\(hba1c\)-in-diagnosis-of-diabetes-mellitus](https://www.who.int/publications/i/item/use-of-glycated-haemoglobin-(hba1c)-in-diagnosis-of-diabetes-mellitus)
- Diabetes UK. New diagnostic criteria for diabetes. Available at: https://www.diabetes.org.uk/for-professionals/improving-care/clinical-recommendations-for-professionals/diagnosis-ongoing-management-monitoring/new_diagnostic_criteria_for_diabetes