

# MONITORING

## Monitoring blood glucose levels

Monitoring glucose levels in the blood is a way of tracking how your diabetes is going and keeping safe.

### How is blood glucose monitored?

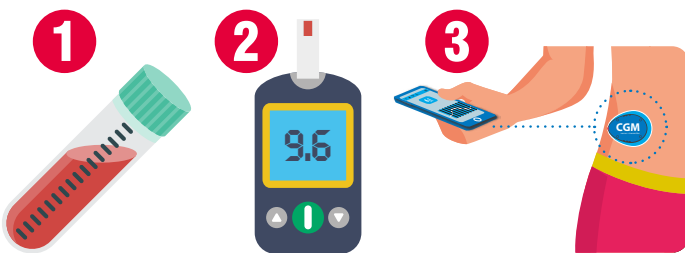
There are three ways to measure blood glucose:

**1. Glycated haemoglobin (HbA1c):** A blood check ordered by your GP or NP one to four times a year. The result reflects an average of the level of glucose in your blood for the last 2 to 3 months.

**Note:** your HbA1c result is not the same as your BGL.

**2. Blood glucose level (BGL):** this involves using a blood glucose monitor and a finger prick sample to get a 'snap-shot' of your blood glucose level at a specific point in time. The result is given in mmol/L (millimoles per litre).

**3. Sensor glucose level (SGL):** this involves a sensor inserted into the fat layer under the skin which measures glucose levels every few minutes. The readings can be sent to an insulin pump or other device (e.g. phone) - continuous glucose monitoring (CGM); or can be scanned with a device - Flash glucose monitoring (Flash GM).



### Who needs to monitor?

**HbA1c** — all people with diabetes regardless of treatment require regular HbA1c checks.

Diabetes treatment	Recommended
No diabetes medications OR <i>not</i> on insulin or sulphonylurea (e.g. metformin only)	6 to 12 monthly HbA1c
Sulphonylurea AND/OR insulin (including type 1 diabetes)	3 to 6 monthly HbA1c

Check HbA1c 3 monthly if any signs of hyperglycaemia or if latest HbA1c is above target.

**Note:** HbA1c result is affected by anaemia, chronic kidney disease, chronic liver disease, alcoholism, late pregnancy. Consider alternative monitoring.





**Daily self-monitoring BGLs (SMBGLs)**— all people on sulphonylurea AND/OR insulin require daily self-monitoring of BGLs. For people on other treatments, the decision to SMBGLs is individual e.g. commencement of steroids or as needed for sick day management.

People who are *not* taking a sulphonylurea or insulin can access NDSS subsidised glucose test strips for an initial six months. Access to strips after that requires completion of the form below:

[Blood glucose test strip six month approval form](#)

## When to check my BGLs?

A routine daily BGL plan is a guide and depends on the type of insulin you are on and your risk for hypoglycaemia. You can check your BGLs at these times:

			
<p>When you wake up: this measures your 'fasting' glucose level</p>	<p>Before a meal (if you take a mealtime insulin)</p>	<p>2 hours after a meal (to see the effect of the meal or mealtime insulin dose)</p>	<p>Overnight: 2-3am (do this occasionally if you are on a basal insulin)</p>

**Tick** appropriate routine and times:

Checks per day	Diabetes treatment	Breakfast		Lunch		Dinner	Night
		Before	2h After	Before	2h After	Before	2-3 am
0 – 1 Random	NOT taking a sulphonylurea or insulin						
1 – 2 Fasting + random	Sulphonylurea (e.g. gliclazide)						
1 – 2 Fasting + random	Basal insulin only						
2 – 4 Fasting + Before bolus injection	Basal plus or Premix insulin						
4 + Fasting + Before bolus injections	Basal/bolus insulin (multiple) incl. type 1 diabetes and those using insulin pumps						

**Random** = do a different time each day; repeat that time the next day if your result is out of target.

**Fasting** = as soon as you wake up; or overnight (e.g. between 2am and 3am).

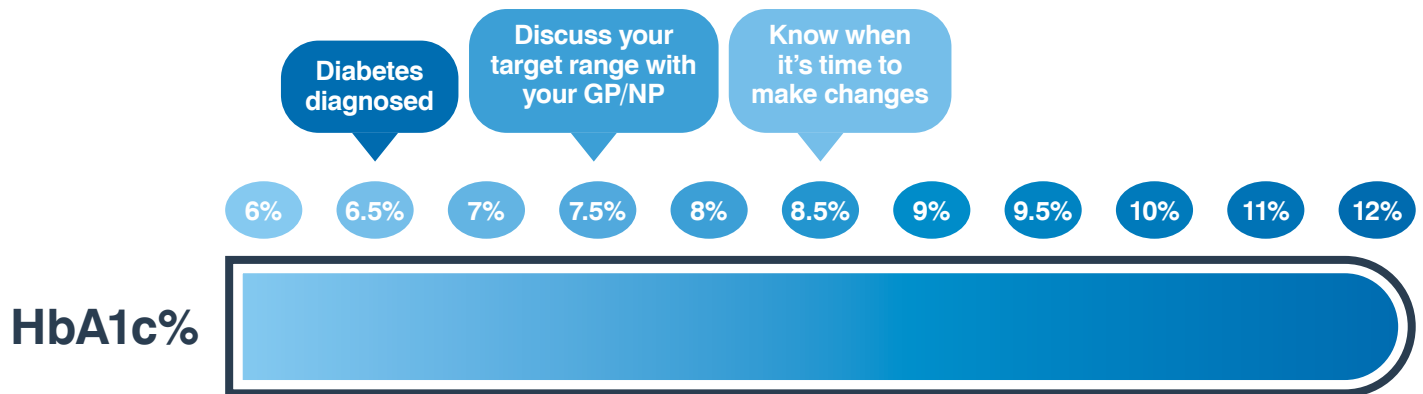
## Do extra BGL checks:

 <p><b>5.0mmol/L</b></p> <p>Before driving any vehicle: you need to be above 5.0mmol/L to drive</p>	 <p><b>3.9mmol/L</b></p> <p>When you experience a hypo (see ■ <b>Hypos</b>)</p>	 <p>Before and after any extra activity (gardening, walking, exercise)</p>	 <p>If you become unwell (an infection, diarrhoea or vomiting – see ■ <b>Sick Days</b>)</p>	 <p>Whenever you are concerned about your diabetes.</p>
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## What do the numbers mean?

An aim of diabetes care is to keep your blood glucose levels within a certain range or target. You will feel better when your BGLs are in target. Your target range might be different according to how old you are, how long you have had diabetes for, and many other factors. Discuss this with your GP, NP or diabetes educator.

### HbA1c target range guide



**My HbA1c target is:**

*(Recommended ≤ 7.0% unless very frail, complex health conditions or high risk of hypo or falls).*

### BGL guide to target range

	Guide	Your target range is:
Fasting and before meals	4.0 – 8.0 mmol/L	
2 hours after meals	6.0 – 10.0 mmol/L	
Before bed and overnight	6.0 – 10.0 mmol/L	

A one-off BGL above your target range is no reason to be worried. Try to work out what caused the result (for example, food/drink with extra carbohydrate, stress). Is the result accurate - wash your hands, check the expiry date on your testing strips. Check it again in a few hours.

If your BGL is above target regularly, it may be time to review your diabetes care plan with your GP, NP or diabetes educator.

Know what to do if you get a low BGL (see ■ **Hypos**) or if your BGL remains above target (see ■ **Sick Days**).

## How to use a glucose monitor

- 1

Wash your hands (do not use hand sanitiser)


- 2

Place testing strip into monitor (this will turn it on)


- 3

Use finger pricker to get drop of blood


- 4

Apply blood to testing strip


- 5

Result displayed on meter (mmol/L)


- 6

Dispose of needle in sharps container



**Remember:**

- Use the sides of your fingers
- Choose a different finger each check
- Do not share your glucose monitor or finger pricker with others.

## Further resources

### NDSS (National Diabetes Services Scheme)

Contact the NDSS on **1800 637 700** to order printed copies, or visit [ndss.com.au/about-diabetes/resources](http://ndss.com.au/about-diabetes/resources)

- [Blood glucose monitoring](#)
- [Blood glucose testing strips](#)
- [Diabetes and driving: a quick guide & video](#) (in English and other languages)

### Next steps

- Hypoglycaemia management
- Hyperglycaemia & sick day management
- Nutrition and eating well

### Need help?

Phone **6215 9000**  
or visit [diabetestas.org.au](http://diabetestas.org.au)



*NOTE: This information is a guide only and does not replace individual medical advice.*