

Diabetes self-management information series for primary care

# MONITORING

## Monitoring blood glucose levels

Monitoring glucose levels in the blood is a way of tracking how your diabetes is going. It is also a way of being safe (for example, if you are at risk of hypoglycaemia you can check you are not too low before driving a vehicle).

### How is blood glucose monitored?

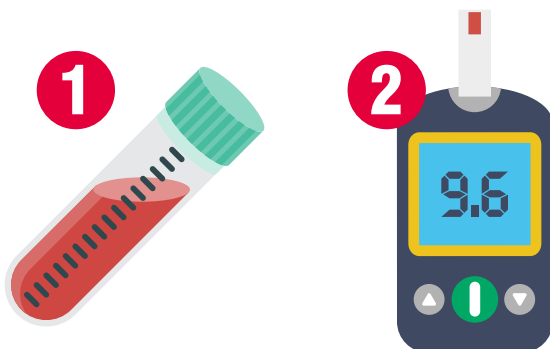
There are two different ways to measure blood glucose:

**1. Glycated haemoglobin (HbA1c):** A blood check ordered by your doctor 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 meter 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).

**Note:** continuous glucose monitoring (CGM) and flash glucose monitoring (Flash GM), are not subsidised on the NDSS for people with type 2 diabetes. However, if it is affordable for someone on insulin, this technology can be useful. Please contact Diabetes Tasmania if you wish to discuss options with one of our health professionals.



### Who needs to monitor?

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

Type 2 diabetes treatment	Recommended HbA1c frequency
No diabetes medicines OR <b>not</b> on insulin or sulphonylurea (e.g. metformin only)	6 to 12 monthly
Sulphonylurea AND/OR insulin	3 to 6 monthly

Increase frequency 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.





**2. 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 submission 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>5 min Before a meal (if you take a mealtime insulin)</p>	 <p>2 hrs 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>
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**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	No medicines, or on any diabetes medicines NOT a sulphonylurea or insulin						
1 – 2 Fasting + random	Sulphonylurea						
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)						

**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

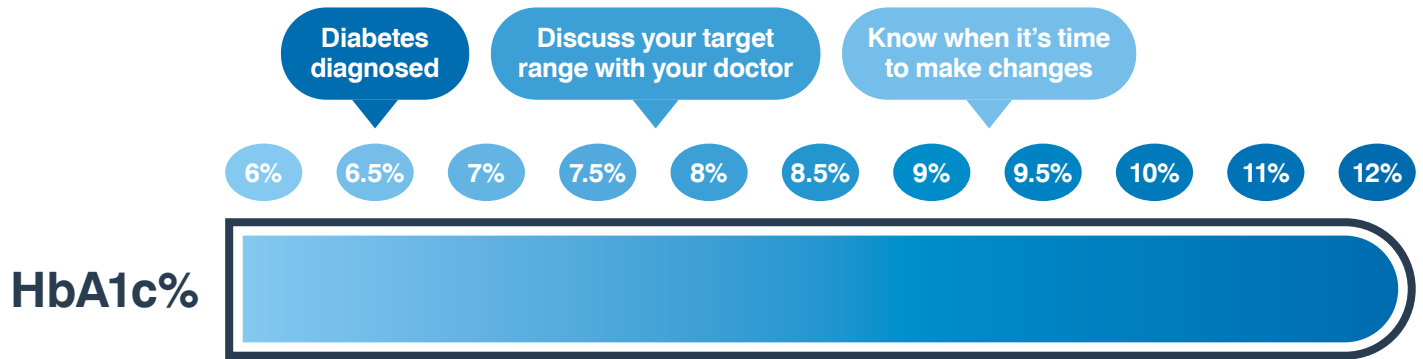
Do extra BGL checks:

 <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 doctor 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).*

### SMBG 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). 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 doctor 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 meter

- 1

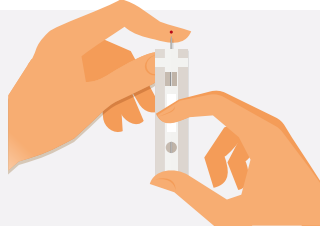
Wash your hands (do not use hand sanitiser)


- 2


Place testing strip into meter (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 meter 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 booklet](#)

### 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)