



# Monitoring blood glucose

## Why monitor blood glucose?

Monitoring blood glucose is a way of tracking how a resident's diabetes is progressing. It is also a way of ensuring residents are safe and at reduced risk of hypoglycaemia and hyperglycaemia.

## How is blood glucose monitored?

There are three ways to measure blood glucose:

- 1. Blood glucose level (BGL):** this involves using a glucose meter and a finger prick to get a 'snapshot' of what a resident's glucose level is at a specific point in time.
- 2. 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 (continuous glucose monitor or CGM) or can be scanned with a device (flash glucose monitor).
- 3. Glycated Haemoglobin (HbA1c):** this is a blood test ordered 2 to 4 times a year. The result reflects an average blood glucose level for the last 2 to 3 months.

## Who needs monitoring?

Resident has:	Blood glucose levels	HbA1c*	Suitable for sensor glucose levels
Type 1 diabetes	Daily	3 monthly	Yes, may be eligible for subsidised products through the CGM Initiative as part of the NDSS
Type 2 diabetes using insulin	Daily	3 monthly	Yes, not eligible for CGM Initiative Consider flash glucose monitoring to reduce finger pricking and to obtain 24hr profile in those with concerns about overnight hypoglycaemia
Type 2 diabetes using sulphonylurea	Daily	3-6 monthly	No, unless clinical review indicated e.g. recurrent signs of hypo or hyperglycaemia, to inform changes to medication or start insulin
Type 2 diabetes not taking glucose-lowering medications, or using metformin or DPP4i only	Not necessary, unless resident choice or sick day management or HbA1c not reliable	6-12 monthly	No

\*HbA1c may not be suitable for residents who have low haemoglobin, poor kidney or liver function. Discuss alternative monitoring with the GP.

## When to monitor

A routine daily BGL regimen is guided by the particular insulin profile and the resident's hypo risk. Extra BGLs should be done if there is any change in treatment or diet/appetite, and according to sick day or hypo management guidelines.

Checks per Day	Treatment	BGL Timing			
		Fasting	Before Meal	2 hours After Meal	Overnight
0 to 1	Not taking diabetes medication, or on other diabetes medicine not a sulphonylurea	Check only if HbA1c > 7%, unreliable or resident preference. Alternating times.			
1 to 2	Sulphonylurea	√	PRN*	PRN	PRN
1 to 2	Basal insulin (once daily)	√	PRN	PRN	PRN
2 to 4	Premix insulin	√	√	PRN to assess bolus component	PRN
4+	Basal/bolus insulin	√	√ (each meal)	PRN to assess bolus peak	PRN

PRN = as needed. Extra BGL checks to assess daily glucose profile in order to review diabetes treatment. Extra BGLs as per hypo and sick day management plans.

## What do the numbers mean?

Each resident should have a target glucose range and HbA1c level as part of their care plan. When you check a BGL (or SGL) ensure it is within target. If not: ask if this is a pattern (more than 2 BGLs out of target at the same time of day)? Or refer to the resident's sick day management plan. If it is low, manage as per resident's hypo plan.

Glycaemic targets guide			
	HbA1c	Fasting or Before Meal BGLs	2 hours After Meal BGLs
Functionally independent adult	7.0-7.5%	5.0-8.0 mmol/L	6.0-10.0 mmol/L
Frail and/or diagnosed with dementia	8.0%-8.5%	6.0-10.0 mmol/L	6.0-15.0 mmol/L
End of life/palliative	Not relevant	Avoid symptomatic hyperglycaemia	Periodic monitoring to avoid symptoms

## Next steps

**Six Minute Intensive Training posters:**  
Hyperglycaemia, Hypoglycaemia.

### Read:

- Diabetes management in aged care: a practical handbook – chapter 6: blood glucose monitoring

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