Government of South Australia
SA Health

FACTSHEET | JUNE 2021

Blood Glucose Monitoring in type 2 diabetes (adults)

RSS Diabetes Service

Blood glucose goes up and down during the day depending on carbohydrate intake, physical activity, diabetes medications, wellbeing and stressors. Blood glucose results tend to be lower before meals and higher after meals.

Blood glucose monitoring guides your self-care. The first step in blood glucose monitoring is knowing your blood glucose target ranges.

What are the recommended blood glucose (BG) targets

For most people with type 2 diabetes, it is recommended that blood glucose be as close to normal as possible to reduce the risk of long term complications. In general, recommended blood glucose targets are:

Time	Target BG
Fasting and before meals	6.0 – 8.0mmol/L
2 hours after meals	6.0 – 10.0mmolL

However, for some people (e.g. children and young people, the aged, those with impaired hypoglycaemia awareness or other health conditions), blood glucose targets will need to be set higher. If you are pregnant or trying to get pregnant, your blood glucose targets will be set lower.

When should I test my blood glucose (BG)?

Your blood glucose levels will indicate if your diabetes is well managed or if changes are needed.

Blood glucose results overnight or before breakfast tell you how well your diabetes is controlled overnight by the basal insulin. Blood glucose results before lunch, before the evening meal and at bedtime tell you if your diabetes is well controlled during the day.

The frequency of testing will depend on the type of diabetes medication you are taking. Testing four times (fasting, before lunch, before the evening meal and before bedtime) for a few days prior to seeing your doctor or credentialled diabetes educator can assist your assessment and guide treatment decisions. Extra tests are recommended if you:

- feel that your blood glucose is low, as part of your hypo action plan
- feel unwell, as part of your sick day action plan
- are planning some physical activity, during and after physical activity
- are using machinery
- are about to drive
- are concerned about unstable, unexpected or unexplainable results.

What does it involve?

Blood glucose monitoring involves putting a blood glucose testing strip into a blood glucose testing meter and placing a drop of blood from a finger prick on to the strip. The blood glucose level is then displayed on the screen.

To obtain an accurate result, it is important to:

- wash your hands before pricking your finger and obtaining a blood sample
- check expiry date of strips and don't use if out of date
- store the strips and meter away from direct sun and moisture.

Are there other options?

The **HbA1c** test is different to the finger prick test as it checks long term blood glucose. It measures the average glucose level in the blood over the last 8-12 weeks. This test is usually done 4 times a year by your endocrinologist or doctor. The general target for HbA1c is less than 53mmol/mol (7%), however this target may also be modified to suit your individual need.

Continuous glucose monitoring (CGM) and flash glucose monitoring (FGM) systems measure glucose in the interstitial fluid (not blood) and track glucose levels over a period of 7-14 days. Depending on the CGM or FGM system, your glucose results can be viewed immediately or at a later date.

What is blood ketone monitoring?

Blood ketone monitoring is recommended if you are using a diabetes medication called a Sodium Glucose Co Transporter 2 (SGLT2) inhibitor. SGLT2 inhibitors reduce glucose reabsorption by the kidney, increasing the amount of glucose passed in urine, which in turn lowers blood glucose levels.

A very rare but potentially serious side effect of SGLT2 inhibitors is diabetic ketoacidosis (DKA). In this type of DKA, the blood glucose may not be high but there are high ketone levels.

Blood ketone monitoring is used to detect ketones, aid the prevention of DKA or prompt urgent medical attention. If ketones are present, specific instructions will be provided in your **sick day** action plan.

It is done the same way as blood glucose monitoring, just using a blood ketone testing strip. Ketones can also be monitored using urine with a different strip that is dipped into urine however, this method is less accurate.

Where do I get the equipment required?

Registration with the National Diabetes Services Scheme (NDSS) gives you access to cheaper glucose testing strips. Your doctor or credentialled diabetes educator will need to sign the registration form.

Blood monitoring meters and all of the equipment needed is available from NDSS community pharmacy and some diabetes centres. NDSS does not subsidise blood ketone testing strips.

On registration, you will receive an initial six month supply of blood glucose test strips. After six months, your doctor or credentialled diabetes educator must approve your access to another six months of blood glucose test strips at the NDSS price.

A further six months access to cheaper blood glucose testing strips will be available if:

- your blood glucose levels is not in target
- you are at risk of low blood glucose levels (hypoglycaemia)
- you have an illness
- you are using a medicine that effects your blood glucose levels
- there has been a change to your diabetes management within the previous three (3) months.

Aboriginal and Torres Strait Islander people who are currently eligible for 'Closing the Gap arrangements' are not affected and will continue to receive similar subsidies.

Used finger pricker needles must be disposed of into an approved yellow sharps container or a puncture proof (strong plastic) container with a lid. Never place used needles or syringes into household garbage or leave unattended. Contact your local council, Diabetes Australia outlet, pharmacist, local health service or local diabetes education service for container purchase and disposal locations.

Key points to remember

- know your blood glucose targets and have a plan for testing
- know your blood ketone targets (if taking an SGLT2 inhibitor) and have a plan for testing
- dispose of sharps safely
- your action plans will advise you on what to do if your blood glucose result is out of target.
- if you have persistent high or low blood glucose results, talk to your endocrinologist, doctor or credentialled diabetes educator.

Where can I get more information?

• Health Direct Australia (24hr health advice line)	Phone: 1800 022 222
• Diabetes Australia	www.diabetesaustralia.com.au
• National Diabetes Services Scheme	www.ndss.com.au

For more information

Rural Support Service
Diabetes Service
PO Box 287, Rundle Mall
ADELAIDE SA 5000
Telephone: (08) 8226 7168

Email: Health.DiabetesService@sa.gov.au

www.chsa-diabetes.org.au

www.sahealth.sa.gov.au/regionalhealth

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My ‘Monitoring’ Action Plan

Emergency contact details	**My contact details**
Ambulance: 000 Hospital: _____ Ph: _____ Doctor: _____ Ph: _____ Diabetes Educator: _____ Ph: _____ Family / Carer: _____ Ph: _____ 24hr Health Direct Phone: 1800 022 222	U.R. No: _____ Surname: _____ Given Name: _____ DOB: _____ Sex/Gender: _____

My blood glucose target range is: ↓ Less than 15.0mmol/L to avoid symptoms of high blood glucose ↓ Less than 10.0mmol/L to reduce risk of diabetes complications background insulin	Fasting: _____ mmol/L Pre meals: _____ mmol/L 2 hours after meals: _____ mmol/L Before bed: _____ mmol/L Overnight (2:00 - 3:00am): _____ mmol/L
My blood glucose testing plan is:	• fasting • pre meals • 2 hours after meals • before bed • overnight (2:00 - 3:00am)
Extra blood glucose testing plan is:	• feel that blood glucose is low • feel unwell • before, during or after physical activity • are using machinery • are about to drive • are concerned about unstable, unexpected or • unexplainable results • other_____
My blood ketone target range is: ↑DKA risk if more than 0.6mmol/L	Applicable: Yes / No Less than 0.6mmol/L
HbA1c target is:	_____ mmol/mol _____ %
Hypo action plan	Dated:
Sick day action plan	Dated:
School care plan	Applicable: Yes / No Dated:
Supplies and disposal	NDSS Community Pharmacy / Council / Diabetes Service
Date:__/__/____	Name: _____Signature _____