Government of South Australia
SA Health

FACT SHEET | SEPTEMBER 2023

# Surgery and type 1 diabetes (insulin pump)

**RSS Diabetes Service**

Hospital admissions for surgery involve fasting, changes in your diet, physical activity levels, diabetes medications and may cause stress, anxiety and discomfort. These factors can also disrupt your usual blood glucose control and could result in hypoglycaemia (low blood glucose) or hyperglycaemia (high blood glucose).

Preparing for your surgery and responding to changes to your blood glucose following your surgery can reduce your risk of infections and promote wound healing. Your diabetes team can help you during your admission and support your safe discharge home.

## How can I prepare for my surgery?

If you are having **minor surgery**, your admission is for one day only. If you are having **major surgery**, you will be staying for at least one night.

Please bring with you to the hospital:

- All your medications and a current list.
- Your blood glucose/ketone meter, continuous glucose monitor (CGM), relevant consumables, your glucose diary and/or CGM system report. In most instances, you can continue to use your own equipment.
- Your insulin pump and additional infusion sets and reservoirs. You may need to change your cannula, tubing or site before or after your surgery.
- A copy of your current insulin pump reports and/or insulin delivery settings.
- A copy of your *Hypoglycaemia Action Plan* and *Hyperglycaemia/Sick Day Action Plan*.

Continue to check your blood glucose. If you have low blood glucose, follow your *Hypoglycaemia Action Plan*. If you have high blood glucose, check your blood ketone level and follow your *Hyperglycaemia Action Plan.*

Please ask a family member or friend to bring you. Do not drive yourself to your hospital admission.

## I am also on oral diabetes medication. What about this?

**For minor surgery** continue your usual oral diabetes medication (e.g. Metformin or sodium glucose co-transporter 2 (SGLT2) inhibitor) dose up until the day **before** your procedure.

**For major surgery** and if you use a **sodium glucose co-transporter 2 (SGLT2) inhibitor** such as dapaglilozin (Forxiga®), dapagliflozin and metformin XR (Xigduo®), dapagliflozin and saxagliptin (Qtern®), empagliflozin (Jardiance®), empagliflozin and metformin (Jardiamet®) and empagliflozin and linagliptin (Glyxambi®): stop taking this medication at least 3 days before your surgery (e.g. two days prior and the day of your procedure).

## Are there specific preparations for my insulin pump?

Yes, there are specific instructions.

- Insert a new cannula the day prior to your surgery and in a site away from the surgical area.
- Your cannula must not be metal. If you require an alternate cannula, please discuss with your diabetes specialist nurse.

## What to do on the day of my surgery?

**For minor or major surgery**

- Do not take your diabetes tablets.
- Because your insulin pump uses only rapid acting insulin, continue using your insulin pump to deliver your basal insulin until you arrive at the hospital.
- A temporary basal rate of 80% (20% less than usual basal rate) OR a higher blood glucose target (e.g. 6.7mmol/L or exercise type target of 8.3mmol/L) could be programmed to minimise your risk of hypoglycaemia OR if your fasting blood glucose was less than 5.0mmol/L.
- A correction bolus insulin dose (based on your insulin pump settings) may be given if you are above your blood glucose target (even when fasting).
- If your surgery is in the morning, you will be fasting from midnight: do not take your breakfast insulin bolus as you will not be eating.
- If your surgery is in the afternoon, you will be fasting at 6:00am after a light breakfast: reduce your breakfast insulin bolus to match the carbohydrates in the meal to be eaten OR reduce your 'set' breakfast bolus by 50%.

- Check your blood glucose every 1-2hours from the time you wake until the time you arrive at the hospital.
- If you have low blood glucose, follow your *Hypoglycaemia Action Plan*.
- If you have high blood glucose, follow your *Hyperglycaemia Action Plan* which will include correction bolus insulin dose and blood ketone testing instructions. A blood ketone level greater than 0.6 mmol/L may indicate insulin pump site failure (e.g. damaged cannula, cannula kink or leak) and that you are at risk of developing diabetic ketoacidosis.

## What will happen when I am admitted?

Please inform medical, nursing and/or midwifery staff of any of the following:

- hypoglycaemia and treatment used
- hyperglycaemia and action taken
- current basal insulin rate (e.g. usual or temporary) and target blood glucose (e.g. usual or modified).

**For minor surgery**

- In most instances, your insulin pump will continue to be used to deliver your basal insulin.
- The basal insulin rate may continue at its current rate or a temporary basal rate may be required. Basal rate changes will be discussed with your doctor, endocrinologist or diabetes specialist nurse.
- The mealtime bolus insulin dose will not be given when you are fasting.
- Correction bolus insulin dose/s may be given if your blood glucose is above 10.0mmol/L (even when fasting).

**For major surgery**

- In most instances, your insulin pump will be disconnected (e.g. removed) prior to the surgery and an intravenous insulin infusion will be used temporarily.
- This is because there will be a period of time before, during and after your surgery where you cannot independently self-care for your insulin pump.
- Your insulin pump can be re-commenced when you are awake and able to self-care. The intravenous insulin infusion will be stopped when you are able to eat and drink.

Where possible, self-care of an insulin pump is encouraged and supported. Regional hospitals require people with type 1 diabetes using insulin pumps to chart their insulin pump actions on the insulin pump inpatient rate record (MR-CIR). Your medical, nursing and/or midwifery staff need to know how you are using your insulin pump so that they can prevent complications and assist you in your recovery.

## What will happen after my surgery?

Your insulin pump can be restarted as soon as possible after your surgery. This is usually when you are awake, and able to self-care. You may need some temporary adjustments to your basal insulin rates.

Your mealtime rapid acting insulin and any oral diabetes medication (e.g. Metformin or a sodium glucose co-transporter 2 (SGLT2) inhibitor) will be restarted when you are comfortably eating and drinking again. In most instances, this is also when the intravenous insulin infusion will be stopped.

## What support do I have on discharge?

The medical, nursing and/or midwifery staff will assist you to restart your medications and plan your discharge. They will also be available after you are discharged home to monitor your recovery and discuss any concerns that you may have.

Your diabetes team are available to discuss your return to your usual diabetes management or provide alternative instructions. If required, your diabetes team can arrange a follow up appointment to review your diabetes management after discharge.

Any changes to your basal insulin rates, bolus settings and/or oral medications will be based on your blood glucose and HbA1c.

Please ask a family member or friend to take you home. Do not drive yourself.

## Additional information

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## Where can I get more information?

- Diabetes Australia www.diabetesaustralia.com.au
- National Diabetes Services Scheme www.ndss.com.au
- Juvenile Diabetes Research Foundation www.jdrf.org.au
- My D (for under 25s) www.ndss.com.au/MyD
- Australian and Medical Scientific Limited www.amsl.com.au
- Medtronic www.medtronic-diabetes.com.au
- Roche Diagnostics Australia Pty Limited www.roche-australia.com

## For more information

**Rural Support Service**
**Diabetes Service**
PO Box 3017, Rundle Mall
ADELAIDE SA 5000
Email: Health.DiabetesService@sa.gov.au

www.chsa-diabetes.org.au

www.sahealth.sa.gov.au/regionalhealth

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