



An adult patient's guide to the
Management of
diabetes at the time
of surgery



Diabetes is a common condition, affecting at least 4 to 5% of people in the UK. More than 10% of patients undergoing surgery have diabetes.

People with diabetes undergoing surgery need to have first-class integrated care from the time of initial referral, through to after their operation and before they go home to ensure their sugar levels are managed properly.

To help achieve this, NHS Diabetes are in collaboration with Diabetes UK as well as anaesthetists, surgeons, and diabetes specialists, to produce guidance based on the best available evidence, best practice, and patient experience. This guidance covers all stages of your pathway from GP referral to discharge, incorporating surgical outpatients, pre-operative assessment, hospital admission, surgery and post-operative care.

At the Royal National Orthopaedic Hospital we have adopted these guidelines with the aim of improving standards of care for diabetic patients undergoing surgery at our hospital.

This booklet will describe how to manage your diabetic medication in the lead-up to surgery, as well as giving general advice on preparation for your operation. Included is also information on what to expect regarding the management of your diabetes following discharge from the hospital and advice on what to do if you become unwell once you are at home.

The information in this booklet has been adapted from the Joint British Societies for inpatient care guidance 2016: *Management of adults with diabetes undergoing surgery and elective procedures: Improving standards.*

A guide for patients with diabetes

Before your operation or procedure:

Please follow the instructions in the table marked “What to do with your medication before surgery/procedure”

If your operation is in the morning:

- Do not eat any food after midnight
- Drink clear fluids such as black tea or coffee (no milk), sugar free squash or water up to 5am

If you do not know at what time of day your operation is, please **assume that it is in the morning** and follow the above guidelines.

If your operation is in the afternoon:

If you have been specifically told that your operation (procedure) is in the afternoon, please contact the pre-assessment unit to verify this, and if confirmed:

- Eat breakfast before 7am and take no food after this time
- Drink clear fluids such as black tea or coffee (no milk), sugar free squash or water up to 10am

When you travel to and from the hospital for your operation carry some glucose tablets or a sugary drink.

If you have any symptoms of low blood glucose levels such as sweating, dizziness, blurred vision or shaking please test your blood glucose if you are able to do so.

If it is less than 4mmol/L take four glucose tablets or 150mls of the sugary drink (this is the same as half a standard sized can of non-diet cola). Please tell staff at the hospital that you have done this because it is possible that your surgery may have to be rearranged for another day.

After your operation/procedure:

- If you take tablets for your diabetes - you will be offered food and drink when you feel able to eat. If you are eating and drinking normally you should resume taking your normal medication the morning after surgery.
- If you take insulin, your blood glucose will be checked and additional insulin given if necessary.

Your blood glucose levels may be higher than usual for a day or so:

- When you get home, if you feel nauseated or vomit and are unable to eat, please refer to the sick day rules leaflet on page 9

If you do not improve quickly and usually attend your local hospital for diabetes care please telephone the diabetes team during office hours Monday – Friday. Outside these hours please contact your GP practice or out-of-hours service. If you usually see your GP about your diabetes, please phone your GP practice.

Remember to bring with you to hospital:

- Glucose tablets or a sugary drink
- Blood glucose testing equipment (if you usually monitor your blood glucose)
- The medication you usually take for your diabetes (tablets/insulin/injections)

What to do with your medication before your surgery/procedure

On admission

Patient Name:

Hospital No:

Type diabetes

HbA1C: Requested:

Diabetic Medication

1:

2:

3:

4:

VRlll required: Yes No

- 1. Type 1 Diabetes
- 2. Poorly controlled diabetes (HbA1c >69mmol/mol, 8.5%)
- 3. Prolonged starvation (more than 2 missed meals) and on insulin

Priority on theatre list (to be discussed by surgical team and scheduler)

Medication adjustments before surgery/procedure*

Please note take medication as normal the day before surgery/procedure

Tablets	Day of surgery/procedure	When to restart your tablets
Metformin	Omit dose.	Take the next dose when it is normally due once eating. If contrast media is used in the procedure withhold for 48 hours.
Gliclazide, Glipizide, Glibenclamide, Glimeperide, Tolbutamide	If taking once or twice daily dosing: Do not take the morning dose.	Restart when eating and drinking normally. Withhold/reduce dose if food intake is reduced.
Repaglinide or Nateglinide	If you have been told to fast from midnight: Do not take the morning dose. If you have an afternoon procedure and are eating breakfast: Take the morning dose.	Take lunch and evening dose if eating normally. Withhold/reduce dose if food intake is reduced.
Pioglitazone	Continue to take as normal.	Continue to take as normal.
Acarbose	If you have been told to fast from midnight: Do not take the morning dose. If you have an afternoon procedure and are eating breakfast: Take the morning dose.	Continue to take as normal.
Sitagliptin, Vildagliptin, Saxagliptin, Alogliptin, Linagliptin	Continue to take as normal.	Continue to take as normal.
Dapagliflozin, Empagliflozin, Canagliflozin	Do not take the day prior to surgery and on the day of surgery.	Restart when eating and drinking normally this may take up to 2-3 days.
Albiglutide, Exenatide, Liraglutide, Lixisenatide, Dulaglutide	Omit dose.	Continue to take as normal.

*Please note the advice may be amended when you come in to the hospital and when you go home.

Medication adjustments before surgery/procedure*

Insulin	Day prior to admission	Day of surgery/procedure	When to restart your insulin
Once daily (Evening) Insulin (e.g. Lantus® or Levemir®, Tresiba®, Insulatard® Humulin I®, Insuman, Basal®)	Reduce dose by 20%	Continue at 80% of the total dose.	Continue to take as normal, no dose change.
Once daily (Morning) Insulin (e.g. Lantus® or Levemir®, Tresiba®, Insulatard® Humulin I®, Insuman, Basal®)	Reduce dose by 20%	Continue at 80% of the total dose.	Continue to take as normal, no dose change
Twice daily Insulin (e.g. Novomix 30®, Humulin M3®, Humalog Mix 25®, Humalog Mix 50®, Insuman® Comb 25, Insuman® Comb 50 twice daily Levemir® or Lantus®)	Continue to take as normal, no dose change	Reduce the morning dose by 50% (Halve the usual dose).	Resume your normal insulin with evening meal.
Twice daily - separate injections of short acting (e.g. animal neutral, NovoRapid® Humulin S®) and intermediate acting (e.g. animal isophane Insulatard® Humulin I® Insuman®)	Continue to take as normal, no dose change	If having breakfast, halve the usual morning dose	Resume your normal insulin with evening meal.
3, 4 or 5 injections daily (e.g. an injection of mixed insulin 3 times a day or 3 meal time injections of short acting insulin and once or twice daily background)	Continue to take as normal, no dose change	For morning procedures: Short acting Insulin: Omit morning and lunchtime. Long acting Insulin: Reduce by 20%. Pre-mixed Insulin: Halve normal morning dose and omit lunchtime dose. For afternoon procedures: Take normal morning dose and omit lunchtime dose.	Resume your normal insulin with evening meal.

*Please note the advice may be changed when you come in to the hospital and when you go home.

Advice for patients with diabetes who are discharged following a surgical procedure

- Take your insulin or other medication as advised in this leaflet
- Monitor your blood glucose, 4 times per day if possible, if you have the equipment to do so. You should test more frequently if you are unwell, feeling or being sick.
- Your blood glucose may be higher than usual. This is not a concern if you are feeling well.
- If you are feeling unwell (particularly if you are being sick and unable to take food or medication) contact your usual diabetes team/GP surgery.
- If outside normal working hours contact your local out of hour's service or go to your local hospital A&E department.

Sick Day Rules for People with Diabetes

What should I do if I am unwell?

- **NEVER** stop taking your insulin or tablets – illness usually increases your body's need for insulin
- **TEST** your blood glucose level every 2 hours, day and night
- **TEST** your urine for ketones every time you go to the toilet or your blood ketones every 2 hours if have the equipment to do this
- **DRINK** at least 100 mls water/sugar free fluid every hour – you must drink at least 2.5 litres per day during illness (approximately 5 pints)
- **REST** and avoid strenuous exercise as this may increase your blood glucose level during illness
- **EAT** as normally as you can. If you cannot eat or if you have a smaller appetite than normal, replace solid food during illness, with one of the following:
 - 400ml milk
 - 200ml carton fruit juice
 - 150-200ml non-diet fizzy drink
 - 1 scoop ice cream

When should I call the Diabetes Specialist Nurses or my GP?

- **CONTINUOUS** diarrhoea and vomiting, and/or high fever
- **UNABLE** to keep down food for 4 hours or more
- **HIGH** blood glucose levels with symptoms of illness (above 15 mmol/L - you may need more insulin)
- **KETONES** at ++2 or +++3 in your urine or 1.5 mmol/L blood ketones or more. (You may need more insulin). In this case, please contact the person who normally looks after your diabetes immediately.

OUTSIDE NORMAL WORKING HOURS consult your local out of hours service or go to your local hospital A&E department.

If you would like this leaflet translated into another language/large print, please contact the Quality Team on 020 8909 5439.

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