

PATIENT INFORMATION

Adjusting Insulin Doses on Multiple Daily Injections Based on Blood Glucose Levels

Diabetes Team

Adjusting insulin doses to keep blood glucose levels at target is part of looking after diabetes. You may need to adjust insulin doses according to changes to food intake, lifestyle and activity levels.

When should the blood glucose be checked?

Blood glucose levels need to be checked before meals, before bed and between 2 and 3am at night to adjust background insulin. To adjust food insulin you need paired blood glucose levels, one before food and insulin and one 2hours after food and insulin.

Regular checking and adjustment of insulin doses will help you to achieve good diabetes control. Because children and teenagers grow and change you need to review insulin doses regularly.

Blood glucose targets:

Before breakfast Before midday meal Before evening meal/supper	4 – 8 mmol/L
2 hours after meals/supper	Below 10 mmol/L

When blood glucose levels are generally in target, mild *hypos* will happen about once a week, for example with unexpected exercise.

If you have to give regular correction doses at meal times you need to review your insulin doses at meal times.

If three blood glucose results in a row - at the same time of day - are not in the target range, you will need to adjust your insulin dose.

On multiple daily injections you will be using 2 different types of insulin. Rapid acting insulin with food and a long acting background insulin. You need to be able to adjust both of these different insulin types.

To adjust your insulin doses you need to

- Know your blood glucose targets
- Identify a pattern over 2 to 3 days
- Know which insulin dose to change
- Only make one change at a time
- Always deal with lows first

Which insulin which result?

Your long acting insulin (Lantus or Levemir) is the insulin your body needs to control your blood glucose levels across the day.

Your meal time rapid acting insulin (Novorapid, Humalog or Apidra) is usually adjusted if your 2 hour post meal blood glucose is above or below target.

If you are unsure about making changes please contact a member of the diabetes team for advice/support.

Insulin	Affects	Blood glucose reading
Lantus or Levemir	→	Blood glucose levels overnight and in the morning before breakfast
Breakfast rapid acting	→	Blood glucose level 2 hours after breakfast & before lunch
Lunch/midday rapid acting	→	Blood glucose 2 hours after lunch and before evening meal
Evening meal rapid acting	→	Blood glucose 2 hours after evening meal and before bed/supper

Other questions to ask before making changes

Could the high or low blood glucose level be due to changes in activity levels?

Could a high level 2 hours after a meal be caused by carbohydrate counting mistakes?

Could pre meal high blood glucose levels be due to snacks that haven't been covered with insulin?

Could a pre breakfast high blood glucose level be caused by supper without insulin?

Could a low pre breakfast be caused by exercise/activity the day before?

Changing your background insulin doses

Your Lantus or Levemir dose should be adjusted if you have pattern of 3 or more high or low readings before breakfast.

Change your dose based on your current dose of background insulin

Current background insulin dose	Increase or decrease by
Less than 5 units	0.5units
Between 5 and 10 units	1 unit
Between 10.5 and 20 units	2 units
More than 20units	3 units

Changing your insulin to carbohydrate ratio

Your insulin to carbohydrate ratio for your fast acting insulin may need to change if your blood glucose levels are rising or falling too much 2 hours after eating.

Try and check your blood glucose level before a meal and 2 hours after a meal.

If you have a pattern of blood glucose levels above or below target (less than 4mmol/L or above 9mmol/L) 2 hours after eating you should change your ratio.

Increase or decrease your ratio by 0.5units.

e.g. if your ratio is 1unit to 10g carbohydrate change to 1.5units to 10g if you need to increase or lower to 0.5units to 10g if you need to decrease.

Note – only change the ratio for the time of day you have checked. If you do before and after breakfast levels change your breakfast ratio only. Then check your midday meal and evening meal and make changes as needed.

**PLEASE DISCUSS WITH THE DIETICIAN FOR ANY
ADVICE AND INFORMATION.**

This leaflet has been written to help manage diabetes at home.

Do not rely on this leaflet alone for information about your child's treatment.

If you need help and advice please contact the diabetes team.

NOTES

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During your contact with us, it is important that you are happy with your care and treatment. Please speak to a member of staff and/or the ward/department Sister/Charge Nurse if you have any questions or concerns.

MATRON

A Matron is also available during the hours of 9.00 to 5.00 pm Monday to Friday. During these periods, ward/department staff can contact Matron to arrange to meet with you. Out of hours, a Senior Nurse can be contacted via the ward/department to deal with any concerns you may have.

INFECTION CONTROL REQUEST

Preventing infections is a crucial part of our patients' care. To ensure that our standards remain high our staff have regular infection prevention and control training and their practice is monitored in the workplace. We ask patients and visitors to assist us in preventing infections by cleaning their hands at regular intervals and informing staff of areas within the hospital that appear soiled.

As a patient there may be times that you are unsure whether a staff member has cleaned their hands; if in doubt please ask the staff member and they will be only too happy to put your mind at ease by cleaning their hands so that you can see them.

SPECIAL INSTRUCTIONS

ANY CONDITION SPECIFIC DANGER SIGNALS TO LOOK OUT FOR:

Symptoms related to hypoglycaemia. Please refer to relevant patient information leaflet on how to manage the symptoms and condition. If symptoms persist, please contact the Paediatric Diabetes Specialist Nurse or Children's Ward.

CONTACT INFORMATION IF YOU ARE WORRIED ABOUT YOUR CONDITION

Your own GP –

Paediatric Diabetes Specialist Nurse (West Lancs) –
01695 656766/mobile 07917658725

Paediatric Diabetes Specialist Nurse (Sefton) –
01695 656867/mobile 07876838200

Children's Ward – 01695 656912/656612

Paediatric Dietitian – 01695 588623

OTHER USEFUL TELEPHONE NUMBERS/CONTACTS:

NHS 111

Stop Smoking Helpline (Sefton) - 0300 100 1000

Stop Smoking Helpline (West Lancashire) - 0800 328 6297

**Please call 01704 704714 if you need
this leaflet in an alternative format**

Southport and Ormskirk Hospital NHS Trust

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FOR APPOINTMENTS

Telephone (01695) 656680
Email soh-tr.appointments@nhs.net

Please remember to complete the **attached Friends and Family Test**.

Alternatively, you can complete the *Friends and Family Test* on-line by going to:
southportandormskirk.nhs.uk/FFT
Thank you

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