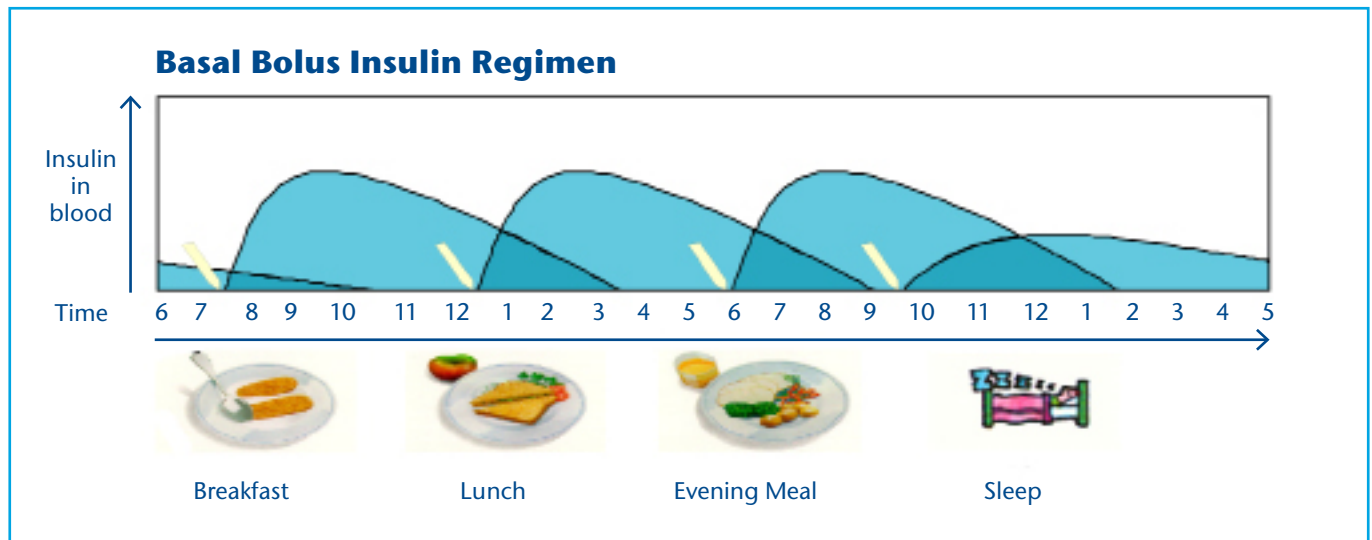


Basal Bolus Regimen Insulin Adjustment (Multiple Daily Injection)

Patient Information Leaflet



WHAT IS BASAL (LONG ACTING) INSULIN?

Your body needs a basic amount of insulin all the time - day and night - even between meals. This is called 'basal' insulin. It helps control your blood glucose at times when you are not eating but when your body still needs energy. Basal insulin is usually given once per day.

The amount of insulin you require can vary due to changes in the food you eat and activity or exercise you undertake. This leaflet is designed to give you information about the action of insulin, and how and when to adjust insulin doses.

TYPES OF BASAL (LONG ACTING) INSULIN

Intermediate acting insulin – e.g. Insulatard or Humulin I

Long acting insulin – e.g. Glargine (Lantus) or Detemir (Levemir)

WHAT IS BOLUS (SHORT ACTING) INSULIN?

Bolus insulin is usually given before a main meal. When you eat a meal your blood glucose level rises as carbohydrate food is turned into glucose. Insulin helps glucose move from the blood stream into the body cells to make energy. You need 'bolus' insulin to cope with the rise in glucose level after meals.

TYPES OF BOLUS (SHORT ACTING) INSULIN

Short acting insulin such as Actrapid or Humulin S should be given 20-30 minutes before a main meal.

Rapid acting insulin such as Novorapid, Humalog, and Apidra can be given immediately before or immediately after main meals.

INSULIN ADJUSTMENT

- ❖ Before adjusting your insulin check the pattern in your blood glucose levels – it is useful to check blood glucose levels before each injection for 2-3 days before adjusting insulin
- ❖ Ideally blood glucose levels should be between 4-7mmol/L before meals (your personal targets can be discussed with your diabetes healthcare professional)
- ❖ During illness you may need to increase your insulin quickly (see further leaflets on managing illness on the Diabetes MCN website)
- ❖ Insulin can be adjusted in advance if you anticipate changes in your dietary intake or activity
- ❖ Insulin adjustment before, during and/ or after exercise may be required – your personal adjustment guidelines can be discussed with your healthcare professional

WHY ARE MY BLOOD GLUCOSE LEVELS SOMETIMES HIGH?

A temporary high blood glucose level from time to time is impossible to avoid in everyday life. Reasons for high blood glucose levels include:

- ❖ infection
- ❖ certain foodstuffs
- ❖ stress
- ❖ steroid therapy
- ❖ missed insulin
- ❖ insufficient insulin
- ❖ problem with injection technique or sites for example lipodystrophy, lumpy areas under injection sites)

GENERAL GUIDELINES ABOUT INSULIN ADJUSTMENT FOR HIGH BLOOD GLUCOSE

Identify and address the cause of high blood glucose level if possible. If the pattern of blood glucose level is still high before mealtime for a period of 2-3 days consider increasing your insulin dose.

If blood glucose level is:

- ❖ **high** at lunchtime **increase** the breakfast insulin dose
- ❖ **high** at teatime **increase** the lunchtime insulin dose
- ❖ **high** at suppertime **increase** the evening meal insulin dose
- ❖ **high** at breakfast time **increase** basal insulin dose

Increase the insulin dose by 2 units at a time. For example:

- ❖ If you normally take 10units of insulin then increase the dose by 2units to 12units
- ❖ If you normally take 20units of insulin, increase the dose by 2units to 22units.

Contact your Diabetes Specialist Nurse if you need advice.

WHY ARE MY BLOOD GLUCOSE LEVELS SOMETIMES LOW?

Reasons for low blood glucose levels include:

- ❖ missed or delayed meals
- ❖ not enough or no carbohydrate (for example bread, pasta, rice, potato, cereal type foodstuffs) in meals
- ❖ too much insulin
- ❖ increased exercise, unexpected exercise
- ❖ alcohol
- ❖ problem with injection technique or sites for example lipodystrophy (lumpy areas under injection sites)

GENERAL GUIDELINES ABOUT INSULIN ADJUSTMENT FOR LOW BLOOD GLUCOSE

If you know the reason for the low blood glucose level then take action to prevent it from happening again.

If you have **unexplained** 'hypo' (blood glucose below 4mmol/L) then reduce your insulin dose. The dose of insulin given **before** the 'hypo' should be reduced.

If blood glucose level is:

- ❖ **low** at lunchtime **reduce** the breakfast insulin dose.
- ❖ **low** at teatime **reduce** the lunchtime insulin dose
- ❖ **low** at suppertime **reduce** the evening meal insulin dose
- ❖ **low** at breakfast time **reduce** basal insulin dose

Reduce your insulin dose by 2units at a time. For example:

- ❖ If you normally take 10 units of insulin, reduce the dose by 2units to 8units
- ❖ If you normally take 20 units of insulin, reduce the dose by 2units to 18units

Contact your Diabetes Specialist Nurse if you need advice

WHAT IF MY BLOOD GLUCOSE LEVEL IS LOW (BELOW 4MMOL/L) AND MY INSULIN INJECTION IS DUE?

Have some quick acting carbohydrate 150-200mls (larger glass) of ordinary cola or fruit juice or 4-6 glucose tablets or 3-4 soft sweets, the best example would be jelly babies, to increase your blood glucose level first, then take your insulin and meal as usual. Follow insulin adjustment guidelines for low blood glucose to prevent the problem happening again.

Do not tolerate hypoglycaemia on a regular basis. Ask for help from your healthcare professional. See Patient Information Leaflet Having a Hypo on the [Diabetes MCN website](#).

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NHS Lanarkshire - for local services and the latest health news visit www.nhslanarkshire.scot
NHS Lanarkshire General Enquiry Line: 0300 30 30 243

NHS inform - The national health information service for Scotland.
www.nhsinform.co.uk
Tel No: 0800 22 44 88

If you need this information in another language or format, please contact the NHS Lanarkshire General Enquiry Line on 0300 30 30 243 or e-mail info@lanarkshire.scot.nhs.uk

For further information go to:
[Diabetes MCN website](#)

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