Guidelines for Adjusting Insulin Doses

Basal-bolus regime

For People with
Type 1 Diabetes

These guidelines have been developed to help you make the right decisions about adjusting your insulin and to take control of your diabetes.

How often should I test and what targets should I aim for?
You might check your blood glucose levels at various times throughout the day. Everybody is different and you may test more frequently or less than others and you may test at different times to them. In general, it can be useful to take blood tests before meals and up to 2 hours after meals or before going to bed. However, it is usually unnecessary to do all of these tests in a day. Please contact your Nurse or Doctor to discuss the best times for you to test if you are still unsure.

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<th>TARGETS</th>
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<td>BEFORE MEALS</td>
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<td>4 – 7 mmols/L</td>
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<td>2 HOURS AFTER MEALS</td>
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<td>4 – 9 mmols/L</td>
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Points to consider before adjusting your insulin
It is important to consider ‘lifestyle issues’ before adjusting your insulin. Poor diet, weight gain and too little exercise can often be the reason for your blood glucose levels being too high. Therefore, you may be able to make some positive changes in your lifestyle to help reduce your blood glucose levels. It may be useful to try this before adjusting your insulin dose.

For some people increased activity levels and/or weight loss can cause blood glucose levels to drop too low (hypoglycaemia). If this is the case then you may need to reduce your insulin dose(s) and/or you could take extra carbohydrate snacks before, during or after exercise.
Illness
If you are unwell you may find that your blood glucose levels rise during the period of illness. You may just need to increase your insulin for the duration of your illness. Remember if you are unwell, that you must still take your insulin. Try to drink plenty of fluids and eat as normally as you can. Failing this, try to have foods and drinks that are rich in carbohydrate such as milk, fruit juice, soup and mashed potato. If your have Type 1 diabetes and your blood glucose levels are above 15mmols then you must check for ketones and you may very well need to adjust your insulin. Everyone with diabetes should follow the ‘sick day rules’ advice that you have been given by your health care professional. Contact your GP, Practice Nurse or the Diabetes Specialist Nurse if you need further advice. If you require advice that is ‘out-of-hours’ please contact NHS Direct or your local Accident & emergency department.

How do I know whether I need to adjust my insulin?
When considering adjusting your own insulin you will need to do some regular blood glucose tests in order to assess your diabetes control. Compare your readings with the targets listed on the front page of this leaflet. Look for any patterns in your blood glucose levels. Do not adjust insulin if only one or two readings are off target.

It is good practice to look at your readings over at least 3 days and if most of these readings are too high or too low then you will need to change your insulin dose(s).

Which insulin dose do I need to adjust?
You are taking a basal-bolus regime which means that you will usually take 4 injections of insulin per day. Most people take an injection of fast acting insulin with each meal and then a further injection of slower longer acting insulin on an evening or at bed-time. As you take 4 injections per day it is necessary to know which insulin dose to adjust in order to improve your blood glucose levels.

Here are some examples:

- Adjust your MORNING (breakfast) insulin dose based on your ‘2 hours after breakfast or before lunch’ blood glucose results.
- Adjust your **LUNCH-TIME** insulin dose based on your ‘2 hours after lunch or before evening meal’ blood glucose results.
- Adjust your **EVENING MEAL** insulin dose based on your ‘2 hours after evening meal or before bed’ blood glucose results.
- Adjust your **LONG ACTING** insulin based on your ‘before breakfast’ blood glucose results.

Remember that if your blood glucose levels are too high or too low then you need to adjust the insulin dose that you had taken prior to doing this blood test. Therefore, you might need to wait for up to 24 hours before being able to alter the dose.

**How much insulin can I adjust by?**

If your blood glucose levels before or after meals are:

- **Below 4 mmols**
  then decrease your insulin dose by **2 - 4 units**

- **7 – 10 mmols** before meals or **9 – 12 mmols** after meals
  then increase your insulin dose by **2 units**

- **Above 10 mmols** before meals or **above 12 mmols after meal**
  then increase your insulin dose by **4 units**

You should adjust your insulin dose every 3 days until your blood glucose levels are within target.

- For further advice you can contact your GP, practice nurse or the diabetes specialist nurses on (0191) 445 5405 between 9am to 4pm (Monday – Friday)
- NHS Direct Tel no: 0845 4647 (www.nhsdirect.nhs.uk)
- For emergency medical assistance dial 999
### Data Protection

Any personal information is kept confidential. There may be occasions where your information needs to be shared with other care professionals to ensure you receive the best care possible.

In order to assist us improve the services available your information may be used for clinical audit, research, teaching and anonymised for National NHS Reviews. Further information is available in the leaflet Disclosure of Confidential Information IL137, via Gateshead Health NHS Foundation Trust website or the PALS Service.

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