Changing to Basal Bolus Insulin Regimen

What is a basal bolus insulin regimen?

Basal insulin (Lantus) is injected once per day and ensures there is insulin in the body at all times.

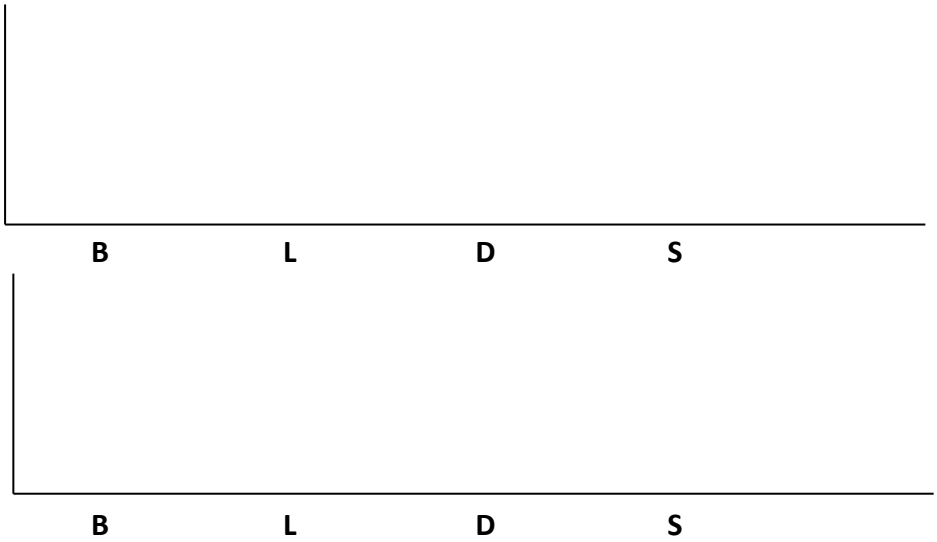


Bolus insulin (NovoRapid/Humalog) is rapid acting and given **before** each main meal. This dose is matched to the amount of carbohydrate that is eaten. **NovoRapid/Humalog can be injected 3-4 times per day.**





A basal bolus regimen can provide **flexibility with timing of meals and routine** and **reduce the need for snacking**.



About basal insulin - Lantus



- Ensure *Lantus* is injected at the same time every day. It is generally given in the evenings
- *Lantus* can be given at the same time as *NovoRapid/Humalog* but do not inject into a site that has been injected with *NovoRapid/Humalog* in the previous 6 hours.
- *Lantus* does not have a peaking action like *NovoRapid/Humalog*. Food does not need to be eaten when Lantus is injected
- *Lantus* is injected using the Lantus *Solostar* pen device (disposable) or *Clikstar* pen device (non-disposable)





- Do not mix *Lantus* with other insulin
- *Lantus* has a lower pH than other types of insulin. Some people report slight discomfort or stinging at the injection site when they start Lantus. This feeling should pass quickly.

Blood glucose (BG) testing: To assess if BGLs are in target range (4-8mmol/L) or a dose adjustment is required. BGs should be performed a minimum of 4 times/day; before breakfast, lunch dinner and bed**.**

Extra BG testing times

- Overnight between 2 – 4 am for at least the first 3 nights after changing insulin regimen, then 3 - 4 times/month once the Lantus dose is established.
- An occasional BG test 2-3 hours after *NovoRapid/Humalog* can be performed to assess the action of your bolus dose
- Check the BG at 2-3 am if the Lantus dose has changed or following a busy/active day
- Exercise/sport
- Sick days

Record keeping: continue to keep a record book of blood glucose levels.
Using the **dose adjustment guidelines** and keeping an **up-to-date record of BGs** provides information required to assess whether a dose adjustment is needed. Remember to look for BG patterns/trends over a 3-day period. Part of this pack includes the guidelines for adjusting insulin for 4 injections/day.

Injection technique

- Use a new needle for each injection
- Screw the needle onto the end of the pen and remove the two caps (a smaller cap and the larger cap)
- Before each injection, always complete a 2 unit "test shot" by expelling 2 units of insulin into the air to ensure that the needle is not blocked
- Dial up the dose of insulin
- Insert the pen into the skin site at a 90 degree angle
- Use your thumb to push on the end of the pen, until it is at 0 units
- Hold the end of the pen down with your thumb while **counting to 10 seconds**
- Remove the needle from under the skin
- Use the large needle cap to carefully remove the needle from the pen
- Dispose of the needle into your sharps container

Empty disposable pens should be disposed of into a sharps container.

How to manage your diet on a basal bolus regimen

Aim for three regular main meals. The timing of these meals can be flexible, although you need to have a **minimum of 3 hours** between injections of rapid acting insulin to avoid the insulin overlapping in your body.

It is important to consume carbohydrates at each main meal. Try to keep your carbohydrate intake as consistent as possible. Carbohydrates can be quantified by counting them as a serve (i.e. one serve = approx. 15 grams of carbohydrate). Please speak to your dietitian if you are unsure how many carbohydrate serves you should aim for at each main meal.

	Number of carbohydrate serves	**Insulin dose**
Breakfast		
Morning Tea		
Lunch		
Afternoon Tea		
Dinner		
Supper		

For occasions when eating more or less carbohydrate than your usual serve amount you need to consider adjusting your *NovoRapid/Humalog* insulin accordingly. Please talk to your diabetes nurse educator and doctor about how to adjust for these occasions.

What about snacking?

Snacks are not compulsory on a basal bolus insulin regimen. If you are wanting a snack in between your meals then aim to keep it less than 20 grams of carbohydrate unless you are planning to give extra rapid acting insulin. If you are consistently feeling hungry in between your meals then consider increasing the size of your main meal or include more low GI carbohydrates such as wholegrain breads, grains and fruit to improve your feeling of fullness. If you are regularly having more than 20grams of carbohydrate at a snack time then talk to your diabetes team about the best way to manage this. You may require an extra injection of *NovoRapid/Humalog.*



Getting the most out of your basal bolus insulin regimen

- Check your blood glucose levels before each meal and at bedtime
- Check your blood sugar levels 2-3 hours after your main meal (without snacking in between) to assess if your insulin dose and food are well matched. If your blood glucose level is more than 2mmol/L higher or lower than your pre-meal reading on 3 occasions (at that same meal) then your insulin dose may need to be adjusted.
- If eating out and consuming more than your usual amount of carbohydrate then consider increasing your rapid acting insulin at this meal.
- Stay in touch with your diabetes team, especially during the first few weeks of changing over to a basal bolus insulin regimen.

What to do if the Lantus dose is missed

Lantus is a background insulin and provides your body with a steady slow release of insulin. If there is no *Lantus* working in your body and you have not had *NovoRapid/Humalog* for 2-3 hours, it is likely that ketones levels will rise in the body. Remember additional *NovoRapid/Humalog* insulin will be required if ketones are >1.0 mmol/L. Refer to your sick day guidelines and call RCH switchboard on 9345 5522 and ask to be put through to the "diabetes sick day service".

If you realise you have missed your *Lantus* dose 2-4 hours after the usual time it is given, have it as soon as you remember.
For example, If *Lantus* is usually given at 6pm (dinner time) and you remembered at 10pm that you have not given it, have it at 10pm. The next day have it at 8pm and the following day return to the usual *Lantus* time of 6pm.

If you miss a dose of *Lantus* in the evening you may wake up feeling unwell. Remember to check your ketone levels and call the RCH sick day service for advice. You will need extra *NovoRapid/Humalog* for positive ketone levels (≥1.0). Refer to your sick day guidelines and call RCH diabetes sick day service. There are a few different ways of getting your *Lantus* back on track, discuss this with a Diabetes Nurse Educator.

If unsure contact the RCH switchboard 9345 5522 – ask for "Diabetes sick day service"

Checklist:

☐ Script from your doctor for either:

***NovoRapid* Flexpen/*Humalog* Kwikpen** (disposable pens)
OR
NovoRapid* Penfills** (for non-disposable NovoPen 4)/Humalog* Penfills** (for non-disposable Lilly Luxura pen)

AND

***Lantus* Solostar pen** (disposable pens)
OR
***Lantus* penfills** (non - disposable Clickstar pen)

☐ New doses of insulin for NovoRapid/Humalog and Lantus from your doctor

☐ Pen needles from an NDSS outlet

☐ New school action and management plan

ADJUSTING YOUR INSULIN

Basal Bolus Regimen (4 injections/day)

Through out life your insulin requirements will change. Growth, sport, activity, lifestyle and food all play a part in affecting blood glucose levels.
To maintain diabetes control it is important to adjust insulin doses when BGL's start to drift outside the target range.

YOUR BGL TARGET is
4.0 mmol/L- 8.0mmol/L.

Some tips-

- Do not adjust insulin because of a single high or low BGL
- Look for patterns in your BGL over a minimum of 3 days
- A BGL out of target range 3 days in a row or 4 times in one week **at the same time of day** is a good indicator that the insulin doses should change.
- Wait 3 days to assess the effect before making a second change

Hyperglycaemia (high blood glucose) at

Breakfast or over night

Increase your Lantus/ Levemir by 1-2 units

Lunch or morning tea

Increase your breakfast dose of Novorapid / Humalog by 1-2 units

Dinner or afternoon tea

Increase your lunch dose of Novorapid / Humalog by 1-2 units

After dinner or before bed

Increase your dinner dose of Novorapid / Humalog by 1-2 units

Hypoglycaemia (low blood glucose) at

Breakfast or over night

Decrease your Lantus/ Levemir by 1-2 units

Lunch or morning tea

Decrease your breakfast dose of Novorapid / Humalog by 1-2 units

Dinner or afternoon tea

Decrease your lunch dose of Novorapid / Humalog by 1-2 units

After dinner or before bed

Decrease your dinner dose of Novorapid / Humalog by 1-2 units

THIS ADVICE DOES NOT APPLY IF YOUR CHILD IS ON SICK DAY MANAGEMENT

Diabetes Nurse Educators
9345 6661 8am – 4pm for non-urgent advice (routine dose adjustment)
9345 5522 out of hours for all urgent/sick day advice