

## GUIDELINES ON MDI FOR PARENTS OR STAFF

### **Basal Bolus/ Multiple Daily Injections (MDI)**

The pancreas secretes basal insulin all day – when you eat, it releases a bolus of insulin to cover the rise in blood glucose. Basal bolus regime or MDI as it is also known, aims to mimic the function of a normal pancreas. You will inject yourself **at the same time** every evening with your basal insulin which is either Levemir, Lantus or Tresiba.

**Levemir / Lantus / Tresiba (Basal):** These are long-acting basal insulins which have a profile of between 12 and 42 hours. They work by slowly releasing insulin into your body over the whole day and night. They release a constant level of insulin that helps control your blood glucose level between meals and overnight. It is very important to rotate injection sites for this injection.

**Fiasp / Novorapid/Humalog (Bolus):** Novorapid / Humalog are rapid-acting insulins and should be given 15 minutes before eating. Fiasp can be given immediately before eating with no wait time. You will be given an insulin to carbohydrate ratio (ICR), which helps you match insulin to the amount of CHO in your food. It is important to follow a healthy eating routine as advised by the dietitian and avoid grazing.

**Corrections using ISF:** Fiasp / Novorapid/Humalog are the insulins used for corrections. You will be correcting blood glucose levels greater than 10mmols/l. Correction doses should be included with mealtime insulin to prevent stacking of insulin-causing hypoglycaemia/low blood glucose.

**\*\*\* Remember to give the insulin dose for carbs AND correction dose together as one injection using Fiasp/ Novorapid / Humalog \*\*\***

**Hypoglycaemia:** If blood glucose <4mmol/L. Give fast-acting carbohydrate. Examples are below.

Choose one of the following: **\*\*Note these are average amounts and will vary depending on age\*\*.**

- 120mls Original Lucozade
- 100mls Full sugar fizzy drink
- 100mls orange / apple juice
- 3-4 glucose sweets

Wait 10 minutes and re-check, if blood glucose is still <4mmol/l repeat fast-acting carbohydrate.

Once blood glucose level is >4mmols take 10-15grms CHO snack e.g. 2 plain biscuits, slice of bread or piece of fruit if not due a meal. **\* If a meal is due there is no need for CHO snack \*.**

**\*\*\*Consider reason for low\*\*\***

### **Common causes for low blood glucose:**

- Miscalculation in CHO counting
- Miscalculation in bolus insulin
- Exercise with no adjustment
- Did not finish meal

**Hyperglycaemia:** Always check for ketones if blood glucose >14mmols, if ketones are >1.0 you need to phone the hospital on 01 428 2819, or out of hours' emergency number 01 409 6121.

**\*\*\*Consider reason for high\*\*\***

**Common causes for high blood glucose:**

- Miscalculation in CHO counting
- Miscalculation in bolus insulin
- Illness
- Injecting into lumpy site
- Missed bolus injection
- Missed basal injection
- Stress & anxiety

**Insulin Adjustments**

Establish which insulin is working at that time (Basal/Bolus)

- A fasting blood glucose reading in the morning is a good indication of how the basal insulin (Levemir / Lantus / Tresiba) is working.
- To assess the ICR a pre-meal blood glucose reading and 2 hours' post-meal blood glucose reading (post prandial) is required. The blood glucose level 2 hours post-prandial should be within 3-4mmol/l of the pre meal glucose.

**Hypoglycaemia:** Establish reason for low blood glucose.

- If blood glucose is low on waking it is likely the Levemir / Lantus / Tresiba dose may be too high – you will need to **reduce** this dose by 10%.
- If blood glucose is low after a meal (post prandial) for no obvious reason it is likely the ICR for that mealtime may need adjusting. For example, if your ratio is 1:10 you should try 1:12 or 1:15. This gives less insulin for that mealtime preventing hypoglycaemia.

**Do not wait** for patterns of unexplained hypoglycaemia, if you have one unexplained hypo then you must adjust the ICR.

**\*\*If you are unsure about adjustment of either ICR or basal doses, please contact the hospital for advice\*\***

*Created by CNSp Diabetes*

*Issue date: January 2022 / Review Date: January 2025*

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