Diabetes Information

Your diabetes team includes:

- Consultant Paediatric Endocrinologist
- Paediatric Diabetes Clinical Nurse Specialists
- Senior Clinical Nutritionists/Dietitians
- Senior Clinical Psychologist
- Medical Social Worker

Our contact numbers are:

Diabetes CNS 01-4096121 bleep 8397
For appointments 01-4282819/01-4096399
Fax number 01-4096399.

Emergency only:

Phone 01-409 6121 and ask to speak to Medical Registrar on-call.
An Introduction to the Service

Our Lady’s Children’s Hospital provides a comprehensive diabetes service which includes:

- Multidisciplinary Diabetes Clinic visits

- Nurse/Dietitian/Psychology led visits

- Insulin pump therapy

- Basal Bolus (MDI) structured group education sessions

- Continuous Glucose Monitoring Sensor

- Dietetic support and follow-up from diagnosis

- Psychosocial support

- Social work support where required

- School and Creche visits facilitated where required

- Diabetes camps and day trips
An Introduction to Diabetes

**DIABETES** is a long term disorder characterised by a raised level of glucose (sugar) in the blood. Type 1 is the most common type of diabetes in children and is very different from Type 2 Diabetes which is the most common in adults. There are certain genetic features which make some individuals more vulnerable to developing Type 1 diabetes. Research into Type 1 diabetes is ongoing.

**GLUCOSE** is the main sugar in the body and comes from the breakdown of carbohydrate foods. It is the main fuel used by the body to give you energy.

Diabetes is a condition in which the pancreas does not make enough hormone called **INSULIN**. The pancreas is a gland located near to your stomach.

Insulin lowers the level of glucose in your bloodstream by transporting it into the cells. In diabetes there is not enough insulin and so glucose cannot get into the cells but collects in your blood. As the glucose level in the blood gets higher, some is passed out in your urine. This makes you need to pass urine more often, you feel thirsty and may lose weight.

When a diagnosis of Type 1 diabetes is confirmed then treatment with insulin is commenced by subcutaneous injection.

*Your Diabetes team will give you details of useful websites for further information*
Hypoglycaemia / Low blood Glucose

Hypoglycaemia is a term for a low blood glucose level. It is often called a “hypo”. There are 3 degrees of low blood sugars – mild, moderate and severe.

Low BG is defined as having a BG level of < 4mmol/l. This may be caused by:
- Too much insulin
- Missing meals/snacks
- Insufficient carbohydrates in meals/snacks
- Exercise without adjusting routine
- Illness

Symptoms of low BG may include:
- Pale
- Anxious
- Confused
- Sweaty
- Hungry
- “Wobbly legs”, shivery or shaky
- Feel tired /drowsy
- Blurred vision

** Sometimes you may not have any of these symptoms **

*** NEVER LEAVE A CHILD UNATTENDED DURING A HYPO EVENT ***
Treatment for low blood glucose:

Mild low

1. 

Take ONE of the following:

- 50ml Lucozade Energy
- 100ml full sugar drink
- 100ml fruit juice
- 3 Dextrose sweets
- Hypostop, Glucogel and honey/jam are good alternatives for toddlers

2. Wait 10 minutes
3. Recheck blood glucose to ensure it is >4mmol/l. If still below 4mmol/l repeat step
4. Give 10-15gms Carbohydrate e.g. 2 plain biscuits, slice of bread or a piece of fruit.

Chocolate / Jellies are not recommended for hypo treatment!

Moderate low:

During a moderate low you may need some assistance to treat your low. Treatment of a low at this stage is the same as above.
Severe low:

If a mild/moderate low is untreated it can progress to a severe low.

If the child is very drowsy, very unco-operative or unconscious

Give GLUCAGON immediately

Dose:

- Children under 25kg - 0.5mg/half a vial of glucagon
- Children over 25kg- 1mg/full vial.
- If Glucagon unavailable or unable to administer, phone for paramedics immediately.
- Place child in recovery position.
- When child recovers following Glucagon (15 – 20mins) give some quick acting carbohydrate – i.e. Sugary drink followed by a snack or light meal
- This will be covered in more detail during your education.
- A severe low blood sugar is a medical emergency. If a child does not respond to the glucagon injection call paramedics immediately

Please alert your diabetes team if your child had a severe hypo.
Hyperglycaemia / High blood glucose:

Hyperglycaemia or high blood glucose is the term given to a blood glucose >10mmols/l. This may be caused by

- Not enough insulin
- Too much carbohydrates in meals/snacks
- Grazing between meals
- Too many treats
- Illness
- Stress/hormones

You will need to check for blood ketones when the blood glucose level is >14mmols/l.

*You must contact Diabetes unit when blood ketones are >1.0mmols/l.*

Symptoms of high glucose may include:

- Thirst
- Frequent urination
- Abdominal pains
- Tiredness
- Blurred vision
- Poor concentration
- Irritable

*Sometimes you may not have any of these symptoms*
SICK DAY RULES

When ill, even if your child is not eating, blood glucose levels tend to rise. It is very important to monitor blood glucose and blood ketone levels and seek medical advice if concerned.

What should you do when your child is ill?

- Seek medical advice from your General Practitioner for the underlying illness.
- Never stop administering insulin.
- Test blood glucose levels AND ketones every 2 hours.
- Drink plenty of unsweetened fluids e.g. water/sugar-free cordials/drinks.
- If unable to eat, substitute meals with regular sugary drinks (non-diet) – offer alternate drinks of water with sugary drinks.
- Contact the hospital for medical advice if they are vomiting and ketones (1.0 or higher) are present.
- If your child is vomiting and unable to tolerate fluids contact the hospital immediately.

Contact details for Diabetes Centre

01 409 6399 or 01 428 2819
Emergency number 01 409 6121
Diabetic Ketoacidosis (DKA)

DKA can occur when blood glucose and blood ketones are consistently high. This can be due to:

- Missed insulin injections
- Poor management of insulin pump
- Non-compliance with insulin and food regime
- Illness

Admission to hospital is usually necessary. Ketoacidosis can be extremely dangerous, and requires immediate medical intervention. “Sick Day Rules” are designed to safely adjust insulin doses, preventing ketoacidosis from occurring. Remember to contact the diabetes team if unsure.

Signs and Symptoms of DKA

These are some of the signs that might indicate the development of ketoacidosis:

- High blood glucose (usually).
- Blood ketones >1.0mmol/l
- Dehydration.
- Vomiting.
- Abdominal pain/ cramps.
- Rapid breathing rate.
- Sweet smelling breath.
- Increasing sleepiness/ drowsiness, lack of energy.
Complications of high blood glucose

Consistently high blood glucose levels can result in complications over time. Compliance with your diabetes regime will greatly reduce your risk of complications in later life. Complications will be discussed further at your clinic visit.

Types of Insulins

<table>
<thead>
<tr>
<th>Rapid Acting insulin</th>
<th>Short Acting insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Novorapid</td>
<td>• Actrapid</td>
</tr>
<tr>
<td>• Humalog</td>
<td>• Humulin S</td>
</tr>
<tr>
<td></td>
<td>• Insuman Rapid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intermediate Acting insulin</th>
<th>Long Acting insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Humalin I</td>
<td>• Levemir</td>
</tr>
<tr>
<td>• Insulatard</td>
<td>• Lantus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pre Mixed insulin</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Novomix 30</td>
</tr>
<tr>
<td>• Humulin M3</td>
</tr>
<tr>
<td>• Humalog Mix 25</td>
</tr>
<tr>
<td>• Humalog Mix 50</td>
</tr>
</tbody>
</table>

Your Diabetes Consultant will decide on the insulin regime, type and dose most suitable for you.
How to store insulin

- Before opening vials or cartridges store in a refrigerator.
- During use or when carried as a spare, insulin vials and cartridges are stored at room temperature (below 25 degrees C.) for a maximum of 4 weeks.
- Keep the vial or cartridge in the outer carton to protect from light.
- Do not use after expiry date?
Mixing short and intermediate insulins using a syringe

Injections should be given into a clean site with clean hands.

1. Wash hands using soap and water.
2. Decide on insulin dose to be given.
3. Clean both vials with alcohol swab.
4. Roll Insulatard vial
5. Draw up the required units of air, and insert the air into the Actrapid/Novorapid vial.
6. Draw up the required units of air and insert the air into the Insulatard vial. Do not remove the needle from the Insulatard vial.
7. Turn the vial upside down and draw up the required units of Insulatard.
8. Remove needle from the Insulatard vial.
9. Insert the needle into the Actrapid/Novorapid vial and draw up the required units of Actrapid/Novorapid taking care not to mix the insulins in the vial.
10. Place your syringe in the inject-ease as taught and administer.
11. Used syringes should be disposed of in your sharps bin immediately and kept out of reach of small children.
For children using insulin pens parents / child will be shown how to use both pens and pen needles by your diabetes nurse.

**Insulin Injection Technique**

Commonly used injection sites for administering insulin.

Injections should be given into a skin lift at 90 degrees. This is to prevent an intramuscular injection. Please see Diagrams below.

**Performing a correct skin lift:** Correct (left) and incorrect (right) ways to perform a skin lift. To perform a skin lift, delicately lift the skin and subcutaneous tissue between the thumb and index finger, leaving the muscle behind.

This demonstrates correct injection technique. Rotating injection sites is important prevent lumps forming.

When we continue to inject into lumpy injection sites the absorption of insulin is affected causing erratic blood sugars.
**Diabetes Clinic Visit:**

You will be required to attend Diabetes Clinic visits regularly to monitor your diabetes control. The following will be checked:

**Height and weight for growth monitoring.**

**Hba1c or Glycosylated haemoglobin assesses diabetes control over the previous 3 months**

**Blood pressure**

**Annual urine screening**

**Annual blood test to screen for Thyroid conditions, coeliac disease and cholesterol**

Additional **Retinal eye screen** is also required. This should be carried out yearly for children with Type 1 Diabetes when they are 12 years and older. The National Diabetic Retinal Screening Programme provides this test free of charge.

Contact Number 1800-454 555.

**Annual foot screening**
Insulin adjustment for twice daily regime

Low blood glucose (BG) < 4mmol/l

- Decide which insulin is peaking at the time.
- Establish reason for low BG e.g. Food/exercise/too much insulin/illness.
- If BG < 4mmol/l lower insulin working at time by 10%.
- The exception to this would be if child missed meal/snack or had unplanned exercise.

High blood glucose (BG)

- Decide which insulin is peaking at the time.
- Look for pattern in BG over 2-3 days.
- Ensure at least 2hr gap between food intake and testing BG.
- Establish reason for high BG e.g. Food/illness/not enough insulin.
- If BG > 12mmol/l increase insulin working at time by 10%.
- The exception to this would be if child had extra meal/snack or missed injection.

If you have any queries about adjustment contact the Diabetes Nurses.

If your child is on basal / bolus regime, pre mixed insulin or an insulin pump you will be educated by your diabetes nurse about adjusting.
Travel Information

Bring plenty of supplies with you including:

- Insulin
- Syringes/Pens & pen needles/Infusion sets
- Glucometer & Ketone meter
- Glucose & Ketone strips
- Glucagon
- Hypo treatment
- ID bracelet
- Travel letter
- Copy of your prescription
- Hospital contact details for emergencies
- Cool bag for insulin storage
- Snacks e.g. cereal bars, crackers, sandwiches.

All supplies should be carried in your hand luggage
Do not put insulin in your checked baggage as the temperature in the hold is too low

If you are travelling through time zones, you can contact the Diabetes CNS for a travel plan. Please give at least 1 weeks’ notice.
For further information see:

- Diabetes Ireland
  Lo Call 1850909909
  (www.diabetes.ie)

- Online community for kids with diabetes and their families.
  (www.childrenwithdiabetes.ie)

- Diabetes Ireland Research Alliance
  (www.diabetesresearch.ie)

- Diabetes UK
  (www.diabetes.org)

- International Diabetes Federation
  (www.idf.org)

- ISPAD International Society for Pediatric and Adolescent Diabetes
  (www.ispad.org)

- Runsweet – Diabetes and Sport
  (http://www.runsweet.com)