

A Fact Sheet for Parents and Carers

Insulin and Diabetes

In type 1 diabetes the body stops producing insulin. Insulin therapy is essential in the treatment of type 1 diabetes, together with a healthy eating plan and regular physical activity. Insulin can be given either by injection or through an insulin pump. Managing type 1 diabetes may be a balancing act between insulin and physical activity which lower the blood glucose level (BGL) and food and stress hormones which raises the BGL.

What is Insulin?

Insulin is a hormone made by the beta cells in the pancreas. When we eat, insulin is released into the blood stream where it helps to move glucose from the food we eat into cells to be used as energy. Insulin also helps store excess glucose in the liver.

Why must it be injected or given by Insulin Pump?

At present insulin cannot be given by mouth as the stomach would digest it, just as it digests food.

It is important that your child eats as soon as insulin has been injected to prevent a hypo or low blood glucose level.

Insulin must be adjusted according to activity, food intake and growth. Meeting regularly with your diabetes team can help.

Types of Insulin available in Australia

RAPID ACTING INSULIN

Rapid acting insulins are clear in appearance. They act very quickly starting to work within 15 minutes, peaking approximately one hour later and lasting from 3 to 5 hours. When using these insulins it is important to eat immediately after injecting. These insulins are used in insulin pumps.

Rapid acting insulins currently available are:

Novorapid®, Humalog® and Apidra®

SHORT ACTING INSULIN

Short acting insulins are clear in appearance. They begin to lower blood glucose levels within 30 minutes so you need to have your injection 30 minutes before eating. These have a peak effect at 2 to 5 hours and last for 6 to 8 hours.

Short acting insulins currently available are:

Actrapid®, Humulin®

INTERMEDIATE ACTING INSULIN

Intermediate insulins are cloudy in appearance. They have either protamine or zinc added to delay their action. These insulins begin to work about 60-90 minutes after injection, peaking at 4 to 12 hours and lasting for 16 to 24 hours.

Intermediate acting insulins available are:

Protaphane®, Humulin® NPH

LONG ACTING INSULIN

Long acting insulins

Lantus® (Insulin Glargine) is a long acting clear insulin which is usually injected once a day (but can be given twice a day). Lantus must not be mixed with any other insulin in a syringe. Lantus pens are available for use with Lantus pen cartridges.

Lantus is also available in a disposable pen called a SoloSTAR®.

Levemir® (insulin Detemir) is a long acting clear insulin which can be injected once or twice a day. Levemir is available in a disposable pen called a Flexpen® as well as in a 3ml cartridge for use with a durable pen.

Both Lantus and Levemir last up to 24 hours and provide background or basal insulin. Lantus and Levemir may need to be supplemented with injections of rapid acting insulin at meal time.

MIXED INSULIN

There are mixed insulins available which are not commonly used in children, however, they may be used in certain circumstances.

How is insulin given?

There are many different devices available to inject insulin. The main choices include:

INSULIN SYRINGES

- Insulin syringes are to be used with insulin vials (10ml) or cartridges (3ml)
- Syringes are manufactured in 30 unit (0.3ml), 50 unit (0.5ml) and 100 unit (1.0ml) measures. The size of the syringe will depend on the insulin dose e.g. it is easier to measure a 10 unit dose in a 30 unit syringe and 55 units in a 100 unit syringe
- Each syringe should only be used once
- Needles on the syringes are available in two different lengths 8mm and 12.7mm. Your doctor or diabetes educator will help you decide which syringe is right for you
- Syringes are free for people registered with the National Diabetes Services Scheme (NDSS). Contact your State and Territory Diabetes Australia Organisation for details on **1300 136 588** or visit **www.ndss.com.au**

Insulin delivery devices

INSULIN PENS AND OTHER DEVICES

- Devices are available in different shapes and sizes. An insulin cartridge (3ml containing 300 units of insulin) fits into the pen device. When finished, a new cartridge is inserted. Some pen devices are pre-filled with insulin and the whole device is disposable. Your doctor or diabetes educator will advise the one that's right for your child's needs.
- Many people find pen devices easier and more convenient to use than syringes.
- It is recommended that the needle be changed with each injection.
- Needles vary in length – 4mm, 5mm, 6mm, 8mm or 12.7mm. Current guidelines recommend pen needle length of 4-5mm for children and needles great than 6mm are no longer recommended. Speak with your diabetes educator or diabetes team to determine the right needle length for you or your child. (ADEA, Clinical Guiding Principles for Subcutaneous Injection Technique, March 2017).



What is the best way to get rid of used syringes and needles?

Used syringes, pen needles and lancets must be disposed of in an Australian Safety Standard - approved sharps container which is puncture proof and has a secure lid. You can purchase sharp bins from www.diabeteshop.com.au.

Procedures to dispose of sharps vary from Council to Council and from State to State. Contact your State or Territory Diabetes Organisation on 1300 136 588, your State Department of Health or Local Council for information.



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How is insulin stored?

- Keep your unopened insulin vials or pen cartridges in the fridge. Do not allow insulin to freeze.
- Once opened, insulin may be kept at room temperature (less than 30 degrees) for one month and then thrown away.
- Insulin can be safely carried in a bag or pocket.
- Insulin may be damaged by extreme temperatures. It must not be left where temperatures are over 30 degrees, such as in the car or by a window, or in direct sunlight.

DO NOT USE INSULIN IF:

- The clear insulin has turned cloudy.
- The expiry date has been reached.
- The insulin has been frozen or exposed to high temperatures.
- Lumps or flakes are seen in the insulin.
- Deposits of insulin are seen on the inside of the vial and cannot be dissolved by gently rotating the vial.
- The vial has been open for longer than one month.

Many countries need insulin. If you have spare in-date insulin, please donate to your State or Territory Diabetes Organisation on **1300 136 588** or send directly to Insulin for Life Inc., PO Box 2010, Ballarat Mail Centre, Victoria 3354.

Need an interpreter?

A free telephone interpreter service is available for people who may have difficulty in understanding or speaking English. The Telephone Interpreting Service (TIS) is provided by the government and has access to professional interpreters in almost 2000 languages and dialects and can respond immediately to most requests.

Accessing an interpreter:

1. Simply dial 131 450 for the Telephone Interpreting Service.
2. Explain the purpose for the call e.g. wanting to speak to the National Diabetes Services Scheme helpline
3. The operator will connect you to an interpreter in the required language to an NDSS helpline representative for a three-way conversation.

This free service has been set up by Diabetes Australia and will be promoted with assistance from the Australian Government Department of Health and Ageing.