trend UK

KEEPING SAFE WITH INSULIN THERAPY

WHY IS THIS LEAFLET FOR YOU?

Insulin treatment improves the quality of life in many people and saves the lives of others. It is used to lower blood glucose levels. However, insulin management and prescribing errors are very common and can lead to patient harm. These are often as a result of not having:

- The right person
- The right insulin
- The right dose
- The right time
- The right device
- The right way

This leaflet can help you to get the most out of your insulin treatment and keep **YOU** safe

NHS Improvement

THE RIGHT PERSON

Everybody's insulin requirements differ. How much insulin and how many injections you need each day will depend on a number of factors including the type of diabetes you have, your lifestyle and meal-pattern, how long you have had diabetes and whether you also take tablets to control your blood glucose levels

Whatever your insulin regimen is, it is important to know the name or names of your insulin, the doses that you have been advised to inject, and the type of insulin device you use. You can then be sure that you have been prescribed and issued with the correct treatment. Always carry your insulin passport or insulin safety card with you to confirm this information

Insulin can cause hypoglycaemia (low blood glucose level or 'hypos'). Make sure you know the symptoms of a hypo and carry glucose treatment with you at all times

THE RIGHT INSULIN

Over 30 different insulins are available in the UK so always check you have the correct one. Some work very rapidly, some very slowly. Some have similar names but very different actions. This table shows some insulin names that are often confused

Humalog with	Humalog Mix 25 or Humalog Mix 50
Humulin S with	Humulin I or Humulin M3
Humalog with	Humulin I or Humulin S or Humulin M3
Novorapid with	Novomix 30
Levemir with	Lantus

Mixed insulins:

These are a mixture of rapid or short-acting insulin with a long-acting. They are usually given at breakfast and the evening meal time. The number after the name relates to the percentage of rapid/short-acting insulin (e.g. Insuman Comb 15, Humalog Mix 25, Novomix 30). They must be thoroughly re-suspended before each dose to ensure you inject the correct mixture

There is also an insulin mixed with GLP-I receptor agonist (degludec insulin and liraglutide) called Xultophy

Different concentrations:

Until recently, all insulin was only available as 100 units per ml (u100). However, there are now a number of different strengths of insulin

200 units per ml (u200) is double the concentration of 100 units per ml
300 units per ml (u300) is 3 times the concentration of 100 units per ml
500 units per ml (u500) is 5 times the concentration of 100 units per ml

- Always check the name and strength of insulin that you have been given before you leave the pharmacy
- Always carry your insulin passport or insulin safety card with you
- **Do not** use a syringe to withdraw insulin from a pre-filled pen device

THE RIGHT DOSE

No single dose fits all: how much you need depends on your weight, type of diabetes you have, the amount of carbohydrate food (sugar and starches) you eat, activity levels and many other factors. Your doctor or nurse will advise you how much to inject or you may have attended an education course where you have learned how to adjust your insulin appropriately

- Keep a record of the amount of units of insulin you are taking

Testing your blood glucose regularly will help you and your doctor or nurse know if you are taking the appropriate dose

There is no maximum dose for insulin but too much causes weight gain and increases your risk of hypos

Insulin should always be prescribed with a number followed by "units" (e.g. 20 units). If "units" is abbreviated to "u", the "u" can be mistaken for an "0" and you or somebody giving you the injection will give the wrong amount of insulin

If you are using the insulin mix Xultophy, the dose is measured in steps. The maximum dose is 50 steps (limited by the maximum allowed dose of liraglutide the insulin is mixed with)

THE RIGHT TIME

Some people need to take insulin with or just after food; others up to 30 minutes before food, and some at bedtime. Please check with your doctor or nurse when you should take yours

If you are admitted to hospital and are well enough, ask to keep your insulin with you so you can continue to give your insulin at the right time. If you can't give or keep your own insulin, don't be afraid to ask staff when you need it

THE RIGHT DEVICE

If you use syringes, you should always check that it is an insulin syringe. These should only be used to withdraw insulin from insulin vials. They must never be used to draw insulin from cartridges or pre-filled pens. Syringes are available in 0.3 ml (30 units) and 0.5 ml (50 units) measured in single unit increments and 1ml (100 units) in 2 unit increments

Insulin is available in cartridges for re-useable pens. The cartridge is replaced when empty. Always use the pen provided by the same manufacturer of your insulin so the cartridge fits correctly. Always keep a spare pen in case of breakage

With pen devices, you dial the number of units and the device delivers the correct amount of insulin for injection

Pre-filled disposable insulin pens can be thrown away in household rubbish when empty, after the needle has been removed

If you use an insulin pump, always keep cartridges and a pen, or disposable pens, in case of pump malfunction

Needles for pens are available in several sizes. 4mm pen needles are suitable for everybody but some people choose to use 5 or 6 mm needles. Needles longer than 6mm can increase your risk of injecting into muscle which is painful and can cause hypos. Don't re-use needles as they quickly become damaged

Make sure you dispose of needles in a 'sharps' bin according to local policy

If a nurse or carer gives you your insulin, they should use safety needles. These prevent accidental injuries to the giver of insulin

❗ Keep plenty of supplies especially if you are going on holiday: never run out of insulin!

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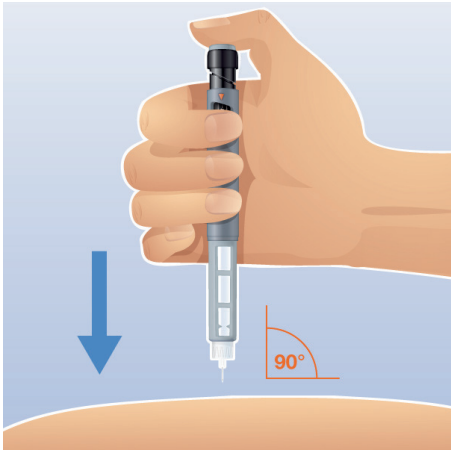
THE RIGHT WAY

Insulin should be injected at a 90 degree angle. If you are using short needles, a skin-fold is not necessary unless you are very slim

You can use the upper outer thighs, upper outer buttocks and abdomen as injection sites



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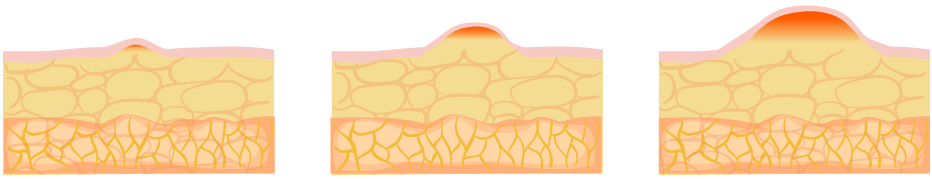
Vary the places you inject into to avoid the development of fatty lumps (lipohypertrophy or "lipos"). Lipos prevent insulin from being absorbed correctly and can make it difficult to control your blood glucose levels



Your injection sites should be checked by your nurse as part of your annual diabetes review

Always re-suspend insulin if it is a cloudy or mixed insulin by tipping and rolling the pen or vial 10 times **each** before every injection

Store unused insulin in a refrigerator- it must not freeze. Insulin in use can be kept at room temperature for up to 28 days. Avoid direct sunlight or heat e.g. near radiators, fires or window sills

DRIVING AND INSULIN USERS

You must notify the DVLA if you are an insulin user

You must test your blood glucose, no longer than 2 hours, before driving

Test every 2 hours on long journeys

If your blood glucose is less than 4 mmol/l, treat the hypo and do not drive for at least 45 minutes after you have recovered

Your blood glucose must be 5 mmol/l or higher to drive. If between 4 and 5 mmol/l, have a starchy snack

Always carry glucose and a glucose meter in the car. Test your blood glucose if you are involved in an accident to demonstrate hypoglycaemia was not a contributing factor

If you feel hypo while driving, stop as soon as safely possible. Remove the ignition key to demonstrate you are a not in charge of a moving vehicle. Get out of the driver's seat if safe to do so. Treat the hypo. Do not drive for at least 45 minutes after recovery

If you are a Group 1 driver and have more than one severe hypo (i.e. needing help from another person) in a 12 month period, you will need to surrender your driving licence

Advice for Group 2 drivers is much stricter. See the DVLA website for more information

KEY POINTS:

- Know the name and dose of your insulin
- Always check you have been given the correct insulin when you collect your supply from your pharmacist
- Carry an insulin passport or insulin safety card at all times
- Know the symptoms of hypos and always carry glucose

USEFUL RESOURCES:

TREND-UK: www.trend-uk.org
Forum for Injection Technique: www.fit4diabetes.com
Diabetes UK: www.diabetes.org.uk
Driving and Vehicle Licensing Agency: www.gov.uk

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TRAINING, RESEARCH AND EDUCATION FOR NURSES IN DIABETES

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