

# Supporting Care Homes

## INSULIN

## GUIDANCE SHEET

### What is insulin?

Insulin is a hormone, produced by the pancreas, which is involved in controlling levels of glucose in the blood. Diabetes mellitus occurs when this function fails and is broadly classified into two types:

- **Type 1 diabetes** occurs as a result of a lack of insulin production. Residents will require administration of insulin.
- **Type 2 diabetes** occurs when cells in the body are not able to respond to insulin properly, causing blood sugar levels to rise. As the disease progresses, insulin production itself may begin to fail. Residents may be initially controlled by dietary adjustments alone, but many eventually require oral antidiabetic drugs or eventually insulin (or both) if their bodies no longer produce enough insulin.

Insulin is generally given by subcutaneous injection, and the injection site should be rotated to prevent the possibility of creating lumps in the fat layer of the skin (lipohypertrophy). Insulin is usually injected into the thighs, buttocks or abdomen. Insulin is classified according to the rate of absorption. Broadly speaking there are **two** different types.

1. **Quick-acting** (QA) insulins are used to cover increases in blood sugars after a meal.
2. **Background** (long-acting) insulins which control glucose between meals and overnight. (There are pre-mixed insulins which contain a mixture of quick-acting and background insulin. Please contact GP or Diabetes Specialist Nurse for patient-specific information)

### Examples of insulin types (This is not a complete list)

Rapid or short acting	Intermediate acting	Long acting
Actrapid <sup>®</sup>	Humulin I <sup>®</sup>	Abasaglar <sup>®</sup> (insulin glargine)
Apidra <sup>®</sup> (insulin glulisine)	Insulatard <sup>®</sup>	Lantus <sup>®</sup> (insulin glargine)
Humalog <sup>®</sup> (insulin lispro)	Insuman <sup>®</sup> Basal	Levemir <sup>®</sup> (insulin detemir)
Humulin <sup>®</sup> S	Tresiba <sup>®</sup> (insulin degludec)	
Insuman <sup>®</sup> Rapid		
NovoRapid <sup>®</sup> (insulin aspart)		

### Insulin devices

Insulin can be administered in a variety of devices. The most common devices seen are:

- Insulin vials used with insulin syringes
- Pre-filled disposable pens
- Cartridges which fit into specific pen devices

For residents self-administering it is important that devices are not changed without the resident being consulted and being shown how to use the device.

### Pen needles

Pen needles should only be used **once** to ensure that they are sterile and to ensure that the needle does not become blunt or damaged. Needles should be removed from pens immediately after use. Do not store a pen with a needle attached, this increases the risk of insulin leaking out or air getting in as well as a sharp injury to staff or residents.

## Hypoglycaemia (hypo) or low blood sugar

Occurs when the level of glucose falls too low, usually **under 4mmol/L**. A hypo may occur if too much diabetic medication has been taken, if a meal or snack has been delayed or missed or during/after unplanned physical activity. Hypoglycaemia cannot occur in people controlled on diet alone. Most people have some warning signs when their blood glucose level starts to fall:

Signs of a 'mild hypo'		Signs of 'more severe hypo'
Feeling hungry	Blurred vision	Difficulty in concentrating
Trembling or shakiness	Tingling of the lips	Vagueness or confusion
Sweating	Fast pulse or palpitations	Irrational behaviour
Anxiety or irritability	Going pale	Uncooperative
		Unresponsive

If you think someone is showing signs of low blood sugar, action is required quickly as they could get worse and progress to 'severe' without an intervention. If left untreated the diabetic individual may become unconscious or have a fit. Sometimes, in the elderly, these symptoms are not always that distinct because of the ageing process. If you find a resident has a blood sugar level under 4mmol/l but they say that they feel ok and have no symptoms you **must** repeat the test to confirm accuracy. If the level is still below 4mmol/l then the resident **must** be treated and the GP **must** be informed. Hypos without warning are very serious and put residents at very high risk of falls and collapse.

### Treatment

Information for carers and nursing staff on how to manage a resident experiencing a hypo should be detailed within the resident's care plan.

An example plan would be:

If the resident is able to swallow, hypoglycaemia should be treated by giving a sugary drink or sweets (15-20 grams of fast-acting glucose). For example:

- Five glucose tablets
- Four to five jelly babies or jelly beans
- 150-200ml of fruit juice
- 2-3 tubes Glucose Gel

Re-check the blood glucose after 10-15 minutes and repeat hypo treatment if blood glucose remains below 4mmol.

**Remember: avoid** food and drinks containing fat (eg chocolate, biscuits, milk) if a quick rise in glucose is needed. Initial treatment should be followed by a starchy snack, eg a slice of toast or bread and butter, or a piece of fruit, or 3 plain biscuits (eg Rich Tea type).

### Glucose gels

Some residents may be prescribed glucose gel (eg GlucoGel<sup>®</sup>, DextroGel<sup>®</sup>, or Hypo-Fit<sup>®</sup>). These products are presented in sachets making it easily portable and easy to administer. If the resident is able to swallow, the contents of the tube should be squeezed into the mouth and swallowed. **Glucose gels are only to be used if the individual is alert, responsive, co-operative and able to swallow.**

**If the resident is not fully conscious; unable to cooperate with oral treatment or there is any suspicion that their ability to swallow is impaired then nothing should be given by mouth and a 999 call should be made for IV or IM glucose.**

## Hyperglycaemia or high blood sugar

Each patient should be assessed on an individual basis. Refer to the individual's care plan. If left untreated, this can cause dehydration, drowsiness and serious illness. It sometimes develops if a person has another illness or may coincide with a change in medication. In these situations the dose of insulin or tablets may need to be adjusted. **Please seek medical advice.**

## Symptoms of a high blood glucose may include:

Increased thirst	Poor wound healing
Drowsiness	Recurrent Urinary Tract Infection or Chest Infection
Vomiting	Frequency of passing urine
Confusion/disorientation	Thrush
Infection	

### Blood glucose monitoring

Blood glucose monitoring using a meter gives a direct measure of the glucose concentration at the time of the test. Monitoring the blood glucose concentration is appropriate for residents who are treated with insulin and those who are on some other types of diabetes medication.

The Medicines and Healthcare Products Regulatory Agency (MHRA) has issued guidance on the use of blood glucose monitors 'Point of Care Testing - Blood Glucose Meters Advice - for healthcare professionals' which states:

- Training must be provided for staff using blood glucose meters and should be refreshed at appropriate intervals
- Only staff whose training and competence has been established and recorded should be permitted to carry out blood glucose testing

This guidance information can be found on the below link:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/403511/Point\\_of\\_care\\_testing\\_-\\_blood\\_glucose\\_meters.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/403511/Point_of_care_testing_-_blood_glucose_meters.pdf)

The resident's care plan should include details of what action to take as a result of the meter Reading.

### Meters

Meters should be provided on a named-patient basis and are for single patient use. If you are required to test residents' blood glucose you should receive training on how to use any new meter. The lancet used to prick the finger for a blood sample should be changed after every use. The old lancet should be disposed of in a sharps bin. It is important that the correct test strip is used with the correct machine.

### Monitoring

Any care home that is undertaking blood glucose monitoring must have a standard operating procedure in place.

- Care home with nursing: will have nursing staff who will have taken the necessary training to perform monitoring and they should follow the instructions for each individual resident as set down in their care plan. Nursing home staff should ensure that any blood glucose meters they use are appropriately tested for quality control purposes.
- Care homes (without nursing): residents who are able to do their own monitoring should have received training by a healthcare professional (eg diabetes nurse) and will know the appropriate actions to take on the results obtained. These residents should have their own individual meter for the test.

### Storage of Insulin

Unopened packs of insulin which are not 'in use' must always be stored in a medicines fridge between 2°C and 8°C. Insulin must **not** be allowed to freeze. Pen devices are insulated and do not need to be kept in the fridge after first use.

It is recommended that insulin should be at room temperature when it is injected. Vials, cartridges and pens of insulin which are in use should be stored at room temperature either in secure storage in the resident's room or in a locked cupboard in the medicines room. Most insulin is stable for four weeks at room temperature and some are stable for six weeks. This information is stated on the Patient Information Leaflet. If in doubt, opt for four weeks.

When insulin is removed from the medicines fridge and opened, the date of removal must be written on the container and on the MAR chart. A note must also be made of the date after which the insulin must no longer be used; the container of insulin must be replaced at this point.

It is essential that insulin is stored in a fridge following delivery and any which has been removed for use is fully labelled, as it was on receipt from the pharmacy. Every single vial of insulin must be labelled and when a cartridge is removed from the pack and put into an insulin pen, the pen should be contained in a fully, up to date, labelled box.

### Documentation in care plans

- Include what to do in the event of a hypo
- Where blood glucose monitoring is in place ensure it is identified who is monitoring (resident, community nurse or care home) and what action to take as a result of the readings
- Blood glucose targets
- When to seek GP advice
- When to seek urgent medical advice

### Documentation on MAR Charts

- Name of insulin being administered
- Dose given
- Site injected
- Time of administration

### Administration of insulin

- It is important to be clear on how many units of insulin should be used and what time it should be given in relation to food. If you think a resident is restricted by their insulin routine, e.g. eating at specific times or checking blood glucose levels regularly, discuss with the GP.
- If residents miss any doses, record the reason and seek advice from the GP.
- Highlight to the GP if you have any difficulty understanding their blood glucose results. Staff should always discuss insulin with the GP if the resident's food intake or level of activity changes because the insulin dose may need adjustment. This may be because of ill health, changes in mobility and any factor that changes a resident's level of energy input or output, like diet or exercise.

**Cloudy insulins** will require mixing before injecting to ensure that the correct insulin dose is delivered. If it is not re-suspended properly, too much or too little insulin could be administered. To re-suspend insulin, turn the pen upside down and roll the pen between your hands at least 10 times until the crystals go back into suspension.

**Clear insulins** (eg insulin detemir, insulin glargine, insulin degludec) do not need mixing prior to administration. Check with your pharmacist or read the insulin medicine leaflet if unsure.

**Insulin Passport:** The National Patient Safety Agency (NPSA) issued an alert in March 2011 the aim of this alert was to improve patient safety by empowering patients to take an active role in their treatment with insulin. This will be achieved with a patient-held record, the Insulin Passport which documents your resident's current insulin products and enables a safety check for prescribing, dispensing and administration.

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Please visit our website for more information:  
<https://www.westhampshireccg.nhs.uk/medicines-in-care-homes>

With special thanks to NHS Northern, Eastern and Western Devon Clinical Commissioning Group NHS South Devon and Torbay Clinical Commissioning Group for sharing this resource

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