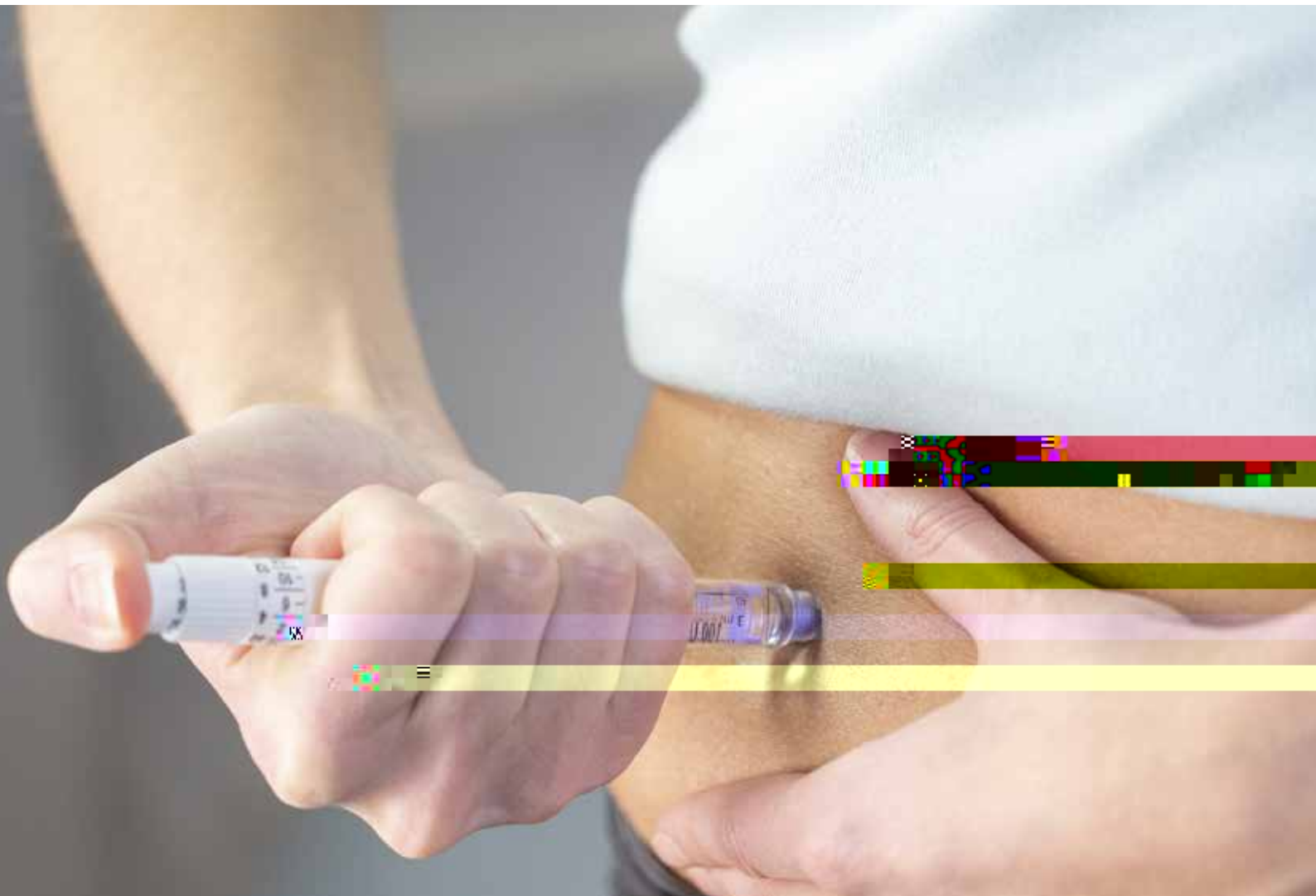


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# Starting Injectable Treatments in Adults with Type 2 Diabetes



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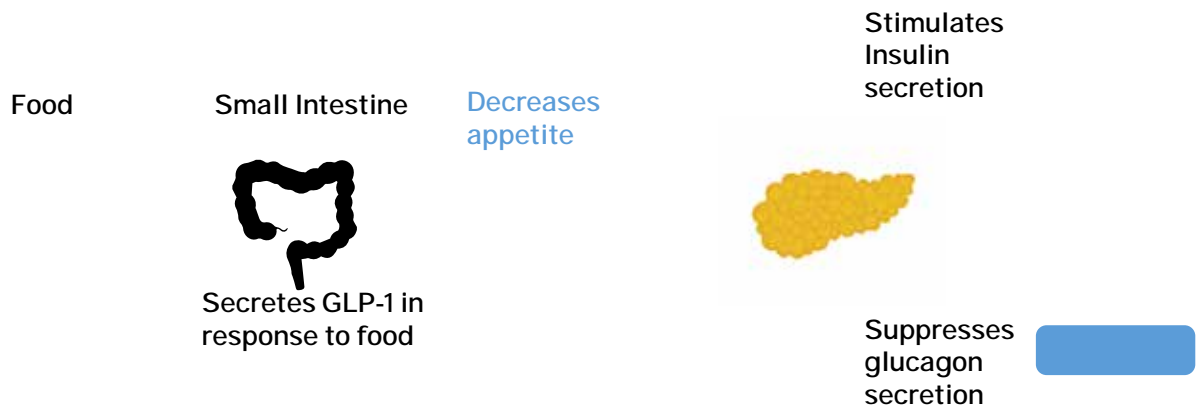
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# Introduction and using this guide

The complications of diabetes are wide reaching and include stroke, renal failure,

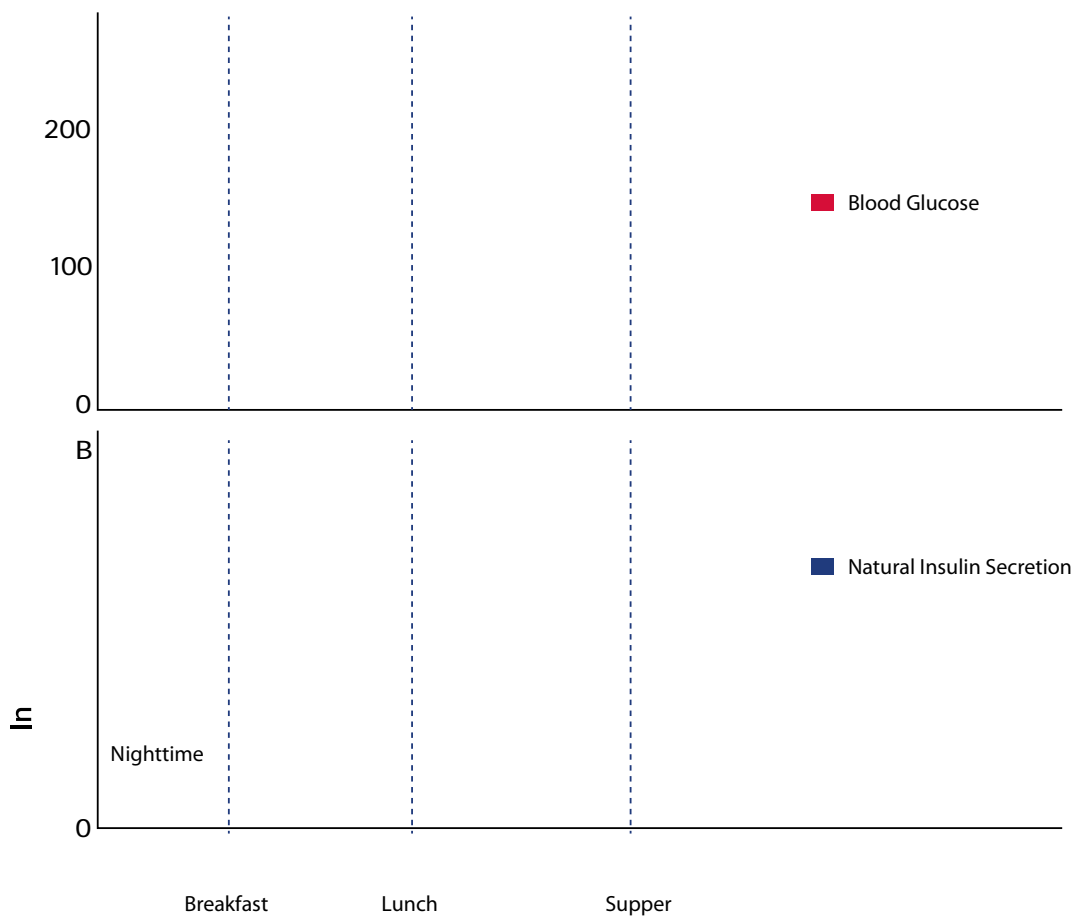




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## Insulin production without diabetes

To keep the blood glucose in a narrow range throughout the day, there is a low steady secretion of insulin overnight, fasting and between meals with spikes of insulin at mealtimes. Adapted: (Jacobs, 1997)



## Manufactured insulin and GLP-1 Therapy

Manufactured insulin and GLP-1 therapy aims to mimic these natural patterns. GLP-1 analogues (incretin mimetics) work by increasing the level of hormones called Incretins. These hormones help the body produce more insulin only when needed and reduce the amount of glucose released by the liver when it is not required. GLP-1 also delay gastric emptying, promoting satiety.



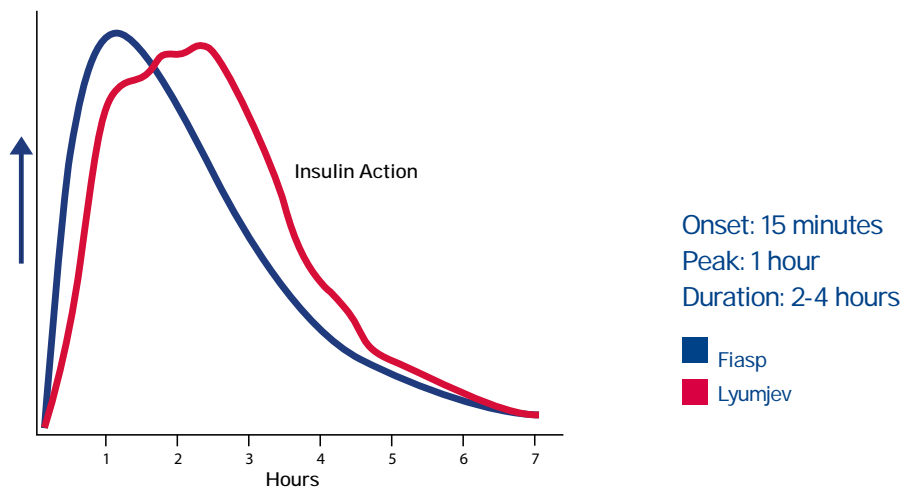
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## Time action profiles of manufactured insulin

The following diagrams illustrate how the different types of insulin work. Up-to-date charts showing the characteristics of all manufactured insulin preparations available in the UK are published regularly in the British National Formulary (BNF, 2019) and MIMS (MIMS, 2019).

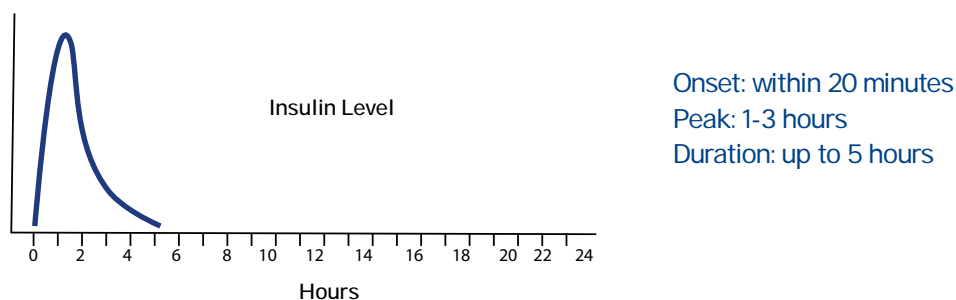
### Ultra-Rapid acting meal - time insulin

Product names include Fiasp and Lyumjev.



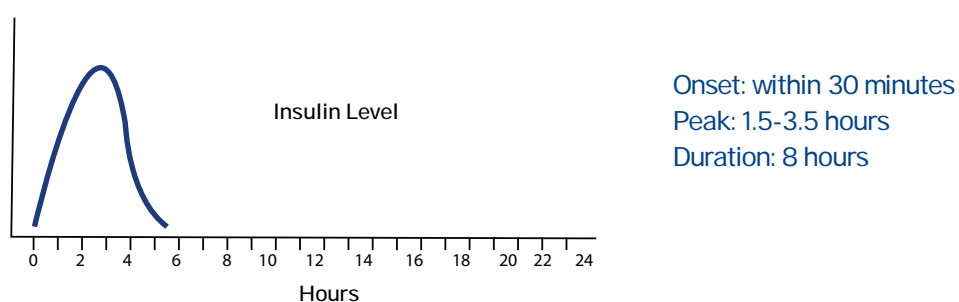
### Rapid-acting meal-time insulin (analogues)

Product names include Humalog, Novorapid and Apidra.



### Short-acting meal-time insulin (human)

Product names include Actrapid, Humulin S and Insuman Rapid.







## 2. Indications for injectable therapy

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## Insulin therapy – who may benefit?

Insulin is a polypeptide hormone secreted by pancreatic beta cells. Insulin increases glucose uptake by adipose tissue and muscles, and suppresses the hepatic glucose release.

The pancreas works increasingly harder to produce more insulin as resistance increases over time. Eventually the pancreatic cells effectively 'wear out'; resulting in the need to add insulin when other oral medications are less effective in maintaining blood glucose levels and HbA1c. Potentially anyone with Type 2 diabetes stands to benefit from insulin treatment.

Insulin is likely to be required in up to 50 per cent of patients with Type 2 diabetes. It may be a temporary or permanent treatment choice.

Insulin is being used increasingly as a temporary treatment for patients with:

- severe hyperglycaemic symptoms
- infection causing hyperglycaemia not controlled on oral therapy
- after myocardial infarction or other vascular episode (CABG, peripheral bypass, CVA)
- patients on steroids
-

## Which patient groups are not suitable for insulin therapy?

It is not always obvious who will do well and who won't. Age in itself is not a bar to insulin. Indeed, elderly patients often derive substantial symptomatic benefit and manage injections without difficulty. A 'trial' of insulin is appropriate for some people.

- The success of the intervention must be examined at regular intervals.
- If there is no benefit from insulin or there are side-effects e.g. significant hypoglycaemia, marked weight gain, it could be stopped.
- People who have Type 2 diabetes and who are frail will not always benefit from a low HbA1c target (for example less than 53mmol/mol). Aiming for a target such as this may place frail patients at risk of hypoglycaemia and subsequent falls/hospital admission. Targets should be adjusted accordingly.
- People with other physical or mental health problems living with minimum or no support.
- People who are not concordant with oral hypoglycaemic agents (OHAs) will not suddenly start taking injectable therapy. The underlying reasons for non-concordance should be discussed with the patient first before further intensification of treatment. Consider slow release versions of OHAs that can be taken once daily that may improve the situation.
- Individuals with alcoholism who are actively drinking alcohol (hypo risk) and those who are self-harming.

## Is my patient likely to benefit from insulin?





## Who makes the decision about starting injectable therapies?

Your role is to explain the options and present all the 'pros and cons'. The final decision must be made by the person themselves. To carry out your role, you will need to understand:

- indications for GLP-1 analogue therapy for Type 2 diabetes
- what is a GLP-1 analogue
- GLP-1 analogue treatment options
- how GLP-1 works
- the GLP-1 analogue delivery devices
- the principles of normal insulin production
- the types of insulin available
- why insulin is needed
- how insulin works
- common insulin regimens
- the benefits and disadvantages of the various delivery devices.

When starting insulin therapy in adults with Type 2 diabetes, continue to offer metformin for people without contraindications or intolerance and review the continued need for other blood glucose lowering therapies (NICE, 2017).

There could be some advantages to combining insulin/GLP-1 with oral hypoglycaemic agents (OHA). T. Tc 17.9 (e)2 (n (A6 (v)5.7 (2c.5 (-)b)-2.7 (e s)1.9 (ot)20.7 (i)9 (g i)8.6 (g)17.9 (e(e(e[W]-4.1 (f







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## Recommended insulin regimens

### Multiple daily injection basal bolus insulin regimens

This regimen is closer to the way the pancreas naturally produces insulin. The person administers basal insulin once/twice daily at the same time each day with bolus injections of rapid-acting insulin before mealtimes. This regimen gives greater flexibility to tailor insulin therapy with the carbohydrate load of each meal.

### Once daily (basal) insulin regimens

This group of insulins have many names and can be referred to as NPH or Isophane or basal or background. These are intermediate and long-acting insulins (see page 9) for example, Humulin I, Insuman basal, Insulatard, Levemir, Glargine, Abasaglar, Semglee.

## 4. A step-by-step guide to starting injectable therapies

- 
- Fear of weight gain.
  - Complexity of regimens.
  - Restrictions on daily living.
  - Pre-conceived ideas.

If they are still reluctant to start an injectable therapy, suggest a three-month trial period; experience shows that very few people want to stop a treatment once they have started but the idea of using it 'for life' can be daunting.

If they refuse outright, you must respect their choice. It may be worth encouraging them to talk to someone who has already started insulin or GLP-1 and is doing well.

Have you done a practice injection? Many people think they will have to use a large needle, and inject into a vein. It's important to allay their fears, and show them how easy and painless injecting can be. They will then be able to concentrate on the rest of the discussion.

Ensure that your documentation includes any refusal/delay for treatment.

## Dealing with practice injections

Talk to the person about undertaking a 'practice' injection and reassure that it is not as bad as they expect. Understand that with Type 2 diabetes the person may have preconceived ideas of what injecting is like as a family member or friend may have used insulin in the past.

Ask the person if they would be willing to simply insert a needle for a 'dry run'. It can be reassuring for people to try this soon after diagnosis, long before injectable treatment is actually required.

Note: A practice injection is purely for the patient to feel the insertion of the needle and how to handle an insulin/GLP-1 pen. The saline fluid contained in the pen device should never be injected into the person. The pen device should be disposed of after the demonstration to avoid cross-patient contamination.

## First appointment, first injection

As a general guide, you should allow between 30 and 60 minutes for the first appointment. The amount of time you need will depend on the complexity of the chosen regimen and the individual person's capabilities, for example, culture, language, mental capacity, health beliefs.

You will need to cover the following points:

- agree a date and time for the first injection – some may wish to postpone it, for example, until after a holiday, or after Ramadan
-

- encourage them to bring a partner or friend – two heads are better than one when it comes to remembering what to do when alone at home; most people will manage their injections themselves but some will need support from a partner, carer or district nurse
- discuss whether or not they plan to carry on taking OHA
- practice nurses can provide further support about dietary intake and how carbohydrate can affect the glucose levels. Referral to a diabetes specialist dietitian can be useful to increase that knowledge further with advice on portion control and avoiding large variations on a daily basis to improve glucose levels.

## Follow-up appointments

Ideally, the first injection should be near the beginning of the week so the person is fairly confident before the weekend. This is because only emergency cover is available in most areas at weekends. Appropriate support for the person with diabetes will be difficult to find.

Telephone them the day after their first injection, and see them as often as necessary, gradually spacing out the appointments as their confidence grows.

## Choosing a delivery device

### Injection devices for GLP-1

All GLP-1 therapies are dispensed in disposable devices:

- once and twice daily preparations are in disposable pen devices which contain two to four weeks treatment
- Trulicity once weekly preparation is in a single use pen device
-







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## Side effects

The common side effects of GLP-1 therapy are nausea which should resolve after 7-10 days. If there is vomiting, stop and review treatment with a GP. Side effects can be minimised by starting at the lowest dose recommended and titrating the dose after four weeks and injecting immediately prior to food. Patients using the once weekly preparation of Bydureon may complain of pea size lumps at the site of their injection; these lumps should resolve spontaneously after approximately six weeks.

## Insulin doses, storage and checklists

### Getting the insulin dose right

In general most doses are calculated on a weight basis using 0.3-0.5 units per kg of body weight. However, once-daily insulin regimens can start with 10 units once a day and twice-daily insulin regimens start with 10-12 units twice daily, depending upon the person's weight. Starting low and giving clear insulin titration guidance over the following months will build the person's confidence and your own.

You should aim for a gradual improvement in blood glucose levels. Sudden normalisation of long-standing high blood glucose can sometimes cause rapid progression of diabetic retinopathy, insulin neuritis or 'pseudo hypos' (hypo symptoms at normal glucose levels).

### Storage of insulin

Insulin pens can be kept at room temperature for 28 days and then should be discarded. Spare insulin pens/cartridges should be stored in the fridge.

### Insulin mixing

All cloudy insulin needs to be gently mixed prior to administration (gently roll the insulin pen between your hands for around 10 seconds).

## 5. Adjusting the dose

### GLP-1

There are a number of preparations available and the individual formulation and dosing may affect efficacy. Refer to section 3 for types and dosing (page 16).

NICE (2017) recommends that this treatment is only continued if after six months the HbA1c has reduced by 11mmol/mol and a weight loss of 3% is achieved.

### Insulin dose adjustment – some basic principles

#### What can raise blood glucose values?

Illness, emotional stress, inactivity, dietary indiscretion, medications for example, steroids.

#### What can lower blood glucose values?

More activity than usual, missed or inadequate carbohydrate, alcohol and illness.

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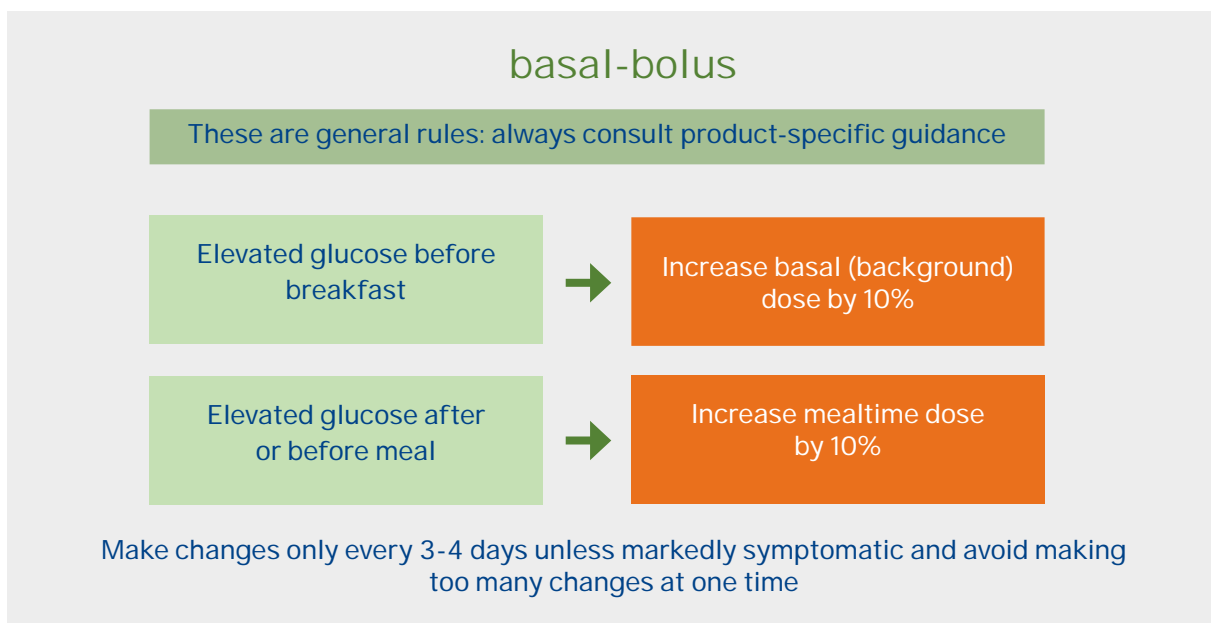
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## Insulin Adjustment

Once-daily



## Adjusting multiple injection therapy (Basal Bolus)



### No glycaemic effect

- check insulin usage matches the prescribed dose
- check injection technique
- check injection device/insulin storage
- confirm patient has not stopped metformin at time of insulin initiation (if so review)
- consider alternative more aggressive titration regimen (doubled steps)
- review goals and motivation
- consider alternative insulin regimen.

---

## Dose adjustment in practice

This is Mr J's diary. He is taking 22 units of Humulin M3 in the morning and 18 units in the evening. He feels tired. What would you advise?

### Mr J's diary

Date	Breakfast	Lunch	Evening meal	Bed	Comment
May 1	12.4		14.3		
2	14.6	14.3			
3			11.7		
4				15.7	
5	13.0				
6		15.1			

Date	Breakfast	Lunch	Evening meal	Bed	Comment
Jan 11	12.9				
12					
13					
14					
15	13.8				
16					
17				7.1	
18					

increase the number of tests to get a clearer picture of Mrs R's blood glucose profile. She may need to see her GP in the meantime if she continues to feel unwell.

Jane has lost weight recently and started taking regular exercise. She takes 40 units of Humulin M3 in the morning and 36 units in the evening. Would you change anything?

**Jane's chart**

Date	Breakfast	Lunch			



inform the DVLA. Use the TREND UK leaflet; *Diabetes: safe Driving* (TREND UK 2019b).

## Stage 2 – on the day of starting injectable therapy

As above plus:

- – give the person an insulin ID card/passport showing which insulin they are being treated with. All insulin manufacturers have credit card size ID for each insulin that is commercially available. Please contact your local representative. You can also issue the leaflet *The safe use of insulin and you* (NHS England, 2017)
- – arrange a further appointment and provide both a routine contact and a helpline run by the insulin or GLP 1 manufacturer
- – insulins have varying shelf life at room temperature; refer to Summary of Medical Product Characteristics. Refrigerated stock will last until expiry date
- – each can be stored at a temperature less than 30 Celsius for between 2-6 weeks. But please refer to relevant manufacturer's instructions. Refrigerated stock will last until expiry date
- may take longer to absorb, and cause stinging. Give the insulin at least 30 minutes at room temperature before injecting
- – is not advised. In addition, with the use of shorter needles, injecting through clothes may result in a subdermal rather than a subcutaneous injection. Injecting through the clothes affects the lubrication of the needle and makes it difficult to check for bleeding.

Manufacturers recommend that needles should be used once only. People with diabetes should be informed that after use:

- the needle will no longer be sterile
- insulin may block the needle
- the needle may be blunt or damaged – and that damaged needles can bend or break
- extremes of temperature can cause insulin to leak from the needle if it is not removed from the pen; this could change the relative concentrations of short or intermediate-acting insulin in a mixture
- that air may enter the device through the needle, which can lower the dose
- the possibility of hypoglycaemia – signs and symptoms, treatment and prevention (see below) if starting insulin or if the GLP-1 is in combination with with sulfonylurea tablets. Please refer to section 9 on page 40)
- local arrangements for sharps disposal.



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## Stage 3 – the first few weeks

- [1.1.1](#) revise and check that the information you covered in Stage 1 is still being used by the patient and they have retained that knowledge.
- [1.1.2](#)
- [1.1.3](#) [1.1.3](#) Shared decision making and increasing person involvement in decision making will increase patient adherence and concordance with their medication regimen (NICE Pathways 2019).
- [1.1.4](#) – if they've had a hypo, try to work out how it could have been prevented, and what they can do differently in the future. How did they treat the hypo? If they haven't had any hypos, check they have remembered how what to do and what they have bought as preparation.
- [1.1.5](#) – interpreting the results with the person will enable further education on how the injectable treatment is working for them. Use the person's own experiences to demonstrate the effects of food, exercise and treatment on blood glucose levels. Adjusting the dose (see section 5 on page 26) – discuss blood glucose levels and teach dose titration.

## Food and alcohol

– explain that alcohol increases the risk of delayed hypoglycaemia, and that they should therefore eat while drinking alcohol. Extra insulin is not required to cover this food.

- carbohydrates – will need to be assessed on an individual basis in accordance with which injectable therapy is being taken. Broadly regular portions and intake of long-acting carbohydrates will help stabilise blood glucose levels. Patients may need to be reminded which food is in this group, as well as differences in portion sizes will give irregular glucose results and make dose adjustments difficult.

– advise the person on adjusting doses or altering the timing of their injections for special occasions.

– reassure the person that their appetite will reduce and to go for smaller portions. They should also take their time in eating their meal. Satiety (feeling full) may well be a new or stronger feeling that the person with diabetes must to learn to adjust to. Advice to stop eating if they feel full is encouraged as overeating may cause vomiting.

– discuss how illness can affect the blood glucose levels and usually makes them rise. Advise on checking blood glucose levels at 3 (n)0.5 (r)0.8 (a)9.4 (s)(c)5.3 30 -)19.2 (t).1 (l)

### **Insulin – advise that the dose may well need to increase**

All adjustments are incremental and should be reduced gradually as the illness subsides. If blood glucose levels are dropping down to 4mmol/L or less, reduce the insulin dose by 10% (for example, if your dose is usually 20 units, reduce by 2 units, if it is usually 40 units, reduce by 4 units).

### **For oral diabetes medications**

Advise the patient to continue to take their oral medications even if they are not eating.

However:

- if they are taking Metformin or an SGLT2 inhibitor and have vomiting or have diarrhoea, they should stop this medication temporarily until they have recovered
- if they take a sulfonylurea; this should be continued. The dose may need to be increased.

### **Meal replacements:**

- Fruit juice 100 ml
- Milk 200 ml
- Plain vanilla ice-cream 1 large scoop
- Tomato soup 200 gram (half a large tin)
- Low fat yoghurt 150 gram (1 small pot)
- Two rich tea or malted milk biscuits
- 100–150mls water or sugar free fluid hourly.

For further information please use TREND UK (2018) patient information leaflet *Type 2 Diabetes: What to do when you are ill*.

## Stage 4 – Further topics to be covered once the person is feeling more confident and ready to take on more information

### Religious and cultural considerations

Although people with diabetes are exempt from religious fasts, some will prefer to observe them. Ultimately, it is a personal choice whether to fast. Depending on the time of year for Ramadan the fasts can be 10–21 hours long, lasting for 29–30 days. People who are fasting all day and eating in the evening will need specific advice on how to manage their insulin therapy during this time as long fasts put them at higher risk of hypoglycaemia and dehydration. Preparation should be encouraged before Ramadan with an appointment to make sure that they are able to look after themselves properly. Failing to do so is contrary to the Qur’an, which clearly states that you must not act in a way that harms your body. Although if they are in any doubt, they should discuss this with their Imam.

Ramadan: Main points to consider and discuss with the patient in preparation (Diabetes UK, 2017)	
Insulin: requirements will be less insulin before the start of the fast	
Rapid acting insulin needs to be omitted during fasting	Such as Humalog



- 
- asking the question in a way that does not apportion blame
  - explaining why you are asking the question
  - mentioning a specific time period such as 'in the past week'
  - asking about medicine-taking behaviours such as reducing the dose, stopping and starting medicines
  - consider using records of prescription re-ordering, pharmacy patient medication records and return of unused medicines to identify potential non-concordance and people needing additional support.

### Interventions to increase concordance

People with diabetes may need support to help them make the most effective use of their medicines. This support may take the form of further information and discussion, or involve practical changes to the type of medicine or the regimen. Any interventions to support adherence should be considered on a case-by-case basis and should address the concerns and needs of individual patients.

Find out what form of support the person would prefer to increase their adherence to medicines. Together, you can consider options for support.

Be aware th(i)8.4 (s a)7.9 2 (r)9.9 (e)2 (o2t)14.21.6 (o.2)21.1e.6 (l)1yor snn6 ((n)15 (d0.7 (r a)2.- (e t)22.1 cn c

## 7. Case studies

### Case study 1: Mr W

Mr W has been living with Type 2 diabetes over 10 years. He was referred by his GP for insulin initiation. The referral stated that Mr W “has a strong aversion to starting insulin”.

---

## 8. Other problems that may occur

### Needle phobia

BD Auto Shield Duo™ and the Novofine Autocover™ safety needles are suitable for patients who do not want to see the needles. They can be used with any pen device and are available on prescription in accordance with local guidance. Also refer to *Diabetes & Emotional Health: A practical guide for healthcare professionals supporting adults with Type 1 and Type 2 diabetes* (Diabetes UK, 2019).

### Insulin allergy

Occasionally people may have a localised allergic reaction to injected insulin. The usual cause is sensitivity to a particular preservative. Different insulin manufacturers use different preservatives, so the problem can usually be solved by switching products. Ask your local specialist team for advice.

### Insulin neuritis

'You told me insulin would make me feel better, but the pains in my legs are unbearable. I feel worse than before.'

Rapid improvement of gl0 15r13.58nju

## 9. Management of hypoglycaemia

### The symptoms of hypoglycaemia

Hypoglycaemia is the main potential side effect of insulin therapy or a GLP-1 in combination with a sulfonylurea and it is essential that the person starting insulin and if necessary, their carer, know what symptoms to expect, how to reduce the risks of hypos and how to treat them.

Hypoglycaemia occurs when blood glucose levels fall below 4mmol/l.

Symptoms can vary between individuals, but early signs and symptoms may include:

- sweating, becoming pale, feeling anxious, trembling and shaking, palpitations, irritability, hunger and tingling lips.

If the early signs are missed or not recognised, then the symptoms can worsen and include:

- poor concentration, poor co-ordination, slurred speech, confusion, aggressive behaviour, double vision, weak legs, drowsiness and loss of consciousness and seizures.

### Verbal information is not enough

Providing verbal information is not enough. Ask the person to repeat key facts and instructions back to you to check their understanding. Re-enforce the message and allow the patient to read written material in their own time. Understanding hypoglycaemia and knowing how to deal with it is essential to the patient's safety. You will need to check and repeat the information at future appointments. Please also re-enforce verbal communication with the leaflet for patients: *Why do I sometimes feel shaky, dizzy, and sweaty?* (TREND UK, 2018).

### Treating hypoglycaemia

Treat mild hypoglycaemia with:

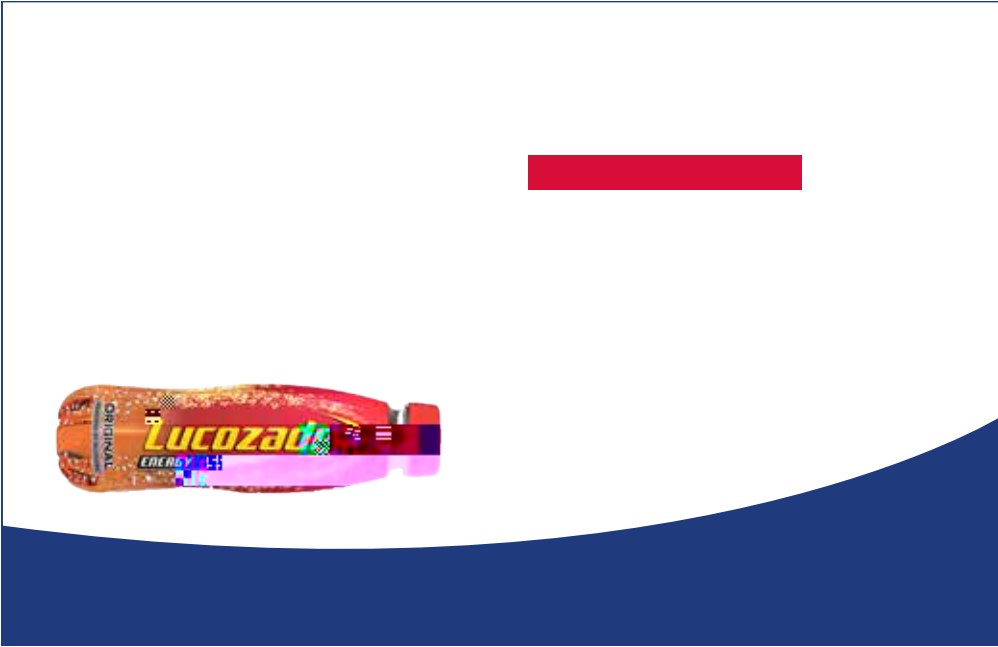
- 15-20g of fast-acting carbohydrate; for example, five gluco-tabs, six dextrose tablets, 200ml (small carton) of fresh orange juice or fizzy drink (not the diet version), 4 jelly babies.

One of those treatments should cause the blood glucose level to rise rapidly. The person should be advised to wait ten minutes for this to happen, wash their hands (as have handled sugary products and subsequent results would be falsely high) and check their glucose level. If still below 4mmol/l repeat with the treatment again.

Advise the person with diabetes, when they feel better they should follow up with some longer-acting carbohydrate – for example, a sandwich, two plain biscuits, banana or a meal containing carbohydrate such as bread, potatoes or pasta (if it is due).

Treatment Cautions with all Lucozade<sup>®</sup>™ & Ribena<sup>®</sup>™ products. They now contain approximately 50% less glucose. All flavours have significantly less glucose-based carbohydrates and mean that much more is needed than previously advised. Health care professionals and their patients need to check the nutritional information label located on the back of the pack to ensure that the correct volume is used to treat a hypo as much more is now needed because the sugar concentration is so much less.





## 10. Holidays and travel

### Main points for both insulin and GLP-1s

Air travel should not pose significant problems for people using injectable treatments to control their diabetes. Pre-planning is important and discussion of the travel itinerary, four to six weeks in advance, with the relevant health professional/GP/treating specialist team is recommended.

### Travel letter and ID

When travelling with injectable treatments people must take with them supporting documentation from a relevant qualified medical professional for airport security to advise that they have diabetes and need to carry injectable treatments with them, including needles and monitoring kit with them in their hand luggage. Medications of this type packed into the hold baggage will be exposed to very low temperatures, which will degrade the insulin, in addition there is also the potential that luggage may be lost en-route. It is also useful if the patient takes a recent prescription with them as well. (An example letter can be found in appendix 1 on page 47).

### What should they pack?

It is essential that they carry adequate equipment (glucose meters, lancets, batteries). Diabetes UK (2019b) recommends that twice the quantity of medical supplies normally used should be packed.

The Civil Aviation Authority (2019) states that: "Passengers may carry essential liquid medicines such as insulin for the period of their trip. These are permitted in larger quantities above the 100ml limit for liquids but will be subject to authentication. Passengers must have obtained the prior agreement of the airline with which they are travelling and with their departure airport."

It is useful to have simple carbohydrates to treat hypoglycaemia including glucose tablets or sweets. It may also be useful to pack longer lasting carbohydrates such as snack bars or biscuits in case of delayed meals. Advise to carry some extra snacks in case of delays or airline meal inadequate/not liked. Advise against ordering 'diabetic' meals, which often don't have enough carbohydrate.

### What should they do on board?

Cabin crew may request medication be handed over for storage during the flight. Keep diabetes medication and equipment in the same bag to avoid anything being mislaid or lost.

There is anecdotal evidence to suggest that blood glucose meters can underestimate glucose whilst flying (meaning that the actual glucose will be higher than the glucose meter is displaying). The person should test as appropriate but if symptoms of hypoglycaemia are present then the person should be advised to just treat the hypo. If they over treated, then a short period of slightly high glucose levels will not cause harm.

Avoid excess caffeine and alcohol as these can affect diabetes control including your warning of hypoglycaemia.

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## Time zones and insulin

In general, if the time zone change is less than four hours, major changes will not be needed to injections. For long haul destinations where time zones may become an issue, advise on an appointment to discuss the person's travel plans in detail. It is important to prepare and discuss this. The patient will need to bring the details of their itinerary including flight details of both outwards and return journeys, including departure times, the length of the flight, stopovers and the local time of arrival.

## General guidance points

- **Time zone change less than 4 hours** : there is no need to change the timing of the insulin or other medications.
- **Time zone change more than 4 hours** : the day is lengthened and will mean extra meal/s are eaten and therefore will need to cover with extra insulin (such as Humalog, Novo rapid). Injections taken further apart than usual are unlikely to cause problems. A short period of slightly high glucose levels will not cause harm.
- **Time zone change less than 4 hours** : the day is shortened, and the amount of insulin and carbohydrate will need to be reduced. Injections taken too close together could lead to hypoglycaemia.
- **Time zone change more than 4 hours** : a greatly lengthened day may mean a small amount of rapid acting insulin with a meal is needed between the two main injections. A shortened day may mean a reduction in pre-flight insulin.
- **Time zone change more than 4 hours** : rapid-acting injections during the day, followed by a medium or long-acting injection in the evening gives a great deal of flexibility over the timing of injections and meal times, it can be easily adapted to time zone travel. The normal sleep cycle is broken by time zone travel. As a result, the medium or long-acting insulin is being taken more than once in every 24 hours and cause hypoglycaemia. It may be a more suitable option to leave out the medium or long-acting injection entirely and rely on rapid-acting injections before meals until back on a 24-hour clock in the country of arrival.

## Other general points

### Hot weather destinations

- Blood glucose levels can be affected by hot weather. In very hot climates, it is best to

- 
- People with diabetes should buy travel insurance. Even if they hold the GHIC or EHIC, it's still advisable to buy travel insurance, as the card doesn't cover, for example, emergency repatriation, and not all countries give the level of cover of the NHS. The RCN travel health pages have further information [rcn.org.uk/clinical-topics/Public-health/Travel-health](https://www.rcn.org.uk/clinical-topics/Public-health/Travel-health)
  - Find out where you can get supplies of insulin at the destination, in case of emergency. Advise that the name of the insulin may also be different in another country. Insulin manufacturers can be contacted before the trip to check the name and where to obtain supplies: Eli Lilly & Company, tel: 01256 315000, Novo Nordisk Ltd, tel: 0845 6005055, Sanofi-Aventis, tel: 01483 505515, Wockhardt Ltd, tel: 01978 661261

## Food poisoning

Hot climates pose a greater risk of food poisoning, especially in countries where levels of sanitation are not as high as you're used to. Food cooked hot to order is the safest option – be wary of anything that may have been left standing or reheated. Watching where local people eat, or asking for recommendations, is a good way of finding the most reputable eating places.

Any concerns about the safety of the local tap water, stick to bottled or sterilised. Remember to also avoid ice in drinks, salads that may have been washed in tap water and fruit that can't be peeled.

## Dealing with illness while abroad

Revise and advise sick day rules as in section 6 (page 31). Further information can be sought from the tourist office, embassy or high commission of the country they're visiting about getting medical treatment while they are there. Please advise the traveller that they should check their insurance policy, so they know what their insurers will pay for (Diabetes, 2019b).



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# Appendix 1: Example of a travel letter

Mr XXXXX  
Flat 47  
XXXXX Road  
London  
XX20 8XX

Corporate LOGO  
Corporate address  
Telephone Number:  
Email address:

date

Private and confidential

TO WHOM IT MAY CONCERN regarding XXXX XXXXX  
DOB: XX/XX/XXXX  
NHS number: XXX XXX XXXX

This is to confirm and certify that XXXX XXXXX has insulin treated diabetes/diabetes that requires treatment with injections.

Therefore, they must carry injectable treatment/insulin, pen needles, glucose monitor, finger pricker needles and other medical supplies with them in their hand luggage.

It must NOT be put in the hold of an aircraft with other main luggage as the insulin will become inactive in such low temperatures at altitude.

Please do not hesitate to contact me if you require any further information.

Yours sincerely,

Florence Nightingale  
Super Nurse  
XXXXX Diabetes Services





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National Institute for Health and Care Excellence (NICE) (2015, updated 2017, updated 2022) *Type 2 diabetes in adults: management (NG28)* [nice.org.uk/guidance/ng28](https://www.nice.org.uk/guidance/ng28)

National Institute for Health and Care Excellence (NICE) (2015) *Type 1 diabetes in adults: diagnosis and management (NG17)* [nice.org.uk/guidance/ng17/chapter/1-Recommendations#insulin-therapy-2](https://www.nice.org.uk/guidance/ng17/chapter/1-Recommendations#insulin-therapy-2)

National Institute for Health and Care Excellence (NICE) (2019) *Medicines Optimisation Review* [nice.org.uk/guidance/health-and-social-care-delivery/medicines-management](https://www.nice.org.uk/guidance/health-and-social-care-delivery/medicines-management)

Royal Pharmaceutical Society (2019) *Professional Guidance on the Administration of Medicines in Healthcare Settings Admin of Meds prof guidance.pdf* ([rpharms.com](https://www.rpharms.com))

TREND-UK (2018) Injection Technique Matters [trenddiabetes.online/injection-technique-matters/](https://trenddiabetes.online/injection-technique-matters/)

TREND-UK (2018) *Type 2 Diabetes: What to do when you ap* u 8 (i)4.4 (t)25.6 (e)2 (-11.6 ) (t)4.4 (t)

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