

Cystic **Fibrosis** *our focus*

Cystic fibrosis-related diabetes

Factsheet – May 2017

Cystic fibrosis-related diabetes

This factsheet offers general information about cystic fibrosis-related diabetes; it is not intended to replace any advice you may receive from your doctor, CF team or diabetes clinic.

Introduction

Cystic fibrosis-related diabetes (CFRD) is common in adults and adolescents with cystic fibrosis (CF). Recent data from the UK CF registry indicates that 32% of adults and are known to have CFRD; for children the prevalence of CFRD is less than 25%. This factsheet explains what diabetes is and why it can be associated with CF, what the symptoms are and how it is diagnosed, why screening is carried out, and the care and treatment someone with CFRD should expect.

Originally written by Dr Daniel Peckham, Consultant in Respiratory Medicine and Alison Morton, Consultant Dietitian (St James' Hospital, Leeds) and the UK Dietitians' CF Interest Group.

Reviewed by the Cystic Fibrosis Trust Clinical Advisory Group and the UK Cystic Fibrosis Related Diabetes Group May 2017

Contents

What is diabetes?	5
Why is CF associated with diabetes?	5
What are the symptoms of CFRD?	6
Why screen for CFRD?	6
Making the diagnosis	6
Complications of diabetes	6
Treatment	7
How will I feel?	7
Diabetic care	8
When should I check my blood sugar levels?	8
Why should my blood sugars be well controlled?	9
What is hypoglycaemia?	9
How to treat a hypo	10
What is hyperglycaemia?	11
What type of diet should I have?	12
Can I drink alcohol?	13
Nutritional supplements	14
Tube feeding	14
Exercise	14
Will diabetes affect my holiday?	15
Drug prescriptions	16
Illness	17
Driving	17
Useful contacts	18
Further information	19

What is diabetes?

Diabetes is a condition where the amount of glucose (sugar) in the blood is too high. When people talk about blood glucose or blood sugars they mean the same thing and often use the terms interchangeably.

A hormone called insulin, which is produced in the pancreas, controls the amount of glucose in our blood. Insulin is needed to move glucose from the bloodstream into the body's cells, for use as energy.

In type 1 diabetes, the pancreas is unable to produce any insulin whereas in type 2 the body doesn't produce enough insulin, and the insulin it does produce doesn't work properly.

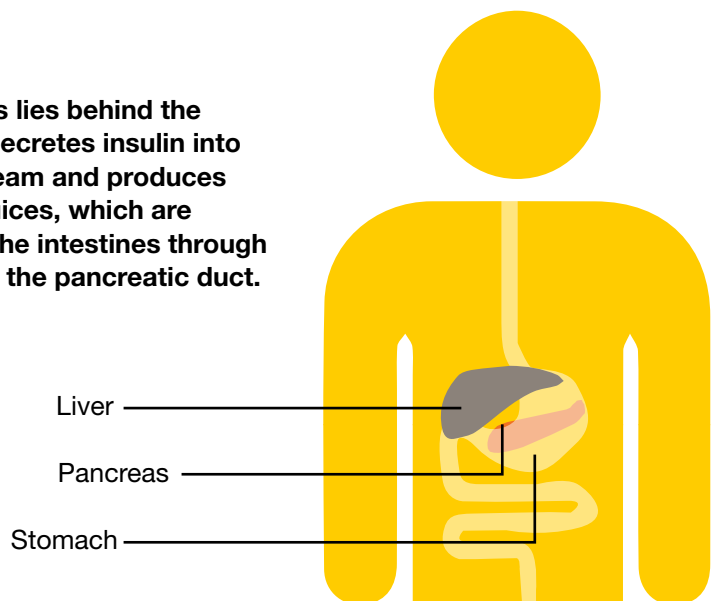
Why is cystic fibrosis associated with diabetes?

In most people with CF the pancreas doesn't work properly, also known as pancreatic insufficiency, and this causes two important medical issues.

Firstly, the pancreas is unable to produce enough digestive enzymes, which break down foods such as carbohydrates, proteins and fats so that they can be absorbed in the gut. This is why most people with CF have to take pancreatic enzyme replacement therapy (Creon®) with food and snacks containing fat.

Secondly, insulin production by the pancreas can be reduced or even stopped and this can result in cystic fibrosis-related diabetes (CFRD).

The pancreas lies behind the stomach. It secretes insulin into the bloodstream and produces pancreatic juices, which are carried into the intestines through a tube called the pancreatic duct.



CFRD is distinct and different from type 1 and type 2 diabetes but has features of both. People with CF may be more at risk of episodes of CFRD or high blood glucose levels due to infection or drugs such as oral steroids or immuno-suppressants. In some cases this may be temporary and may resolve when the infection is treated or the steroids are reduced or stopped.

It is possible for someone with CF to get type 1 or type 2 diabetes.

What are the symptoms of CFRD?

With routine diabetic screening, most cases of CFRD are picked up before any symptoms occur. Symptoms of CFRD include weight loss, increased thirst and need to pass urine more frequently. If untreated, high blood glucose levels can cause long term complications such as poor body weight, recurrent chest infections, reduced lung function, kidney damage and nerve damage, and can affect eyesight.

Why screen for CFRD?

It is important to screen for diabetes, as often people do not experience symptoms initially and early treatment can protect against the complications described above.

Making the diagnosis

There are different methods for screening for CFRD.

Serial blood glucose monitoring or continuous glucose monitoring (CGM) involves placing a small sensor under the skin and attaching a small recording device. The sensor measures glucose between the cells and gives a glucose trend over a number of days. Regular finger prick tests and a food diary are also needed with most forms of CGM.

CGM provides a more complete picture of blood glucose levels than the oral glucose tolerance test (OGTT), which has been widely used in CFRD screening until recently. For OGTT, patients are required to fast overnight, blood samples are then taken to measure blood glucose levels for up to two hours after drinking a prescribed amount of glucose solution.

The haemoglobin A1c blood test (HbA1c) is a blood test that indicates your blood glucose levels for the previous two to three months and measures the amount of glucose that is being carried by the red blood cells in the body.

The results obtained from either form of blood glucose monitoring will indicate what treatment, if any, is needed. Your CF team/cystic fibrosis-related diabetes specialist nurse will discuss blood glucose monitoring with you.

Diabetes may also be suspected if a random or fasting glucose level is abnormally high. These measurements are less accurate for the early diagnosis of CFRD particularly as infection, food intake and some medication can all affect blood glucose (sugar) levels.

Complications of diabetes

As already mentioned, early and prompt treatment of diabetes is important to avoid complications. Complications are usually related to poor diabetic control and the duration of diabetes. It is important to ensure you have your annual eye screening by accessing local Retinopathy services and your annual foot check for any signs of peripheral nerve damage (neuropathy) by your practice nurse.

Treatment

Although diabetes can't be cured, it can be treated and managed very successfully. While some people with diabetes can control their blood sugar levels by taking tablets, most people with CFRD are best treated with injections of insulin. Insulin can't be taken by mouth because it is destroyed by acid in the stomach, so it's usually given as an injection. The frequency of insulin injection/s could be between one and four times a day depending on CGM result, insulin type and the individual's needs. Some people may use an insulin pump, which provides the body with insulin throughout the day.

If you have CFRD, you will probably be advised to have a diet that consists of a lot of high-energy foods, and to adjust your insulin dose to your individual requirements. You shouldn't decrease your carbohydrate intake, but may be asked to reduce your intake of high-sugar drinks and eat regular meals and snacks with similar carbohydrate content each day.

If you are prescribed a mealtime insulin (bolus insulin), you may be taught to carbohydrate count and how to adjust your insulin dose with your dietary intake. You should also be given an insulin passport (plastic card) that records your insulin details, to carry around with you in case of emergency.

As nutritional and clinical status can vary significantly between people, individualised dietary advice from a specialist dietician experienced in the management of CFRD is essential.

How will I feel?

It is very common to feel overwhelmed when told you have an additional diagnosis of CFRD. Being given any medical diagnosis has an emotional impact and when it is on top of an existing chronic condition the effects can feel enormous. You may have many questions and concerns, such as:

- How much more treatment will I need?
- How will I fit it all in?
- What does this mean for my long-term prognosis?

Many people find the experience of being diagnosed with CFRD challenging; sometimes people find themselves worrying that they may not be able to manage this additional treatment burden. It's not uncommon for people to feel like this and sometimes it can result in feelings of anxiety or low mood. If you have concerns or worries, do talk to someone from your CF team to get the support you need.

Diabetes care

Annual screening for CFRD

It is important that you attend for your CFRD annual screen. The CFRD annual review usually includes:

- A review of your recent history
- A review by the CF dietitian
- A review of your insulin and injection sites/techniques
- A routine examination
- A urine test
- An eye examination
- Blood pressure reading
- Blood tests including HbA1c (a test indicating your blood sugars over the previous weeks)
- An examination of your feet
- An opportunity for you to ask questions and to learn more about your CFRD.
- An opportunity for adults to update their Insulin Passport (a patient-held record that contains details of their current diabetic treatment)

When should I check my blood sugar levels?

It is generally recommended that initially you check blood sugar levels several times each day to help determine how much insulin you need. The normal range of blood glucose is 4-7mmol/L. One important difference between CFRD and other types of diabetes is that your blood sugar levels may be higher after meals, but your fasting and blood sugar levels before meals may be normal.

You should check your blood sugars as directed by your CF team or diabetic team but the following are general guidelines:

- Vary the times when you check your blood sugars so that over a week you'll get a full picture.
- Blood sugar levels are best taken before meals, 1½-2 hours after meals, and before, after and once during overnight tube feeds (vary the time).
- Check your blood sugars more often if you are unwell.
- Check your blood sugars if you feel strange or hypoglycaemic (hypo) (See What is hypoglycaemia? on the next page).
- Check your blood sugars before and after strenuous exercise.
- Check your blood sugars before bed if you have had alcohol.
- Remember to record your result in a diary and to take your diary to all clinic appointments.

Why should my blood sugars be well-controlled?

Keeping your blood sugar levels within an acceptable range (remembering that the normal range is between 4-7mmol/L) is very important because:

- Allowing your blood sugars to run too high may mean that it takes longer to get over an infection.
- Poor diabetic control can lead to weight loss.
- High blood sugars may cause your sputum to be more viscous (thicker) than usual.
- Keeping your blood sugars within the normal range (4-7 mmol/L) helps to prevent the symptoms of diabetes.
- You may not have symptoms when your blood sugar levels are high so monitoring is essential.
- Having poor diabetic control over a period of time can lead to complications, which may affect your eyes, kidneys, feet and circulatory system.

What is hypoglycaemia?

Everyone with diabetes should be aware of the symptoms of hypoglycaemia (low blood sugar levels of less than 4mmol/L).

Hypos can occur very quickly and may be caused by:

- too little carbohydrate
- missed or late meals or snacks
- too much insulin/too many tablets
- more exercise than usual
- more rapid absorption of insulin after an injection
- alcohol
- hot weather

It is important to be able to recognise when your blood sugar is too low. Different people get different symptoms. The most common symptoms of hypoglycaemia (low blood sugar) are:

- Trembling or shaking
- Excessive sweating
- Tingling of the mouth or fingers
- Hunger
- Headache
- Difficulty in concentrating
- Confusion
- Faintness
- Blurred vision
- Irritability or bad temper
- Palpitations
- Paleness

You will usually experience one or more of these symptoms when your blood sugar becomes too low. Everyone has different symptoms. Other people may notice that you are pale or glazed, unable to speak properly, uncoordinated or showing mood changes, so it's useful to make sure that your family/friends know what signs to look for. If you do not treat a hypo you can go into a coma.

How do I treat a hypo?

If you are not sure whether you feel hypo, check your blood sugar.

When you feel a hypo coming on, you should:

1. Stop what you are doing. If you feel able, check your blood glucose level.
2. Immediately take a form of pure fast-acting sugar. The amount of sugar needed depends on your size, the type of insulin and how recently you have taken insulin, but 15g to 20g is usually sufficient. You can get this from:
 - 100–200ml full sugar cola or lemonade (100mls for children)
 - 3–4 teaspoons of sugar dissolved in water
 - 4–5 GlucoTabs® (3 tablets for children)
 - 5–7 Lucozade Energy® tablets (3 tablets for children)
 - 5–7 Dextro Energy® tablets (3 tablets for children)
 - 1 ½–2 tubes of GlucoGel® or DextroGel®
 - Chocolate is NOT recommended as it takes the body longer to digest lactose, which is the sugar present in chocolate
3. Sit down and relax. After 10–15 minutes, wash your hands and check your blood glucose level.
4. If your blood glucose level is above 4mmol/L, follow up with a starchy, carbohydrate-containing snack such as a sandwich, milk and biscuits as this will help to maintain your blood sugar level and prevent another hypo.
5. If your blood glucose level is still below 4mmol/L repeat this process until your blood sugar is above 4mmol/L.
6. Try not to over-treat your hypo, as this will result in high blood sugars.

Remember

- Always carry some form of sugar with you that can be easily swallowed, such as glucose tablets, GlucoGel®, DextroGel® or sweets.
- Hypos occur quickly so if you feel any symptoms you should use the sugar quickly.
- Always carry some identification with you that says you have diabetes and which insulin or diabetic tablets you take (this may be in your Insulin Passport). Others will then know you are diabetic and give you the correct assistance should you have a hypo or become unwell.
- Ensure the 'Emergency Information' section of your Insulin Passport is complete and up to date with your usual hypo treatment and carry it with you.
- Tell friends and relatives about your diabetes and make sure they know what to do if you have a hypo.

- Aim to take your meals at regular times and do not delay or miss a meal or snack.
- Make sure you eat starchy food such as pasta or potato at each meal and snack.
- Take an extra snack before exercise or strenuous work.
- Hypos should not be a regular occurrence. When you have a hypo, look back and identify a reason so you can prevent it from happening again.
- If you do have a lot of hypos and can't find a reason for why this is, or are having difficulty treating them, contact your CF centre or clinic doctor, dietitian or diabetes nurse specialist.
- Never drive if you feel hypo or are at risk of becoming hypo (see the 'Driving' section in this factsheet on page 17).

What is hyperglycaemia?

Hyperglycaemia is a blood sugar level of above 14mmol/L and may be caused by:

- Not taking enough insulin
- Having the wrong type of insulin for your lifestyle
- Doing less exercise than usual
- Oral or intravenous steroid treatment (not inhaled or nebulised)
- Eating or drinking more sugar or carbohydrates than usual
- Infection or fever
- Your insulin being damaged by extremes of temperature
- Lipodystrophy (lumpy injection sites causing inadequate uptake of insulin)

Some people with CFRD will experience symptoms of high blood sugar levels, which can include:

- Thirst
- Passing a lot of urine
- Pins and needles
- Hot sweats
- Blurred vision
- Tiredness
- Weight loss

Other people do not experience symptoms even if their blood sugar levels are very high. Some of the symptoms of hyperglycaemia are similar to some of the symptoms of hypoglycaemia so checking your blood sugar levels is important.

If you know how to calculate your correction dose, and if your blood glucose is above your target range and it's more than two hours since you last had an insulin injection or bolus, you can have a correction dose. Check your blood glucose after two hours to ensure blood sugar is in the normal range and if it isn't contact your diabetes/CF centre for further advice.

If you don't know how to calculate your correction dose, you should avoid correction as this may lead to low glucose levels. Contact your diabetes/CF centre for further advice.

If you have a severe headache, abdominal cramps, are having difficulty breathing or if you are vomiting, please contact your diabetes/CF centre immediately for advice.

What type of diet should I have?

Maintaining a healthy body weight is one of the most important steps you can take to ensure good health if you have cystic fibrosis. People with diabetes who do not have CF are advised to eat a high-fibre, low-fat, low-sugar and often low-calorie diet to help control blood sugar levels and prevent too much weight gain.

In CFRD many people still need to eat their usual high-calorie, high-protein and high-fat diet to help achieve and maintain a healthy bodyweight. This is the opposite of the usual advice given to people with diabetes and this can become confusing. Keeping your blood sugars at a near normal level will help to maintain or improve your weight. However, as nutritional and clinical status can vary significantly between people, individualised dietary advice from a specialist dietitian experienced in the management of CFRD is essential. A more traditional diabetic diet may be appropriate for those people with a high body mass index or elevated blood lipids (fats).

Carbohydrate

Carbohydrates have the most effect on your blood sugar levels. The two main types of carbohydrate are:

Sugary carbohydrates eg sugar, sweets, soft drinks, squashes, cakes, biscuits, honey, jam.

Starchy carbohydrates eg bread, rice, pasta, potatoes, cereals, chapatti, naan, crackers, crisps.

Sugary carbohydrates

Both types of carbohydrate are allowed and encouraged in your diet. Sugary foods are absorbed very quickly into the bloodstream and can cause your blood glucose to rise quickly. The amount of sugary food allowed in your diet and the best times to eat them will be assessed and advised by your CF dietitian. The following general rules apply:

- Sugary foods should be consumed in small amounts spread throughout the day.
- Sugary foods are best to consume with or after meals.
- Some foods contain very concentrated sources of sugar, eg glucose drinks, and you may be advised by your dietitian to avoid these (except for treating low blood sugars).

Starchy carbohydrates

Starchy foods take longer to digest. During digestion they are broken down to sugars and therefore starchy foods will cause your blood glucose to rise. However, because these foods can take longer to digest they may cause a slower rise in your blood glucose. Starchy foods will give you longer lasting energy and should form part of every meal and snack.

Balancing your dietary carbohydrate, exercise and your insulin is the key to good diabetic control.

- Eat starchy carbohydrate at every meal and snack. Spread your carbohydrate throughout the day.
- Too much carbohydrate at any one time will cause high blood sugars (hyperglycaemia) and may require adjustment of your insulin.
- Too little carbohydrate at any time, especially if you have injected your insulin, may cause low blood sugars (hypoglycaemia).
- If you are prescribed meal-time (bolus) injections you may benefit from learning to count the carbohydrate in your diet. This can enable you to adjust your insulin according to the amount of carbohydrate you eat at a meal or snack, giving you greater flexibility and possibly improved control.

Fatty foods

Fat does not have a direct effect on your blood sugar but it slows down the absorption of glucose from a meal. This is only really important if you are taking insulin with your meal, as it may affect your blood glucose levels and you may need to modify your insulin if eating very high-fat meals.

Fats are found in oil, ghee, margarine, butter, mayonnaise, cream, cheese and in high fat snacks such as nuts and crisps.

Protein

Foods rich in protein do not usually have much effect on your blood sugar level. Protein is found in meat, poultry, fish, eggs and cheese. Milk, nuts, beans and pulses contain protein, but these also contain small amounts of carbohydrate so can have an effect on your blood sugar level if large portions are eaten.

Can I drink alcohol?

If you have liver problems or if you are taking certain CF medications that interact with alcohol it may be better not to drink alcohol or to limit your alcohol intake. You should check with your CF consultant whether drinking alcohol is safe for you.

It is important that you understand the effects of alcohol on your blood glucose levels. Alcohol can initially make your blood glucose rise, and this may be related to the type of alcohol you drink. For example, this rise may be more significant if you are drinking a spirit with a mixer or an alcopop. However, alcohol slows down the release of glucose from the liver, which is why drinking alcohol can increase your risk of having a hypo.

- Stick to alcohol limits (2 to 3 units* at any time) and avoid binge drinking.
- Remember the signs/symptoms of a hypo may be mistaken for being drunk. Make sure the 'Emergency Information' section of your Insulin Passport (or other ID) is complete and up to date with your usual hypo treatment and carry it with you.
- Make sure your friends know how to recognise and treat a hypo.
- Don't forget, your awareness of hypos may be impaired due to the effects of alcohol.
- Never drink alcohol on an empty stomach, and try to have a carbohydrate-containing snack such as crisps, sandwiches or pretzels (not nuts as these do not contain carbohydrate) while you are drinking.

- Check your blood sugar after drinking so that you know how alcohol affects you.
- Always have a carbohydrate-containing bedtime snack such as toast, cereal or biscuits after drinking alcohol to help prevent night-time hypos.

***A unit is:**

- Half pint of ordinary beer, lager or cider
- One single pub measure (25ml) of spirits
- One very small (76 ml) glass of wine (13%)
- Half a bottle of alcopop
- A small (50 ml) glass of sherry

Nutritional supplements

Some people with CF take high-energy nutritional supplements, which provide a valuable source of calories. Nutritional supplements help people to achieve energy requirements and help to prevent weight loss, especially during times of infection or illness.

You should discuss with your CF dietitian what the most appropriate supplements for you are and the best time to have them in relation to your eating pattern and insulin regime.

Tube feeding

Some people with CF require overnight tube feeding (nasogastric or gastrostomy feeding) to help them to gain and maintain their weight.

Some people with CF may be aware that they have CFRD before they begin tube feeding. However, in others, CFRD may be discovered when they start tube feeding.

- If you are on overnight feeds you should check your blood glucose levels before, during and after your feed.
- It may be helpful to check your blood glucose profile throughout your feed if you are a hospital in-patient.
- You may require a different insulin or more insulin in the evening to cover your feed.
- If your blood sugar is not well controlled whilst you are feeding you will not get the full benefit of your feed.

Exercise

Regular exercise is good for you for many reasons. It can help to improve your circulation, keep your lungs and bones healthy and make you feel healthier. Exercise can also help to improve your diabetic control. These are just a few of the benefits of regular exercise.

Your CF physiotherapist will be able to advise you on the most appropriate exercise regimen. It is, however, important that you understand the effects of exercise on your blood sugar levels.

During exercise you will use up more carbohydrate than usual. This is because the sugar (carbohydrate) gets used for energy by the exercising muscle and so lowers your blood sugar levels. This could lead to an increased risk of a hypo. In addition, exercise can make your body use the insulin more efficiently, which can also increase the risk of hypos.

The following points are to help you plan for your exercise:

- Check your blood sugar before starting exercise.
- Try to avoid injecting insulin into the areas of the body you will be exercising.
- To prevent your blood sugar levels from falling too low (hypo) you may need to take a carbohydrate-containing snack before exercising. If your blood sugar is below 7mmol/L, have a 10g snack, for example one digestive biscuit, a cereal bar or a small banana.
- If you are planning to exercise after a meal, take extra carbohydrate with that meal, eg potato, rice, bread, pasta, chapattis.
- Fast, intense and strenuous exercise such as swimming, rugby, squash, tennis and running will need a faster supply of energy and therefore a mix of quick-acting carbohydrate eg sugary fizzy drinks, DextroEnergy Dextrosol, Glucotabs or Lucozade tablets should be taken. This form of carbohydrate is absorbed quickly into the bloodstream. Slower-acting carbohydrates, eg bread, biscuits or fruit should also be taken to help prevent a delayed hypo.
- Prolonged exercise, eg walking, golf or football will need a slow acting carbohydrate such as a sandwich or extra carbohydrate during the meal you eat before exercising. You might need to take additional carbohydrate at intervals throughout or 'top up' halfway through.
- Whatever the exercise, carry fast-acting sources of carbohydrate with you in case you have a hypo.
- Check your blood sugar after exercise. If you have been doing fast or hard exercise, you should check your blood sugar regularly as exercise makes your body use insulin more efficiently and the lowering effect on your blood sugar levels could last for 12 to 24 hours after exercise.

Talk to your CF team if you plan to exercise regularly or are experiencing any problems.

Remember it's not only sport that counts as exercise; physical work such as gardening, digging and heavy housework is included, especially if it is not part of your usual routine.

Will diabetes affect my holiday?

Planning your holiday is always exciting. If you have CFRD it is important that you plan your holidays carefully.

When travelling, remember:

- Talk to your CF team or diabetes nurse if you are unsure about diet or how different time zones might affect your treatments while you are on holiday.
- Check with your CF team whether you need to take salt tablets.
- Take out appropriate medical insurance that covers both your CF and your CFRD. Ask your diabetes team for a customs letter to enable you to take any supplies easily through customs.
- Check you have enough insulin or tablets and equipment for the duration of the trip. Always take spares in case of breakage, ideally double the amount of supplies that you usually use for the duration of your holiday.
- Carry all equipment in your hand luggage, including insulin syringes, insulin pens, blood glucose monitoring equipment, glucose tablets, your Insulin Passport or identification, insulin or tablets.
- Ask our helpline (contact details on the back page) to organise a travel medication letter for you. This letter can be translated into several common holiday destination languages and explains why you are carrying your medications.
- Insulate your insulin in a cool bag whilst travelling and keep it away from direct light. Store insulin in a cool place when you arrive.
- Carry extra snacks and drinks for the journey.
- Make sure you drink plenty of low-sugar fluids, eg water and diet drinks, especially in hot countries.

Drug prescriptions

As a person with diabetes treated with insulin or tablets you are entitled to free prescriptions for all your medications (including your medications for cystic fibrosis). You can apply for a prescription exemption certificate (which lasts for five years) by completing forms available from your GP or from the Post Office. People with diabetes in the UK are also exempt from VAT on items such as blood glucose monitors and test strips.

A factsheet about prescription charges is available on our website at cysticfibrosis.org.uk/publications.

Illness

It is important to understand the effects of illness on your diabetes and to know what you should do if you become unwell and/or are unable to tolerate food and fluids.

- The first sign of a chest infection or illness may be that your blood sugars are higher than usual. This is quite normal and you may temporarily need more insulin or tablets. Discuss this with your CF team.
- In some people, especially if they are unable to eat regularly, blood sugar levels may be lower than normal.
- It is important when you are ill to check your blood sugars very regularly (every four to six hours) and to record them in your monitoring diary.
- Continue your usual dose of insulin or tablets unless you are advised to change it by your CF or diabetes team, or if your blood sugars are very low.
- If you are unable to tolerate solid food it is important to take an alternative, eg a drink or snack, every two to three hours. Suitable alternatives would be: Lucozade, milk, fruit juice, fizzy drinks (not diet), ice cream, soup or supplement drinks.
- To prevent dehydration it is also important to take some fluids that do not contain carbohydrate, eg water or sugar-free drinks.
- If you are vomiting, have diarrhoea, or your blood sugars are poorly controlled (too high or too low) or if you are worried about any of these things, contact your specialist CF centre or clinic.

Driving

Having diabetes doesn't mean that you need to give up driving. However, if you have diabetes that is treated with insulin, you must, by law, inform the Driver and Vehicle Licensing Agency (DVLA) on 0300 790 6806 or visit www.gov.uk/diabetes-driving. In Northern Ireland, you should contact the Driver and Vehicle Licensing Northern Ireland (DVLNI) on 0300 200 7861. If you are on non-insulin medication the rules are slightly different, and you should contact the DVLA or DVLNI to get more information about your responsibilities.

You should inform your insurance company about your diabetes. Failure to do so can invalidate your insurance cover in the event of a claim. If you have just been diagnosed as having CFRD you should notify your insurance company.

You must inform the DVLA if any diabetic complications develop that may affect your ability to drive safely. If you fail to inform the DVLA or your insurance company then your driving insurance will be invalid.

- If you already have CFRD and you are applying for a driving licence for the first time, the application form will ask whether you have a number of medical conditions, including diabetes. You should answer yes to this question.
- If you take any diabetic medication you will be sent a form (Diabetic 1) to complete prior to your application being processed.
- If you take insulin you will be issued with a restricted licence, which is a licence for one, two or three years. Renewal of restricted licences is free of charge.
- If you have a motorbike the same rules apply.

- Further information on Large Goods Vehicle (LGV) and Passenger Carrying Vehicle (PCV) licences can be obtained from the DVLA on 0300 790 6806 or DVLNI (in Northern Ireland) on 0300 200 7861.
- You can also view additional information at www.gov.uk/diabetes-driving or in Northern Ireland at www.nidirect.gov.uk/motoring and also at <https://www.diabetes.org.uk/driving>.

Remember

Do not drive:

- If you have just started insulin and your diabetes is not yet properly controlled.
- If you have difficulty recognising the signs of a hypo.
- If you have problems with your eyesight that can't be corrected by glasses.

If you drive you should:

- Check your blood sugar levels before you drive, regularly on long journeys and whenever you take a break. You should make sure your blood sugar is above 5mmol/L before driving.
- Avoid long, stressful journeys if you are tired.
- Always carry identification (such as your Insulin Passport) of your diabetes and some sugary carbohydrate (eg Dextrose tablets, GlucGel®) in the car.
- If you notice any signs of a hypo stop driving as soon as it is safe to do so, remove the ignition key and leave the driver's seat if safe to do so. This is to show that you are not in charge of a car while under the influence of any drugs including insulin.
- Do not attempt to start your journey again until the symptoms have disappeared and your blood sugar has been at normal levels for 45 minutes.

Useful contacts

Diabetes UK

www.diabetes.org.uk

Helpline 0345 123 2399 Monday–Friday, 9am–6pm or email helpline@diabetes.org.uk.

If you are in Scotland, please phone 0141 212 8710 or email helpline.scotland@diabetes.org.uk.

Further information

The Cystic Fibrosis Trust provides information about cystic fibrosis through our factsheets, leaflets and other publications.

Most of our publications are available through our helpline and can be downloaded from our website. Visit cysticfibrosis.org.uk/publications.



The Cystic Fibrosis Trust helpline can help you with a range of issues, no matter how big or small. Our trained staff can provide a listening ear, practical advice, welfare/benefits information or direct you to other sources of support. The helpline can be contacted on 0300 373 1000 or helpline@cysticfibrosis.org.uk and is open Monday to Friday, 9am – 5pm.

Calls to 0300 numbers cost no more than 5p per minute from a standard BT residential landline. Charges from other landlines and mobile networks may vary, but will be no more than a standard geographic call and are included in all inclusive minutes and discount schemes. If you are worried about the cost of the call please let us know and we'll call you back.

You can also find more information at our website cysticfibrosis.org.uk.

Cystic Fibrosis Trust
2nd Floor One Aldgate
London
EC3N 1RE
020 3795 1555

cysticfibrosis.org.uk



More factsheets available at:
cysticfibrosis.org.uk/publications

© Cystic Fibrosis Trust 2017. This factsheet may be copied in whole or in part, without prior permission being sought from the copyright holder, provided the purpose of copying is not for commercial gain and due acknowledgement is given.

The information included in this publication is not intended to replace any advice you may receive from your doctor or CF multidisciplinary team and it is important that you seek medical advice whenever considering a change of treatment.

Cystic Fibrosis Trust, registered as a charity in England and Wales (1079049) and in Scotland (SC040196). A company limited by guarantee, registered in England and Wales number 3880213. Registered office: 2nd Floor, One Aldgate, London EC3N 1RE.

Cystic Fibrosis Trust

cysticfibrosis.org.uk

© Cystic Fibrosis Trust 2017. Registered as a charity in England and Wales (1079049) and in Scotland (SC040196). A company limited by guarantee, registered in England and Wales number 3880213. Registered office: 2nd Floor, One Aldgate, London EC3N 1RE.