

Type 2 diabetes in children and young people

Information for the public

Published: 26 August 2015

www.nice.org.uk

Type 2 diabetes in children and young people: the care you should expect

This information is about type 2 diabetes. We have written separate [information about type 1 diabetes](#).

Type 2 diabetes causes people to have too much sugar (glucose) in their blood. It is caused when the body cannot use a hormone called insulin as well as it should.

Diabetes puts people at risk of serious health problems with blood vessels (for example, stroke), eyes, feet, gums, heart, kidneys and nerves.

It is a lifelong condition that can affect everyday life. People with type 2 diabetes:

- may need to change their diet and make other lifestyle changes
- usually need to take medicines to control their blood sugar

- will need to get regular check-ups.

We want this guideline to make a difference to children and young people with type 2 diabetes by making sure they, and their family and carers:

- get all the help they need to manage their diabetes, including medicines, education, and advice on diet and exercise
- are involved in decisions about their care, such as choosing an average blood sugar target (called a HbA1c level) – the target is usually 48 mmol/mol (or 6.5%), but for some people a different target can be better
- are encouraged to see a dentist regularly, to get checked for [gum disease](#)
- are taught how to stop their blood sugar levels from getting too high (hyperglycaemia, or a hyper) and how to manage hypers when they happen
- know what to do if their diabetes gets out of control and they think they have diabetic ketoacidosis (a serious illness that needs to be treated in hospital).

Making decisions together

Decisions about treatment and care are best when they are made together. Your healthcare professionals should give you clear information, talk with you about your options and listen carefully to your views and concerns.

To help you make decisions, think about:

- What matters most to you – what do you want to get out of any treatment or care?
- What are you most worried about – are there risks or downsides to the treatment that worry you more than others?
- How will the treatment affect your day-to-day life?
- What happens if you do not want to have treatment?

If you need more support to understand the information you are given, tell your healthcare professional.

We have also written a guideline on [improving the experience of healthcare for babies,](#)

[children, young people and their families and carers.](#)

Families and carers can find more information on the [NHS website on caring for children and young people](#).

Read more about [making decisions about your care](#).

Your type 2 diabetes team

You will have a team of people looking after you. They will work with you and with your parents or carers, so that you can all help to manage your diabetes. They will all be experts in looking after children and young people with diabetes. There will be doctors and nurses, and people who can tell you about how eating and drinking affects your diabetes (dietitians). Your diabetes team may also include a psychologist (someone who looks after your emotional and mental health).

You should normally expect your diabetes team to follow the advice NICE has given. However, they might sometimes need to do things differently if this advice is not right for you (for example, if a certain treatment does not work for you). They should explain to you why your care is different to what is in this information.

Younger children can find out more about the [diabetes team on the Diabetes UK website](#).

What your type 2 diabetes team will do

Your diabetes team should tell you about type 2 diabetes, any medicine you need to take, and how to have a healthy diet and do regular exercise.

If you have questions or are worried about your diabetes, you can ask your team for help. You should be given a phone number you can use to call your diabetes team. If you need help urgently you should be able to call them at any time of the day or night.

Involving your parents or carers in your care for type 2 diabetes

Your diabetes team will also talk to your parents, or other carers if you have them, and give them information. This is so they can help you understand about the care you will have and talk with you about what you want. If you're under 16, your parents or carers will usually need to agree to the treatments (give consent).

If you do not want your parents or carers involved and it's clear you understand all the information, you and your diabetes team can decide what care you should have. Your team should ask about this again from time to time in case you change your mind.

Younger children can find out more about [getting their family involved on the Diabetes UK website](#).

Finding out if you have type 2 diabetes

If your doctor thinks you might have type 2 diabetes, you should be offered a finger-prick blood test. On the same day, you should see a diabetes team who look after children and young people.

You may need more tests to find out if you have diabetes. Your diabetes team will tell you about any other tests you need.

Younger children can learn [how to tell if you or someone else has diabetes on the Diabetes UK website](#).

Questions to ask about tests

- Can you tell me more about the tests for diabetes?
- Where will I have these tests? Will I need to have them in hospital?
- How long will I have to wait until I have these tests?
- How long will it take to know if I have diabetes or not?

Diet and exercise

Diet

Every time your diabetes team see you, they should encourage you to have a healthy diet. They should tell you how this can help with your diabetes, and with reaching and staying at a healthy weight. They should also encourage you if you are trying to lose weight and finding it hard.

You should try to eat at least 5 portions of fruit and vegetables a day. Your diabetes team will explain how much is in a portion.

People with diabetes have a higher chance of getting problems such as heart disease later in their lives. Planning a healthy diet with your diabetes team can help you avoid these problems.

Younger children can find out more about a [healthy diet on the Diabetes UK website](#).

Exercise

Every time they see you, your diabetes team should encourage you to do regular exercise (for example, by playing sports). They should help you find ways to exercise.

Blood and plasma glucose

Blood glucose

Blood glucose is the sugar in your blood. Your blood glucose has to be at the right level to keep you healthy, as you can get ill from having blood glucose that is too high or too low. People with type 2 diabetes can have blood glucose levels that are too high (called hyperglycaemia).

Your blood glucose can get too high if, for example, you:

- eat more food than your body needs
- do not take your metformin
- are ill (for example, if you have the flu).

Blood glucose is measured in mmol/litre (this means the millimoles of glucose in every litre of your blood or plasma). Millimoles are a unit of measurement, like litres or metres.

It's best to try to get your blood glucose to the level it would be if you did not have diabetes. This stops you getting problems like hypos, or problems that diabetes could cause you in the future (such as eye damage or gum disease).

Plasma glucose

Instead of 'blood glucose', your diabetes team might speak about 'plasma glucose'. Plasma is the liquid portion of your blood. It is mainly made of water. Plasma glucose is the sugar in your plasma. Measuring plasma glucose instead of blood glucose is just a different way of measuring the amount of sugar in your blood. Plasma glucose, like blood glucose, is measured in mmol/litre.

Questions to ask about blood glucose

- Can you give me any written information? What websites are helpful?

HbA1c

HbA1c (also called 'glycated haemoglobin') tells you the average amount of glucose that has been in your blood for the last 2 or 3 months.

HbA1c is measured in mmol/mol (millimoles per mole). Millimoles and moles are units of measurement, like litres or metres. HbA1c is also sometimes written as a percentage (for example, 6.5%).

It's best to have an HbA1c level that's as close as possible to the level it would be if you did not have diabetes. This level is 48 mmol/mol or less (this is the same as 6.5% or less). Keeping your HbA1c level under control means you're less likely to get other problems caused by diabetes.

Your diabetes team should help you decide a target level that does not cause you problems, and help you reach it.

Your diabetes team should check your HbA1c level every 3 months. They do this with a finger-prick test.

Questions to ask about HbA1c

- Why do you think I should aim for a HbA1c level that is different to the best level?
- What could happen if I do not keep my HbA1c at the level I'm aiming for?
- Can you help me keep my HbA1c at the level I'm aiming for?
- Can you give me any written information? What websites are helpful?

Checking your glucose levels

Self-monitoring

You should check your blood or plasma glucose level regularly with a finger-prick home-testing kit. This is called self-monitoring. How often you do it depends on:

- the medicines you are taking for your diabetes
- how stable your blood or plasma glucose levels are.

Your diabetes should give you the testing kit you will need and explain how to use it. They will also discuss how often you will need to test.

Questions to ask about self-monitoring

- How often should I do a finger-prick test?

Continuous glucose monitoring

You might also be offered something called continuous glucose monitoring, or CGM for short. CGM is done by wearing a device that checks your blood glucose automatically for you, at regular intervals.

You should be offered this if you:

- have a need, condition or disability (including a mental health need, learning disability or cognitive impairment) that means checking your glucose levels in another way would be difficult for you
- would otherwise be advised to test yourself at least 8 times a day
- have hyperglycaemia often or repeatedly, or
- have severe hypoglycaemia.

You might also be offered CGM if you are taking a medicine called insulin for your diabetes.

If you are offered CGM:

- your diabetes team should discuss the options with you, and help you choose a device that will work for you
- you should wear your device as often as possible.

If you use a CGM device, you will still need to self-monitor, but less often. This is so that you can check that your CGM device works well and to use as back-up if your device stops working.

Questions to ask when choosing a CGM monitor

- How accurate is the monitor?
- Can the monitor alert me when my blood glucose levels become too high or too low?
- Do I need a smartphone to use the monitor? Do I need to install a specific app?
- Is the device easy to use?
- Will wearing this device stop me doing any of the things I normally do as part of everyday life?
- How visible is the device? Can I wear it under my clothes?

Taking medicine for type 2 diabetes

Your diabetes team should give you a medicine called metformin when you are diagnosed with type 2 diabetes. Metformin helps your body to use insulin better, which helps stop the problems caused by type 2 diabetes (such as heart disease later in your life).

If your blood glucose is very high or if your body is burning fat instead of sugar for energy, they should also give you insulin until your blood glucose is at a healthier level. If you are given insulin, your diabetes team will train you on how to take it and tell you how it works.

These medicines, combined with changes to your diet and exercise levels, should help get your blood glucose to the right level.

HbA1c is a measure of your blood glucose levels over the past 2 to 3 months. Plasma glucose is a measure of your blood glucose level at the time of measuring. If possible, you should aim to get:

- an HbA1c level of 48 mmol/mol (6.5%) or less, or
- a plasma glucose level of 4 mmol/litre to 7 mmol/litre, on 4 or more days a week, when fasting or before meals, or
- a plasma glucose level of 5 mmol/litre to 9 mmol/litre, on 4 or more days a week, 2 hours after meals.

If changes to your diet and exercise levels combined with your current medication are not enough to get your blood glucose to these levels, your diabetes team will change your prescription for blood sugar lowering medicines:

- If you are over 10, you may be offered medicines called liraglutide, dulaglutide or empagliflozin. Your team should discuss the options with you and help you choose a drug that will work for you.
- If you are not yet taking insulin, you may be offered insulin in addition to your current medication. If you are given insulin, your diabetes team will train you on how to take it and tell you how it works.
- If you are already taking insulin, its dose may be increased.

Questions to ask about your blood sugar lowering medicines

- Why am I prescribed these medicines?
- What are the pros and cons of each of the medicines I could take?
- Is there a medicine I can have that I do not have to inject?

Insulin for type 2 diabetes

Injecting insulin

Insulin cannot be taken as a tablet and has to be injected. Your diabetes team will teach you how to inject yourself.

There are different ways to inject insulin. You could inject it with a syringe or an insulin pen. Your diabetes team should help you choose the way that works best for you. They should also check that this way is still working for you in the future.

Younger children can find out more about [insulin and how to inject it on the Diabetes UK website](#).

You should be given special boxes (called 'sharps bins') to put your used needles and lancets (finger prickers) in. You should also be told how to get rid of these boxes when they are full and how to get new ones.

Your insulin routine

There are several different types of insulin. Some work quickly (called 'rapid-acting insulin') and some work more slowly (called 'long-acting insulin').

You may be given a long-acting insulin to inject once or twice a day and rapid-acting insulin to inject before eating, or only the long-acting insulin. Your diabetes team will teach you when to inject your insulin and how much to take.

If your blood glucose levels are not within the values that you should aim for, your diabetes team may want to see you more often or give you a different kind of insulin.

Questions to ask about using insulin

- Could you show me how to inject myself with insulin?
- Where on my body should I inject insulin?
- Will injecting insulin hurt?
- Is there any medicine I can have that I do not have to inject?
- Will I feel any different when I start injecting insulin?
- How long will it take to start working?
- Are there any risks with injecting insulin?
- What will happen if I forget/stop injecting my insulin?
- Why does my insulin not work as well as it used to?
- Can you give me any written information? What websites are helpful?

Learning about type 2 diabetes

Your diabetes team should teach you all about type 2 diabetes. They should teach you about:

- HbA1c levels
- how food, drink and exercise affect diabetes
- what to do if you are ill
- taking metformin
- the other problems caused by type 2 diabetes (such as eye damage or gum disease).

What they teach you should be based on:

- what you want to learn and how you want to be taught

- how well you are coping with having diabetes
- how old you are
- how much you already know about diabetes
- what you want to do and achieve in your life.

Your diabetes team should always check that you understand everything they tell you. This includes if you need the information provided in a different way (for example, if you do not understand English very well or if you have a health condition that makes it hard to understand things). You can also ask any questions you have about diabetes.

Your diabetes team should also tell you about living with diabetes. This includes:

- getting flu jabs
- telling you that you should see the optician as often as people without diabetes
- telling you that you should see the dentist regularly, because you are more likely to get gum disease
- what benefits people with type 2 diabetes might be able to get from the government
- how other groups (such as charities) can help
- the dangers of smoking when you have diabetes, and how to get help to stop smoking
- how drugs affect diabetes.

Questions to ask about what you are taught

- Can you tell me more about type 2 diabetes?
- Can you tell me more about things I'll have to change in my life now I have type 2 diabetes?
- Can you give me the contact details (such as a phone number) for the diabetes team?
- Can you give me any information in another language?
- Can you give my parents or carers any information?
- Can you give me any written information? What websites are helpful?

High blood glucose (hyperglycaemia) in type 2 diabetes

When your blood glucose levels are too high, this is called hyperglycaemia. High blood glucose levels can cause problems such as making you thirsty or making it hard to concentrate. If your blood glucose levels are too high for a long time, this can cause other problems (such as eye, gum and kidney damage).

Younger children can find out more about [hyperglycaemia on the Diabetes UK website](#).

Questions to ask about hyperglycaemia

- What should I do if my blood glucose levels are too high?

Diabetic ketoacidosis

If your diabetes management is not going well (for example, if you have high blood glucose levels) there's a small chance that you could get a very serious illness called diabetic

ketoacidosis (or DKA for short).

If you have high blood glucose levels and any of these problems, you might have diabetic ketoacidosis:

- feeling or being sick (nausea and vomiting)
- pains in your stomach
- feeling out of breath
- feeling dehydrated (your body does not have enough water in it)
- finding it hard to stay awake.

If you think you have diabetic ketoacidosis you should contact your diabetes team straight away.

Diabetic ketoacidosis is a serious illness and needs to be treated in hospital.

Questions to ask about diabetic ketoacidosis

- Could you tell me more about how to tell if I have diabetic ketoacidosis?
- Can you give me any written information? What websites are helpful?

Coping with type 2 diabetes

Diabetes can be hard to cope with. It can cause problems with your emotions (your mental health). You may feel depressed, anxious or nervous. You may have problems with your behaviour that you find hard to control or do not understand.

Your diabetes team should regularly check you're feeling okay. You can talk to them if you are having difficulties. If you are finding it hard to cope, your diabetes team should make sure you can talk to people (such as psychologists) who help children and young people with this. They should also make sure you do not have to wait a long time to talk to someone if you need help.

If you're having trouble keeping your HbA1c at your target level, your diabetes team should check if you are feeling depressed or anxious or finding it hard to cope.

Younger children can find out more about [coping with diabetes](#) and [talking about diabetes on the Diabetes UK website](#).

Questions to ask about mental health

- Could you tell me more about help I can get with mental health problems?
- What help can I get if my family and I are having problems?
- Could you tell me more about the treatment you want me to have for my mental health problem? How will it help me?
- How long will the treatment take to start working?
- Are there any other treatments I could have?

Other health problems caused by type 2 diabetes

Diabetes can cause other problems with your body. These problems can start when you are a teenager if your diabetes management is not going well. However, it's more common for adults to get them. Your diabetes team should start checking when you are young to see if you have any of these problems.

It's really important to get checked for these problems. This is because if you have any of them, it is better to get treatment as soon as possible.

High blood pressure

High blood pressure can cause problems with your health.

You should have your blood pressure checked when you find out that you have type 2 diabetes, and every year after this.

High blood fat (cholesterol) levels

Cholesterol is a substance made by your liver and is also found in some fatty foods. Having too much of it in your blood can cause problems with your health, and particularly with your heart.

You should have your cholesterol checked when you find out that you have type 2 diabetes, and every year after this.

Foot problems

We have written separate [information about foot problems caused by diabetes](#).

Eye problems

You should have your eyes checked for problems every year after you turn 12. Your diabetes team may ask you to get your eyes checked before you turn 12 if you are having problems with your diabetes (for example, problems keeping your HbA1c at the right level).

If you have problems with your eyes that are caused by your diabetes, your diabetes team should explain how to stop these problems from getting worse.

Gum disease

Type 2 diabetes means you are more likely to have gum disease (also called periodontitis).

It is important to have regular dental checks for gum disease. Your dentist can do this as part of your normal dental appointments, and they will tell you how often you need to come in.

If you do get gum disease, your dentist can treat it. Treating gum disease can also make it easier to manage your blood glucose and stop it getting [too high \(hyperglycaemia\)](#).

Kidney problems

You should have your kidneys checked for problems when you find out that you have

type 2 diabetes, and every year after this.

If you have problems with your kidneys that are caused by your diabetes, your diabetes team should explain how to stop these problems from getting worse.

Questions to ask about other problems caused by diabetes

- Could you tell me more about why you're only checking my eyes after I turn 12?
- Are there any other problems caused by diabetes that I should look out for?

Changes in your type 2 diabetes care when you become an adult

Children and young people have different diabetes teams to adults. When you become an adult, you will get a diabetes team that looks after adults. This normally happens when you turn 18, but it should happen when you are ready for the change. Your diabetes team may work with a young persons' or young adults' diabetes team when you are a teenager, to make it easier for you to make the switch.

Before you switch to an adult diabetes team, your diabetes team should make sure that:

- you understand how adult care will be different
- you feel like you are ready for the change
- it does not happen when you have a lot going on in your life, like going to university or starting a job.

Other groups that can help

- [Diabetes Research and Wellness Foundation](#)
- [Diabetes UK](#), 0345 123 2399
- [Weight Concern](#)

You can also go to the [NHS website](#) for more information.

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ISBN: 978-1-4731-1404-3

Accreditation

