

# Diabetes

## What Schools Need To Know

*A charity supporting and listening to people who live with diabetes*

**HELPLINE: 01604 622837**  
**[www.iddtinternational.org](http://www.iddtinternational.org)**

*IDDT would like to thank everyone involved in the development of this booklet for their time, enthusiasm and input*

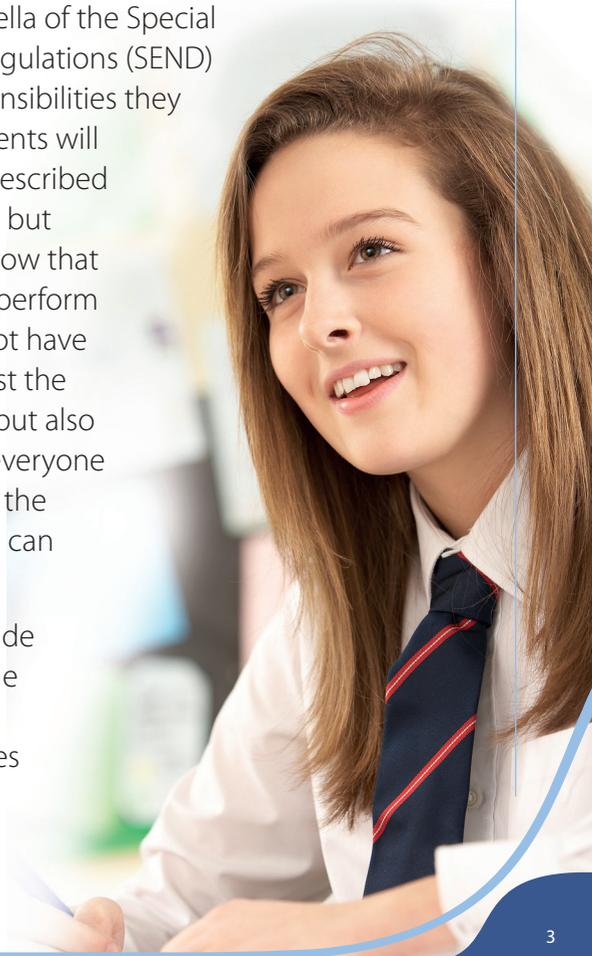
- The Trust offers support, understanding and information to people with diabetes and to those who care for them.
- We listen to the needs of people who live with diabetes and do our utmost to offer help and support.
- We raise awareness of important issues for people living with diabetes and lobby governments on issues that affect people's lives.
- We fund research into ways of improving the lives of people with diabetes.

## Introduction

You are almost certain, at some point in your teaching career, to have a child with diabetes in your class. The InDependent Diabetes Trust (IDDT) is all too well aware of the difficulties this can pose, so, in 2015, we launched a booklet “Diabetes – Parents Passport for Schools”. It aims to provide a means by which parents could formally communicate their child’s needs in relation to their diabetes to the school. The passport proved very popular and, to date, we have sent out over 7,000 copies. As a result, we have been asked to develop a resource for teachers, to give them information in general about diabetes and some tips about managing the condition in the school environment.

Diabetes falls under the broad umbrella of the Special Educational Needs and Disabilities regulations (SEND) so schools will be aware of the responsibilities they have to fulfil in this regard. Many parents will object strongly to their child being described as having a special educational need but unfortunately there is evidence to show that some children with diabetes do not perform as well as their classmates who do not have diabetes. This booklet looks at not just the practical side of managing diabetes but also the emotional effect it can have on everyone involved, with the aim of minimising the impact that living with the condition can have.

IDDT hopes that this booklet, alongside the passport, will prove to be valuable tools for teachers with a child with diabetes in their charge, school nurses and SEN co-ordinators.



## Some Facts about Diabetes

- There are several forms of diabetes but the main ones are Type 1 and Type 2 diabetes.
- Diabetes is a chronic condition that affects over 3 million people in the UK. Of these, 90% will have Type 2 diabetes and a further 10% will have Type 1 diabetes.
- There are over 23,000 children in the UK, under the age of fifteen with Type 1 diabetes.

## Type 1 diabetes

This type accounts for about 10% of the total number of people with diabetes. It usually affects children and adults up to the age of 40 but can be diagnosed in much older people. The number of children diagnosed under the age of 5 is markedly increasing. It is also referred to as insulin dependent diabetes or juvenile diabetes.

In Type 1 diabetes the beta cells in the pancreas no longer produce insulin and blood glucose levels rise. Treatment with insulin injections is always required for survival. It is usually diagnosed as an acute condition requiring hospitalisation. The symptoms of undiagnosed Type 1 diabetes include frequent urination, excessive thirst, tiredness, blurred vision and weight loss.

There is no cure for Type 1 diabetes and a definite cause has not been established. It is thought that there may be several causes with a genetic link in some people. Research shows that a common virus may trigger the body's immune system to attack its own insulin-producing pancreatic cells.

Nearly every child with diabetes that you meet will have Type 1 diabetes. Treatment of Type 1 diabetes is by managing three factors that all interact to affect blood glucose levels – insulin, exercise and diet. The aim of treatment is to maintain blood glucose levels at a safe level to avoid either low blood sugar (hypoglycaemia or a “hypo”) or high blood sugar levels (hyperglycaemia or a “hyper”). Poorly controlled diabetes in the long

term can lead to serious complications that affect the eyes, the heart and vascular system, the kidneys and nerves.

Blood sugar levels are checked several times a day and there is more about testing and monitoring later in this booklet.

## Causes and Treatment of Type 2 diabetes in children

Type 2 diabetes in children is rare and it is estimated that there are around 1400 cases in the UK. However, this number is rising and is directly associated with poor diet, obesity and lack of exercise. Treatment is usually by restricting the diet and encouragement to take exercise, leading to weight loss. Sometimes tablets may be prescribed to help control blood sugar levels. If the excess weight can be lost then it may be possible to combat the condition and halt the progression onto tablets and possibly insulin. Unfortunately though, Type 2 diabetes is likely to be a part of their lives from there on.

## Children of different ages

Children of different ages will have different levels of understanding about their condition, different feelings about it and require managing differently.

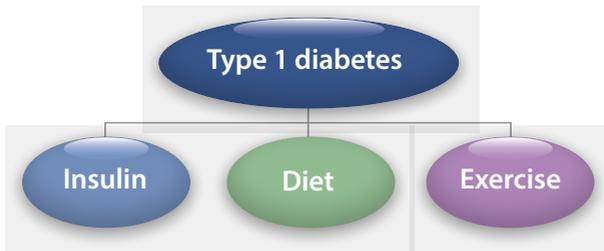
Smaller children are less likely to understand what is happening to them compared to older children, who will have a better grasp of the fact that they have a medical condition that needs to be managed.

Whether you have a toddler or a teenager they might not be able to tell you or sometimes even be aware that they are having a hypo, so you need to keep an eye out for behavioural clues. One of the common signs of a hypo is irritability. It can be difficult to tell the difference between this and a toddler (or teenage) tantrum and always keeping blood testing kit handy is a good idea so you can tell the difference and take the necessary steps.

There is never a good age to be diagnosed with diabetes – it is always

difficult. Health professionals often comment that teenagers tend to be either very good or very bad at controlling their diabetes. This is probably because they are a notoriously self-conscious age group and blood testing, injections, regular eating times and diet all contribute to a sense of being different from their peers when they simply want to fit in.

As well as feeling different from their classmates, other children may single a child out for these differences and it is not unheard of for a child with diabetes to become the target of bullying. Bullying is usually born out of ignorance, so it may be a good idea if you run a class room session to explain about diabetes, how it is managed, blood testing and the need to eat at certain times. Children are also naturally curious and some may even get to the point that they want to do a blood test themselves. This is fine providing a new lancet is used for each child.



The key to the management of Type 1 diabetes is understanding the relationship between three factors – insulin, diet and exercise. All three are important, as they all affect blood glucose levels and they all affect each other. It is important to understand the relationship between these three factors and the key to achieving good diabetes control is by balancing all three. It is much easier to manage diabetes if we understand about insulin, carbohydrates and exercise.

## Using Insulin

Insulin serves to lower the levels of glucose in the blood, provided by the consumption of carbohydrates. There are lots of different insulins available on prescription. Insulin regimes will need to be “tweaked” in order that the best possible control can be achieved and some people find that they can get better control with one type of insulin as opposed to another. Changes to regimes also occur as children grow and progress into adolescence and as their hormone landscape changes.

The various insulins can be divided into four groups:

- Rapid-acting insulin.
- Short-acting insulin.
- Intermediate-acting insulin.
- Long-acting insulin.

Children will most commonly take insulin either four times a day or twice a day. Where insulin is taken four times a day (also known as the basal bolus regime) a child takes a rapid or short-acting insulin before meals and a long-acting insulin once (or sometimes twice) a day.

Where insulin is given twice a day, a child will take a pre-mixed insulin usually before breakfast and again before dinner. Pre-mixed insulins contain a combination of 30% rapid or short-acting insulin and 70% intermediate insulin giving coverage over a 24 hour period.

It is not uncommon for younger children to inject twice a day and this negates the need to inject at school and therefore having someone responsible for administering insulin. As they get older they will need to



move to a basal bolus regime, meaning introducing injections at school. However, this should not be a problem as the child will, most likely have taken responsibility for injecting themselves. The more pressing difficulty with teenagers is ensuring they have got themselves organised so they have got the equipment they need!

By far the most common method of insulin delivery is by using a pre-filled disposable pen. The number of units of insulin required are dialled up and injected under the skin. Injection sites are rotated to avoid problems with soreness and absorption rates. Some children use subcutaneous insulin pump therapy as opposed to injections. This is where a continuous supply of rapid or short-acting insulin is delivered by a short cannula with an additional bolus of insulin given at mealtimes. While this may suit some people it does take much more careful management compared to injecting.

## Diet and Carbohydrates

Carbohydrates are sugars and starches, principally bread, potatoes, rice, pasta and sugars. They provide energy our bodies need for all its various activities. In a person without diabetes, when they eat carbohydrates the pancreas produces the right amount of insulin to keep the amount of sugar in the blood within the normal range. For a child with Type 1

diabetes the pancreas does not produce insulin so blood

sugars rise and insulin injections are needed to control blood sugar levels. The aim is to

balance the amount of carbohydrate

eaten with the amount of insulin given

to keep blood sugar levels within a

safe range. Too little carbohydrate and/or too much insulin will result in a hypo. Conversely, too much carbohydrate and/or too little

insulin will result in blood sugars

running too high.



## Carbohydrates are divided into two groups:

- Sugary carbohydrates (also called quick-acting carbohydrates), such as cake or biscuits, raise blood sugars quickly. However, they do not tend to last long in the body and blood sugar levels may drop before the next meal. They tend to cause blood sugar levels to peak and trough.
- Starchy carbohydrates (also called slow-acting carbohydrates), such as bread or potatoes are absorbed more slowly. They last longer in the body and tend to give more even blood sugar levels.
- It is not unlikely that a child with diabetes will have a hypo while in class. Hypos are initially treated with a sugary food or drink in the classroom so it is important that you and the other children understand that this is not a treat but a necessity. Similarly, a child with diabetes may need to have a snack between meals to maintain blood sugar levels and this may be at lesson time – again, a necessity not a treat. Perhaps this is something you could explain if you run a classroom session on diabetes.

## Exercise

Exercise is an important part of school life, be it on the playing field or in the playground. Exercise, formal or informal, scheduled or unscheduled, is important but has the effect of lowering blood sugar levels and increases the risk of a hypo.

It is important for a child with diabetes to eat sufficient carbohydrate before, during and after exercise to avoid a hypo by:

- Eating a meal of slow-acting carbohydrate, such as porridge or cereal bars, about an hour before exercise.
- Eating a fast-acting carbohydrate, such as fruit or biscuits, immediately after exercising or during exercise, if required.
- Regular blood testing to make sure blood sugar levels remain within safe levels. You will need to make sure there is time available to test before, after and during, (if required) any period of exercise.

Children who use insulin pumps will need to disconnect them if taking part in contact sports and, although some pumps are waterproof, some

pupils may prefer to disconnect them when swimming. Pumps cannot be disconnected for long periods of time and the general rule is that they should not be disconnected for more than an hour. It is important to check that once an activity is over the child has reconnected the pump and has their blood glucose levels checked.

Hypos are more likely with more extreme weather conditions, either hot or cold, so this is maybe something to consider as well, for example, whether a child is exercising in a room temperature gymnasium or on a comparatively cold playing field.

Another thing to consider is timetables. You may want to consider swapping the times of PE slots, for example, from morning to after lunch, which would (hopefully) reduce the risk of a hypo.

A final thing to remember is that a hypo can be triggered for up to 24 hours after a prolonged period of exercise, so it is important that both you, the child and parents know when periods of exercise happen.

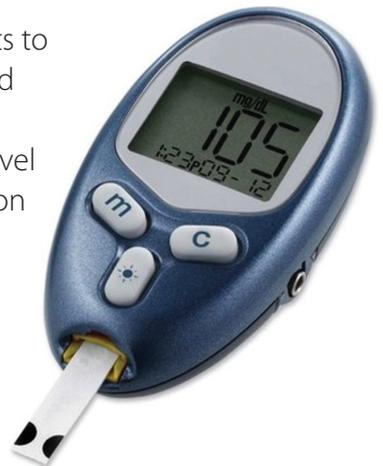
## Blood Glucose Testing

Children who take insulin will need to test their blood glucose levels on a regular basis. At school this may be:

- Before, after and possibly during physical activity.
- Before a meal.
- Anytime they feel or you suspect their blood glucose levels are falling too low or climbing too high.

The Parents Passport for Schools allows parents to specify when their child should test their blood glucose levels. Another idea you may want to consider is testing before leaving school to travel home to try and ensure they do not go hypo on the way home.

Ideally blood glucose levels should be between 4 and 8mmol/l before meals and no higher than 10mmol/l two hours after a meal.



A blood glucose meter is used to check blood glucose levels in units of mmol/l. A test strip is inserted into the machine and the side of child's finger is then pricked using a lancing device to draw a small drop of blood. The blood is applied to the test strip and the meter will give a reading. Once the test is complete the lancet and test strip should be disposed of in a 'sharps bin', the same container used to dispose of used pen needles.

- The school should provide a lockable room with hand-washing facilities, where testing equipment can be stored safely when not in use. Older children may prefer to keep their testing equipment with them so they can test as and when needed.

## Hypos

Hypos occur when blood glucose levels fall too low. A hypo is said to occur when blood glucose levels fall below 4mmol/l, hence '4 is the floor'. Hypos can be caused by:

- Delayed, missed or small meals (not enough carbohydrate).
- Too much exercise.
- Too much insulin.
- Very hot or cold weather.

Symptoms/warning signs of a hypo include:

- Abnormally tired or sleepy.
- Bad behaviour, aggression and/or irritability.
- Confusion and/or inability to concentrate.
- Hunger.
- Pale.
- Sweating.
- Trembling, shaking.

Children who are having a hypo will usually display some but not necessarily all of these symptoms and sometimes may not recognise they are having a hypo at all. Again, the Parents Passport for Schools has a section where parents can detail their child's individual hypo warning signs.

Treating a hypo is by giving the child a sugary drink or sugary food, followed by some longer-acting carbohydrate to prevent another hypo. A blood glucose test should be done after ten minutes to see if more treatment is necessary. Not treating a hypo will lead to confusion, mood and behaviour changes, helplessness and ultimately coma. If you find a child with diabetes unconscious then you must call the emergency medical services immediately.

There are a few Do's and Don'ts when dealing with a hypo.

Do's	Don'ts
Do stay with the child. Do be aware of the emotional distress that a hypo can cause. Do give comfort and reassurance. Do send for help. Do record the incident.	Don't leave the child alone. Don't take them to another room; treat them immediately where they are. Don't send them to the nurse or sickroom. Don't let other children crowd around.

## Hyperglycaemia

Hyperglycaemia (or hyper) is the opposite of a hypo, with blood glucose levels rising. Hyperglycaemia is a potential risk for all children with diabetes but children who use an insulin pump have a slightly increased risk. Symptoms include:

- Frequent passing of large amounts of urine.
- Thirst.
- Vomiting.

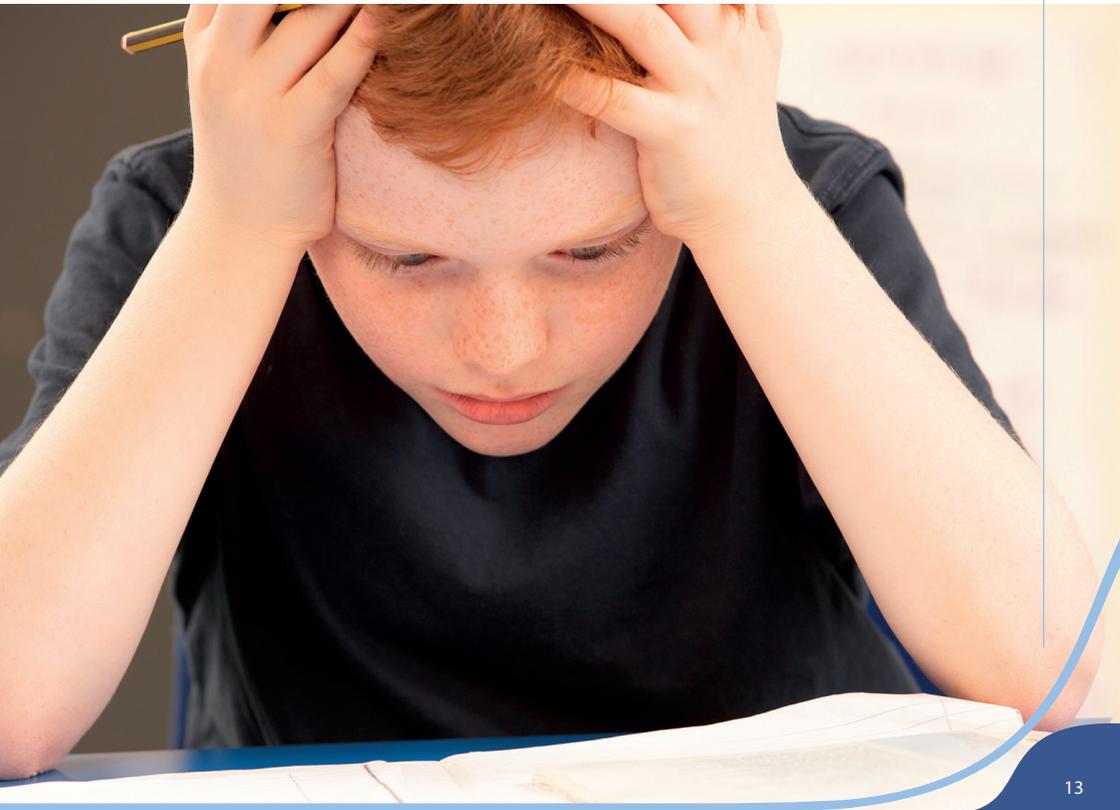
Again, the Parents Passport for Schools has a section where parents can detail their child's individual hyperglycaemia warning signs. If hyperglycaemia occurs, a pump malfunctions or the child vomits then a parent or guardian should be contacted immediately. If a parent or guardian is not available then emergency medical advice should be sought.

## Stress

We all can suffer from stress at times and children are no different. Stress and anxiety can be caused by a variety of things and will affect blood glucose levels. Examples could be:

- Difficulties at home, such as divorce.
- Stress before and during tests and exams.
- Bullying.

Stress will, in the initial stages, cause blood sugar levels to rise. Stress, if prolonged, will lead to erratic blood glucose levels, and exhaustion amongst other things, so for example, you will need to make sure a child has a quick-acting carbohydrate available during an exam. If you suspect that a child is going through a prolonged period of stress, you may want to consider how best you can support them, depending on the cause of the stress.



## Communication

Good communication is vital to manage diabetes well and this is both communication within the school as well as between the school and home.

Within the school make sure that everybody who needs to know does know. This is not just teaching staff but also staff such as lunchtime supervisors and door monitors.

IDDT has produced the 'Parents Passport for Schools', which is a booklet that you can give to parents to complete, whereby they can give you formal notice of how their child's diabetes is managed. It is designed to be reviewed at least annually or whenever treatment changes. It is also useful for parents to have at least one named contact at the school, with which they can discuss their child's diabetes. The same person could also contact the parents when things like stocks of hypo treatments and medication are running low.

This information could then be entered onto a central database and provided to all teachers who have contact with the child.

On a day to day basis a daily communication book or diary that goes between the school and home is a good idea. The book or diary can be used to record blood testing times and results, any hypos as well as things like lancing and injection sites, which need to be rotated to avoid soreness.



## School Trips

Day trips should not pose any real problems for a child with diabetes. They need to remember to take their insulin, injection kit, hypo treatment and blood glucose testing equipment with them. Even those who do not normally inject during school hours should take their insulin and some starchy food with them in case there is a delay, such as a traffic jam.

Residential and overnight stays need to be planned more carefully. It is a good idea to carry out a risk assessment, considering things like:

- The nature of the activities to be undertaken.
- The length of the stay.
- The competence of the child to manage their own diabetes.
- The need for trained staff and staffing levels.

Other things they will need to be taken include:

- A copy of the child's diabetes management plan.
- Home contact details.
- Contact details for the nearest accident and emergency unit.

If any medical equipment is lost or left behind then the local accident and emergency unit should be able to help.

Children with diabetes will need to make careful preparation for an overnight trip. The equipment they will need to take will include:

Children using injection devices	Children using pumps will ALSO need
Insulin injections (and spares). Blood glucose monitoring kit. Hypo treatments. Personal identification card/medical alert bracelet or similar.	Spare insulin set. Spare pump battery. Extra insulin for pump. Extra long-acting insulin Injection device in case of pump failure.



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For further information about  
all our FREE leaflets contact us:

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