

Highland Paediatric Diabetic Services



Tool Kit

Tool Kit for Diabetes in Childhood	
Owner: George Farmer	First published: 10/12/2008
Version:13a	Last reviewed: Dec 2014
Page: cover sheet	Next review: Dec 2015
Intranet version; uncontrolled when printed or downloaded	

Contents

CONTENTS	1
SCHEDULE OF EDUCATION AND FOLLOW UP	2
BLOOD GLUCOSE TARGETS	4
ADJUSTING INSULIN	5
THE HBA1C TEST	6
WHY IS HBA1C IMPORTANT?	6
ACHIEVING AN HBA1C UNDER TARGET	6
DEALING WITH HIGH RESULTS – KNOWING ABOUT KETONES	7
WHAT IF YOU GET A VERY HIGH RESULT?.....	7
KETONES – WHAT ARE THEY ANYWAY?	7
WHEN TO TEST FOR KETONES.....	7
WHAT TO DO IF YOU FIND KETONES	7
WHEN THE BLOOD SUGARS SEEM VERY UNSTABLE	10
MIXING YOUR INSULIN	10
WHERE AND WHEN TO GIVE THE INJECTION	10
NEVER INJECT THROUGH CLOTHES.....	10
IS YOUR PEN INJECTOR WORKING?	10
FOOD	10
VARIATIONS IN ROUTINE	10
HYPOS - QUESTIONS AND ANSWERS	11
Q - WHAT IS A HYPO?.....	11
Q - HOW WILL I KNOW THAT I'M HYPO?	11
Q - WHAT WILL MAKE ME HYPO?	11
Q - WHAT SHOULD I DO IF I'M HYPO?	12
Q - WHAT IF I FEEL HYPO DURING THE NIGHT?	12
Q - WHAT IF I HAVE A NASTY HYPO?.....	13
Q – ARE CHOCOLATE BARS A GOOD TREATMENT FOR HYPOGLYCAEMIA?	13
Q - WHAT ELSE SHOULD I KNOW?	13
IF YOU ARE ILL	14
SOME GOLDEN RULES.....	14
WHAT TO EAT WHEN YOU ARE ILL.....	15
<i>Foods which are easy to swallow</i>	15
<i>Don't cram it down!</i>	15
<i>Medicines</i>	15
TAKING EXERCISE	16
TO HELP STOP YOUR BLOOD SUGAR FROM FALLING TOO LOW :	16
SHOULD I TAKE LESS INSULIN?.....	16
LATE HYPOGLYCAEMIA.....	16
EXERCISE AND PLAY	16
HOW MUCH EXTRA SHOULD I TAKE TO EAT?	16
HOLIDAYS	17
SPECIAL DAYS AND CELEBRATIONS	18
DOES DIABETES CHANGE YOUR CHILD?	19
TALKING TO YOUR CHILD	19
BEHAVIOUR	19

LOOKING AFTER YOURSELF WITH DIABETES.....	20
TEETH.....	20
EXERCISE.....	20
FEET	20
SMOKING	21
DRINKING ALCOHOL.....	21
BE PREPARED.....	21
IDENTIFICATION.....	21
DIABETES AND THE FUTURE.....	22

Schedule of Education and Follow Up

This schedule on the next page gives an indication of the planned frequency and purpose of telephone and clinic reviews in the first 3 months after diagnosis. Our aim is to keep in frequent contact to give you the confidence, skills and knowledge to help you become an expert on your child's diabetes and achieve blood glucose levels as close to the target range as possible to reduce the risks of short term and long term complications.

Regular telephone reviews will be arranged after each contact with the diabetes team. You can identify a time that is convenient for you to phone in for a telephone discussion with the Diabetes Nurse Specialists.

The Diabetes Team also really welcomes phone calls in between the scheduled reviews if you have any concerns about blood sugar readings or any other issue related to diabetes.

Timings might be slightly different for young people attending the peripheral clinics in Caithness, Golspie, Fort William and Skye.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 2 of 22	Next review: December 2015

Type of Review	Purpose of Review	Timing/Frequency	Follow up Dates
Education at Diagnosis	Teaching skills & knowledge required for home management of diabetes	During Hospital Stay	
Telephone Review Week 1	Review of blood sugars & insulin dose adjustment	Daily with Diabetes Nurse Specialist Weekend review by consultant if needed	
Telephone Review Week 2	Review of blood sugars & insulin dose adjustment	Twice a week with Diabetes Nurse Specialist	
Clinic Review	Education with Diabetes Nurse Specialist and Dietitian	2 weeks after discharge	
Telephone Review Weeks 3 and 4	Review of blood sugars & insulin dose adjustment	Weekly with Diabetes Nurse Specialist	
Clinic Review	Review by Diabetes Team	4 weeks after diagnosis	
Telephone Review Weeks 5,6,7	Review of blood sugars & insulin dose adjustment	Weekly with Diabetes Nurse Specialist	
Clinic Review	Review by Diabetes Nurse Specialist and Dietitian	8 weeks after diagnosis	
Telephone Review Weeks 9,10,11	Review of blood sugars & insulin dose adjustment	Weekly with Diabetes Nurse Specialist	
Clinic Review	Review by Diabetes Team – HbA1c check	12 weeks after diagnosis	

Blood glucose targets

In the early days and weeks after diagnosis, blood glucose levels can be quite erratic. We will arrange close contact with you after diagnosis (both telephone calls and regular clinic visits) to provide advice about adjusting insulin levels to help get blood glucose readings in the target range. The target range of blood glucose varies at different times of the day:

Before breakfast	5 - 8
Before lunch and evening meal	4 - 7
Before bed	6 - 8

Diabetes is often described as a 'self-managed' condition, as you will be doing the majority of the care at home, including blood glucose testing and insulin injections. Our role as the diabetes team is to educate and support you to be confident in self-management and to become an expert on your own diabetes.

Keeping a detailed log book will help you with this. Recording blood glucose tests before meals and bed, and adding information such as insulin doses, and activities and special events will help you make sense of the blood glucose readings. You may be able to spot patterns in blood glucose readings more easily if you shade blood glucose readings in the normal range in green, readings below target in blue, and readings above target in red. Here is a log book of a newly diagnosed patient completed along these lines.

Date	Insulin	Before breakfast	2 hours after breakfast	Before midday meal	2 hours after midday meal	Before evening meal	2 hours after evening meal	Before bed	Notes
09/03/12	7	5.6	6.2	6.3	5.6	7	7	5.6	Museum day
10/03/12	7	6.8	5.4	10.6	7.6	7	7	7.6	Singing
11/03/12	7	5.7	5.8	8.6	7.6	7	7	7.6	Drama
12/03/12	7	5.4	6	7.5	6.9	7	7	6.9	Brownies
13/03/12	7	6.2	5.3	8.4	6.9	7	7	6.9	Swimming
14/03/12	7	6.3	6	9.1	6.9	7	7	6.9	*Juni 6th blood sugar
15/03/12	7	5.3	4.7	9.7*	4.8	7	7	4.8	Inhos case
16/03/12	7	6.2	8.3	10.4	9.8	7	7	9.8	Ballat
17/03/12	7	5.8	9.4*	7.6	7.7	7	7	7.7	thicky wtd
18/03/12	7	5.9	6.7	7.6	8.1	7	7	8.1	Hypoclinic
19/03/12	7	5.6	3.5	5.3	5.3	7	7	5.3	

It is also very helpful to get into a routine of reviewing the log book as a family on a weekly basis to see how many readings are 'in target'. If the majority of readings are in the target range, you probably do not need to make any changes. However, if you are getting frequent hypo's or high readings, adjustments will be needed. In the early days, we suggest you contact the diabetes team for advice. As you become more experienced, you will become an expert on your child's diabetes and you may feel confident to make changes yourself. However, even after having diabetes for sometime, it can sometimes be difficult to know what to do, so please get in touch if you are unsure.

Adjusting insulin

The rules are simple - the clinic doctor will advise you at the beginning, but we hope you will get a good idea of how it is done yourself before long.

- 1) Always remember that insulin makes the blood sugar come down
- 2) Look at the blood sugar results over the last few days. If a problem usually occurs at a particular time of day you should adjust the insulin dose. The table overleaf will guide you about which dose of insulin to adjust. It depends on how many injections you take each day, and the time of day the problem occurs.

How many injections do you take in a day?	What time of day is the problem?			
	Before Breakfast	Before lunch	Before tea	Before bedtime snack
2 each day	Adjust the teatime dose	Adjust the morning dose	Adjust the morning dose	Adjust the teatime dose
3 each day	Adjust the bedtime dose	Adjust the morning dose	Adjust the morning dose	Adjust the teatime dose
4 each day	Adjust the long-acting insulin	Adjust the morning dose of short-acting insulin	Adjust the lunchtime dose of short-acting insulin	Adjust the teatime dose of short-acting insulin

- 3) Sometimes you will find that you cannot sort out a high blood sugar at one time of day without causing hypoglycaemia at some other time. Your diabetes team can suggest changes to the insulin routine which will help to smooth things out.
- 4) If you are ill, you will need to check the blood sugar more often, and adjust the insulin more quickly.
- 5) If the blood sugar is very high, or if you are unwell, don't forget to measure ketones (see page 7).
- 6) Try to avoid frequent or severe 'hypos' - these will tend to make the blood sugars more erratic.
- 7) If the blood sugar results are very different from one day to the next, see the section on [dealing with unstable blood sugar values](#) (page 10). You may also wish to consider a more flexible insulin routine (basal-bolus or pump therapy, which give you the opportunity to adjust insulin doses to match meal and snack sizes, and planned activity).
- 8) Trying to keep to exactly the same routine every day may not make your diabetes better controlled – but it will cause boredom and rebellion. If you are concerned about how best to handle a meal out, a day out, or a holiday - discuss this with the clinic staff.
- 9) We know that perfection is not possible. Do not blame yourself if, after your best efforts things still are not quite as good as you might have hoped - and do not be too quick to blame anyone else, either. It won't help, and can even make things worse.

The HbA1c Test

In addition to the regular blood glucose testing you are doing at home, we will be checking your average blood glucose control using the HbA1c test when you come to clinic. This is also a finger prick test and you will get the result after a few minutes.

HbA1c is a measure of the amount of sugar stuck to your red blood cells. The HbA1c therefore gives an average of blood sugar control over the last 6-8 weeks. The higher the blood sugar levels, the higher the HbA1c level will be.

Why is HbA1c important?

Doctors and nurses working with children with diabetes across the UK recommend that the HbA1c should be less than 58 mmol/mol to keep as healthy as possible. The higher the HbA1c level, the higher your risk of developing problems related to diabetes. These include eye disease, kidney disease, nerve damage, heart attacks and strokes. If your HbA1c stays high for a long period of time, the risk is even greater. However, the better the blood glucose readings and the lower the HbA1c test, the lower the risk of developing complications. It is therefore really important to try and maintain your HbA1c test result below 58.

Achieving an HbA1c under target

If the majority of your blood glucose readings are in the target range, your HbA1c reading should also be on target. We will show you how to find your 7 and 14 day averages on your blood sugar meter. As a rough guide, if your 7 or 14 day average is 9.4 or below, your HbA1c should be on target.

If your blood glucose readings are mostly above the target range, your HbA1c will be higher. Don't wait until the next clinic visit to sort it. If there is no obvious pattern to the blood sugar readings or no obvious solution, pick up the phone and contact the Diabetes Nurse Specialists. We really want to hear from you between clinic visits if your blood sugar readings are not in target so that we can help. Getting your blood sugars back into the normal range quickly will make you feel healthier, improve concentration, mood and sporting performance and will reduce your risk of diabetes related complications later.

Evidence from studies suggests that getting HbA1c levels in target 3-6 months after diagnosis appears to set a pattern for good control in the long term. It seems that your body has a 'memory' of good control that can help later on. To help you achieve this, we have developed a schedule of educational support and frequent contact for the first 3 months after diagnosis.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 6 of 22	Next review: December 2015

Dealing with high results – knowing about ketones

What if you get a very high result?

If the blood sugar is over 17, ask yourself - can you explain it? Perhaps you have just eaten something sweet, or just recovered from a hypo. If so, then the blood sugar will probably return to normal after a few hours. If, however, there is no obvious cause, or the blood sugar is high because you are poorly, you should check for **ketones**.

Ketones – what are they anyway?

Most people with diabetes have heard of ketones - but many will be unsure of why they are important.

When we have not eaten for a few hours, we rely on the body's stores of sugar and fat for energy. After a few more hours the sugar stores run low. At this stage we can no longer break down fat effectively - and ketones are produced as a by-product. Everybody will produce ketones if they are starved.

If the body is under stress - during an illness or after an accident - energy is used more quickly, and ketones appear sooner.

The most severe form of starvation occurs when someone with diabetes gets too little insulin. There may be a lot of sugar in the blood - but the body cannot use it because of the lack of insulin. The production of ketones gets out of hand, and can result in a severe illness called "**ketoacidosis**".

When to test for ketones

If you are well, and the blood sugars are reasonably well controlled, you do not need to worry about ketones. If you are ill, or the blood sugars are running high, you should check for ketones. Ketone testing strips and short-acting insulin (Novorapid, Humulin S, Humalog, or Apidra) are an essential part of your kit. Make sure they are not out of date. Your pack of ketone testing should be replaced when it past its "use by" date

What to do if you find ketones

If you have a high blood sugar with ketones (1 mmol/L or more), you will need extra insulin.

Extra insulin is given as an additional injection of short-acting insulin. The dose is one-sixth of the normal amount of insulin you take in a whole day. (for example, if you usually take 24 units in the morning and 12 units at night, the amount of insulin you take in a whole day is 36 units. You would need an extra dose of 6 units of short-acting insulin).

If the blood sugar is still high and ketones are still present after 4 hours, repeat the extra dose.. You may have to repeat several times in a day.

- Never omit your normal insulin
- If you are ill, follow the [sick-day rules](#) (page 14)
- Look out for the signs of **ketoacidosis**. These are
 - vomiting everything you eat or drink for more than 4 hours
 - abdominal (stomach) pain
 - heavy or rapid breathing
 - dehydration.

Ketoacidosis is a medical emergency which requires hospital treatment.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 7 of 22	Next review: December 2015

Ketones - Frequently asked questions

Q: How often should I check blood sugar and ketone test if my child is ill, or has persistently high blood sugars?

A: We suggest testing the blood sugar 4 times a day (before breakfast, lunch, tea and supper), and ketones twice a day.

Q: My child is feeling ill and eating less than usual. I tested for ketones and found a level greater than 1mmol/L. The blood sugar is less than 12, so it does not seem right to give extra insulin – what should I do?

A: If the blood sugar is low, the ketones are likely to be due to lack of food rather than lack of insulin. Make sure your child is getting enough energy in their food or drink – sugary drinks may be your best bet. Keep checking blood sugars and ketones regularly. If the blood sugar rises above 12 and the ketone levels are not settling, give extra short-acting insulin as described above.

Q: The blood test result is very high, but the ketone level is not elevated. Should I give extra short-acting insulin?

A: Blood sugars go up and down a lot during childhood.

- In some children, correction doses of short acting insulin can be valuable (discuss with your clinic team how high the blood sugar should be before you give an extra dose)
- In others, extra insulin given after a single high reading may result in hypoglycaemia. In this situation best idea is to recheck the blood sugar after 4 hours – before the next meal. If it is still high you can give extra short-acting insulin.
- Different children may require different correction doses. In the absence of ketones, a fair guess at a correction dose is a tenth of the “total daily dose” (the amount of insulin you usually give in a whole day). We can discuss more detailed ways of working out your correction dose at clinic.
- A second correction dose can be given after 4 hours if necessary.

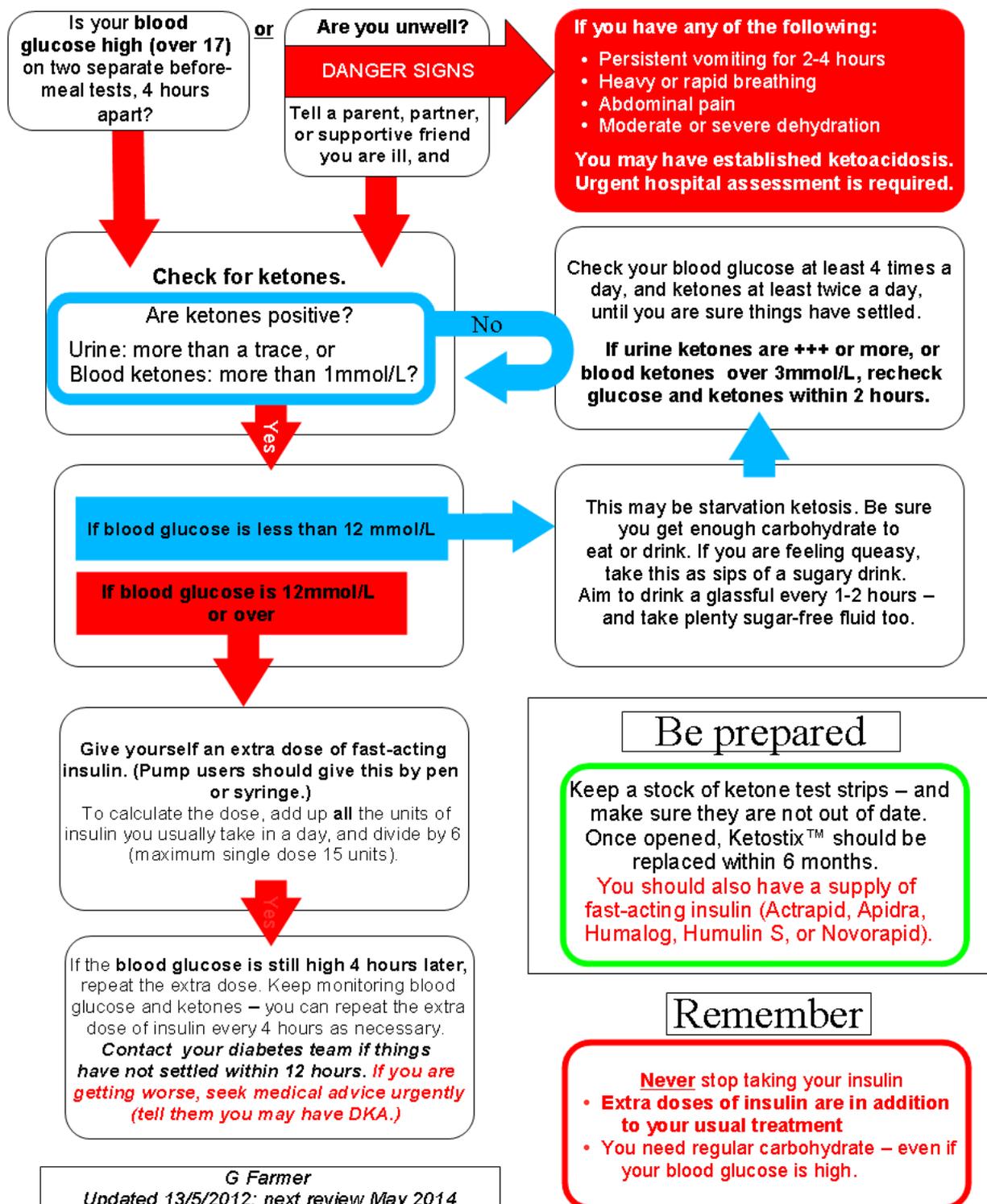
Q: The blood sugars have all been high for 3 days, but the ketone level is not elevated. What should I do?

A: It is time to increase the doses of your usual insulin.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 8 of 22	Next review: December 2015

Ketoacidosis is dangerous!

You should know how to prevent it. This guide will tell you when to check for ketones – and what to do if you find them.



When the blood sugars seem very unstable

Diabetes can be an unstable condition. Even if you do the same things and eat the same things two days in a row, you may not get the same blood sugar readings. However, sometimes the readings change very frequently and dramatically, and do not seem to follow any particular pattern. Here are some extra hints to help you to control your blood sugar.

Mixing your insulin

If the cloudy insulin is not properly mixed the dose you are actually giving might be a lot higher or a lot lower than you think it is. The insulin vial or cartridge should be turned upside down and righted again 10 times, and rolled between the hands 10 times, before every injection.

Where and when to give the injection

Insulin is not absorbed reliably from injection sites which have been overused and become hard or lumpy. It may be absorbed differently from different sites - for example it will be absorbed more quickly from arms and tummy than from legs or bottom. When the blood sugars seem very irregular with no other explanation, it may be worth sticking to the same general area for a while, to see if this helps.

The best time to give a standard premixed injection (Humulin M3) is between 20 and 30 minutes before a meal. This prevents the blood sugar from going too high in the hour or so after the meal, and will also make hypoglycaemia before the following meal less likely. If your insulin regime involves one of the rapid analogue insulins (Novorapid, Humalog, Apidra or Novomix 30), this should be given about 15 minutes before you eat.

Never inject through clothes

This can blunt the needle, or introduce fibres from your clothing. You will be unaware of any insulin leakage.

Is your pen injector working?

- Use a fresh needle for each injection – and take it off immediately after the injection (to stop insulin from leaking out)
- Before you give the injection, hold the pen with the tip pointing upwards, then dial up and eject 2 units of insulin. Repeat this until a bead of fluid appears at the end of the needle – it is your assurance that the pen is working.
- You should always have a spare pen. Your GP can prescribe a replacement if needed.
- If your blood sugars are really wonky, check to make sure that the cartridge is not cracked or leaking.

Food

Very sweet foods, if eaten by themselves, will cause the blood sugar to rise very high for a short period of time. Ideally, any sweets should be included as part of a meal, so that the sugar content is absorbed more gradually, or else taken before exercise.

Variations in routine

Keep a good record of changes in food, insulin dose and exercise routines. This will help you and your diabetes team to make sensible adjustments to your treatment.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 10 of 22	Next review: December 2015

Hypos - questions and answers

Q - What is a hypo?

A hypo (short for hypoglycaemia) happens when your blood sugar falls too low. We usually reckon that blood sugars of 4 or less are "too low". Some people begin to feel hypo when the blood sugars are a bit higher than this, and some people will feel all right even when the blood sugars are lower than this ([see below](#)).

Q - How will I know that I'm hypo?

When the blood sugar falls too low, most people feel different from usual. You may feel "funny", - shaky, wobbly, or dizzy, have tingly lips or fingers, have a sore head or tummy, or feel very hungry. Other people may notice you looking pale or sweaty, or find that you are behaving oddly - either very quiet, or unusually rowdy!

These are the most common effects. Different people can have different symptoms - you will probably come to recognise your own hypo symptoms quite clearly. You may find that your symptoms change as you get older.

If you are not quite sure if you are hypo, check your blood sugar to find out. If you are out and have forgotten your meter, carry on and treat the hypo. Everyone can forget thinks now and then, and you won't do yourself any harm this way.

Some people feel fine even when their blood sugars are very low. This is a bit worrying, because it means that they might have a nasty hypo without getting any warning. If this happens to you, your insulin should be adjusted to make sure that the blood sugars aren't falling into the hypoglycaemic range too often. This will help you get your "hypo awareness" back. If you need help with this, contact your diabetes team.

Q - What will make me hypo?

Exercise. Exercise is a common cause of hypoglycaemia. Even shopping, or playing around the house can lower your blood sugar. Hypos due to exercise can be prevented by taking extra carbohydrate beforehand - the clinic staff can advise you. (After a particularly active day, blood sugars may fall during the night - see the section on [exercise](#) (page 16) for further details)

Lack of food. You can go hypo if you don't take enough carbohydrate (e.g. bread, potatoes, etc) when you eat, or if a meal or snack is late or missed altogether. If you are going to be later than usual in eating, take an extra snack to tide you over. If you are up early (or go to bed late) you will need an extra snack.

Insulin. You can go hypo if you are taking more insulin than you need. If hypos are happening very regularly (for example, twice a week or more), or if severe hypos are occurring without obvious reason, [the insulin dose may need to be altered](#) (see page 5). Contact the clinic staff if you are not confident about making the alteration yourself.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 11 of 22	Next review: December 2015

Q - What should I do if I'm Hypo?

As soon as you notice that you are hypo, test your blood sugar if your meter is available. If the blood glucose is less than 4 mmol/L, take fast acting sugar. (You should carry something with you at all times: dextrose tablets are particularly convenient). The amount needed will vary according to size – a guide is given below.

Child up to 30 kg (4 st 10 lbs)

Lucozade	2 x 30 ml medicine cups or $\frac{1}{3}$ of small glass
Fresh fruit juice/sugary fizzy juice	100mls or $\frac{1}{2}$ small glass
Glucotabs	2-3 Tablets
Lucozade/Dextro Tablets	3-4 Tablets
Fruit Pastilles	4 pastilles
Glucose gel (if uncooperative/drowsy)	1 tube

Child 31-50 kg (4 st 10 lbs to 7 st 12 lbs)

Lucozade	3 x 30 ml medicine cups or $\frac{1}{2}$ small glass
Fresh fruit juice/sugary fizzy juice	150 mls or $\frac{3}{4}$ small glass
Glucotabs	3-4 Tablets
Lucozade/Dextro Tablets	5-6 Tablets
Fruit Pastilles	6 pastilles
Glucose gel (if uncooperative/drowsy)	1 $\frac{1}{2}$ Tubes

Child 51 kg (7 st 12 lbs) or over

Lucozade	4 x 30 ml medicine cups or $\frac{3}{4}$ small glass
Fresh fruit juice/sugary fizzy juice	200mls or 1 small glass
Glucotabs	5 Tablets
Lucozade/Dextro Tablets	7-8 Tablets
Fruit Pastilles	8 pastilles
Glucose gel (if uncooperative/drowsy)	2 Tubes

If the blood sugar is still low after 10 minutes, give the same dose again. Children whose condition continues to deteriorate after being given glucose may need extra sugar before 10 minutes has passed. For nasty hypos (see below) you should give Glucogel, or Glucagon.

Unless your next meal is due within an hour, give a starchy snack when the blood sugar has returned to normal. Suitable choices might be

- plain biscuit e.g. digestive, rich tea
- cracker /oatcake/ crispbread/ muesli bar
- toast/ sandwich
- piece of fruit

Don't count what you have taken for a hypo as part of your next meal. Your body needed that extra sugar!

Q - What if I feel hypo during the night?

Do exactly the same as you would do during the day - i.e. check your blood glucose and take Lucozade or glucose tablets, or something similar. It is particularly important to have something more substantial to eat or drink afterwards to see you through till morning.

You may not always get warning of night-time hypoglycaemia, or the bedtime and/or early **hypos.** If you have had trouble with overnight morning blood sugars tend to run low, reduce the

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 12 of 22	Next review: December 2015

evening dose of insulin

Q - What if I have a nasty hypo?

Sometimes you get so mixed up when you are hypo that you forget that you are supposed to take sugar - if you are just sleepy, vague, or grumpy, one of your family or friends can usually persuade you to take something.

If you have a particularly nasty hypo, it can result in you becoming unconscious, or even having a 'fit'. This can be very dramatic and frightening to watch - however, even in these more severe hypos, it is extremely rare for anyone to come to any harm. Try not to panic!

If someone is unconscious or having a fit, it is not safe to give them anything by mouth. Your parents should have an injection of Glucagon at home, and know how to use it. This will bring you round in about 10 minutes or so. Call an ambulance at the same time; if you have recovered by the time the ambulance arrives, you may not need to be brought to hospital. Please inform the diabetes team by phone of any severe hypo.

If a nasty hypo were to occur, but no-one knew it was happening, you would eventually come out of it yourself - but you would feel quite ill and exhausted for a while. You should try to avoid nasty hypos - and mild hypos should be treated as quickly as possible to prevent a nasty hypo from developing.

Q - How will I feel afterwards?

Usually, after a hypo, you will feel fine. Occasionally, after a nasty hypo, you will still feel quite woozy even after the blood sugar has come up to normal. This will pass.

The next blood sugar result after a hypo is often quite high -and, if you test for it, you may find an elevated ketone level. This is normal. Do not take extra insulin because of it, or you may have another hypo!

Q – Are chocolate bars a good treatment for hypoglycaemia?

No. The fat content of the chocolate delays absorption of the sugar, so the hypo may get worse before it gets better.

Q - What else should I know?

Always carry fast acting sugar! there is no point in having something in your 'other jacket', or upstairs when you are downstairs (or in the medical room at school, if it is some distance away!).

You can keep a supply of glucose tablets in any – or all – of the following places

- In your coat/trouser pocket
- In all your school bags
- Upstairs and downstairs in the house
- In the car
- In anything you take when you play outside (e.g. cycle bag, bum bag)
- In the classroom, or with the teacher

(Remember to replace your 'hypo' supplies if you use them.)

It is a good idea to tell your best friend or friends about your diabetes, so that they can help you if you become hypo.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 13 of 22	Next review: December 2015

If you are ill

Some golden rules

Infections can upset the control of your diabetes, so you have to take extra care when you are unwell. Although every infection is different, there are some "golden rules" which will mostly help you to stay out of trouble - and out of hospital!

remember:

- 1) People with diabetes need a regular intake of carbohydrate, even when they are ill, and even when the blood sugar is high.
- 2) If you are feeling sick, or if you have been sick, it is usually best to take the carbohydrate as regular sips of sugary drinks. You will need to take a reasonable amount of unsweetened fluids as well.
- 3) You should not miss out your insulin. You may well need extra doses, depending on what your blood sugars are doing (see the sheet on "[Dealing with high results](#)", page 7)
- 4) Check the blood sugar 4 times each day (before breakfast, lunch, tea and supper) while you are unwell. Increase the insulin dose if necessary.
- 5) When you are ill you should check for ketones, twice a day, even if the blood sugars look all right. If ketones (1 mmol/L or more) are present, and the blood sugar is highish (say over 12), you will need more insulin (see the sheet "[Dealing with high results](#)", page 7). If the blood sugar is lower than this, it means you have to take more carbohydrate.
- 6) If you are able to stick to the above advice, it will usually be possible to stay out of hospital. However, you should also know when to give up!

Hospital is the best place for you if you have any of the following:

- all food and drink have been vomited for more than 4 hours.
- there is severe tummy pain
- the breathing is fast or unusually deep
- there is dehydration (sunken eyes, dry mouth, and the skin feels loose)

- 7) The hospital diabetes team is there to advise you. When in doubt - phone!

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 14 of 22	Next review: December 2015

What to eat when you are ill

You still need to take your insulin when you are unwell, and you need to make sure that you are getting enough to eat and drink as well. You may find your usual food and drink too much to eat, or too hard to eat - for example if you have a sore throat or are feeling sick. Here are some suggestions to help you through.

Foods which are easy to swallow

- Soups
- potato and gravy
- yoghurt
- milk puddings
- porridge
- breakfast cereals
- milky drinks
- fresh fruit juice
- tinned fruit
- ice cream
- instant desserts.

If however, you feel very unwell, or have just been sick, you may need to take all your carbohydrate as liquids such as sugary squashes and fizzy drinks. You can take the fizz out (if it upsets you) by sprinkling in a little sugar and stirring vigorously.

Don't cram it down!

You may find it difficult to eat enough at a mealtime. Instead, why not spread your food and drink over several hours? For example, nibble or sip throughout the morning the quantity you would usually take for your breakfast and midmorning snack. Do the same in the afternoon and evening, with the food you would normally take at your lunch or evening meal.

Medicines

Do not worry if you need to take antibiotics or cough sweets/medicines which contain sugar. If you keep to the recommended doses, they will have little effect on your blood sugar level.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 15 of 22	Next review: December 2015

Taking exercise

Exercise is both good fun and good for your health. It is especially useful for people with diabetes; Insulin works better if you are fit and take regular exercise. Physical activity lowers the blood sugar, so you are more likely to have a hypo during or after exercise. However, by following a few simple guidelines you can take part in your sport or activity without your blood sugar falling too low.

To help stop your blood sugar from falling too low :

You should eat extra carbohydrate to cover the activity. For example,

- at the meal or snack just before exercise, take extra carbohydrate – for example, a sandwich, **or**
- immediately before exercise, eat a sweet snack – a cereal bar, dried fruit, "Fun-size" bars (eg Mars, Milky Way, Snickers), a small carton of fresh fruit juice, small packets of Starburst (opal fruits) or fruit pastilles are all suitable. **or**
- take a sports drink to sip during the exercise, as needed.

If you are going to be active for more than about 45 minutes, or if the exercise is very strenuous, you should top up your blood sugar by taking a sugary drink or snack halfway through. Always carry glucose tablets, or leave Lucozade nearby in case you feel hypo.

Should I take less insulin?

If you are going to be active for a relatively short time (PE, swimming, fencing, or a game of football), it is best to cover this with extra carbohydrate and take your normal insulin. If you are going to be very active all day (a sponsored walk, or hill climbing) you could cut down the dose of insulin for that day. Remember that you may also need extra carbohydrate too.

Late hypoglycaemia

If you have been very active, you may find that you are prone to a low blood sugar for several hours afterwards. It is important to eat regularly, and always take a proper snack before bedtime. If the bedtime blood sugar is lowish, you might want to take a bit more to eat than your usual.

Exercise and play

It is not just sport which can lower your blood sugar. Remember that soft play, bouncy castles, parties, discos, shopping, and even [general excitement](#) (page 18) are also forms of exercise!

How much extra should I take to eat?

The amount of extra carbohydrate you need take depends on what you are going to do, and on how fit you are. Start with a small amount of carbohydrate. You can find out if this has been the right amount by measuring your blood sugars afterwards.

- If your blood sugar is low after exercise, you will know to take more carbohydrate next time.
- If your blood sugar is high (over 10 for example), then you will know to take less carbohydrate next time. Some kinds of exercise (where there is intense activity, or a lot of excitement) may cause the blood sugar to rise. If so, you may not need extra carbohydrate beforehand, but you still need to watch out for late hypoglycaemia.
- If your blood sugar is between 6 and 10 after exercise then you have probably taken the right amount of extra food for that activity.

More detailed advice is available for children

taking part in competitive sports.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 16 of 22	Next review: December 2015

Holidays

Everyone needs time to recharge their batteries. The ideal way of doing this is by having a holiday, whether you choose to go to exotic places, or stay nearer home.

Supplies. Make sure that you carry enough supplies to cover the whole trip - with spares in case of mishaps! This is especially important if you travel abroad. Carry some food and drink in case a meal is delayed.

Carrying and storing insulin. If you are travelling by train or car, keep your insulin in the coolest place. A small thermos flask rinsed out in cold water from the tap can help in hot weather.

If you are travelling by plane, carry your insulin in hand luggage. Do not pack it in your suitcase as the hold of the plane is so cold that it may freeze your insulin, after which it will be of no use.

Accommodation. You do not need to have access to a fridge, but again a thermos flask cooled with water may be the solution in hot climates.

Going abroad. Depending where you are going you may pass through time zones, 'gaining' and 'losing' hours on the way there and back. You should discuss your insulin adjustment and eating plan with the consultant or specialist nurse. We can give the most detailed advice if you can tell us;

- the time of departure,
- the duration of the flight in hours, and
- the time difference between the UK and your destination.

A more detailed advice sheet is available for long distance travel.

Insurance. Countries in the EEC have reciprocal medical cover: get form EHIC from your local post office before you leave- or get it on line (www.ehic.org.uk). You should have medical insurance as well - with a minimum coverage of £1,000,000. Make sure that the insurance company know you have diabetes. If you think you are being overcharged because you have diabetes, shop around.

Eating. It may be worth speaking to your dietitian before you leave if you are going to exotic places with unfamiliar foods.

Exercise and activity. Remember that you will not have such a regular routine as usual. Your insulin requirement may fall a bit, but it is an ideal time to relax your diet slightly. You can discuss this with your dietitian.

Innoculations. If you need any inoculations, these should be done at least 2 weeks before you leave.

Identification. Immigration and customs officers take particular interest in people carrying injection equipment, so you should be able to 'prove' that you have diabetes! Your GP or the clinic doctor will provide a letter for you, or if you prefer, the Diabetes UK will issue an identity card for a small charge.

Remember. You are on holiday - but your diabetes is not! Do some tests to monitor your diabetic control, and make adjustments to keep you well during your stay.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 17 of 22	Next review: December 2015

Special days and celebrations

Everyone, young and old, likes a celebration - like birthdays, Christmas, Easter, and anniversaries.

There is no need for the hostess to produce a 'special diabetic meal' - nobody likes to be different. A few simple rules will guarantee that a good time is had by all.

On **Christmas Day and birthdays**, children can get so excited that they are more likely to have problems with hypoglycaemia rather than high blood sugars. Late bedtimes and early mornings all require extra snacks. High blood sugars are more of a problem in the days after Christmas - when there may be little activity and a lot of food around.

Do extra blood tests over the festive season. You may have to take extra insulin if the blood tests are running high - see the sheet on [Dealing with high results](#) (page 7)

If you are going to be very active - for example, at a disco or tenpin bowling, your blood sugars may well fall and you will need to have an extra snack.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 18 of 22	Next review: December 2015

Does diabetes change your child?

All the experiences that we go through have an effect on us and on our families. When someone is told that their child has diabetes they will experience a mixture of emotions - relief that they know why he/she has been so poorly, worry about how they are going to handle the insulin, diet etc., perhaps anger that this has happened to them and wanting to know why. Your child might well have a similar mixture of feelings, and since all children are different they will express these feelings in different ways - some children will ask lots of questions, others won't, some will be upset, others seem to take it in their stride.

Talking to your child

You are the expert when it comes to your child - you know how they react to situations, and what usually helps when they are worried. In general it is usually best to answer any questions that they ask as simply and honestly as possible in words which they understand. Children are sensitive to parents' feelings - if they pick up that you are worried they will feel that this is something to worry about. This doesn't mean that you should try to hide your feelings from your child - that wouldn't work, and in any case children learn to cope with their own feelings by watching the adults around them cope with the same feelings. Instead, if you feel that you are becoming very upset talk to someone, either in the family, a friend, or at the clinic. The staff are always happy to talk to you by yourself if you wish.

Behaviour

Sometimes one of the early signs of diabetes will have been a change in your child's behaviour, but this is very short lived and should disappear once treatment commences. However, parents often comment that their child seems different: what has usually changed is not the child's behaviour, but how the parents are reacting to him. Eating problems, sleep problems and temper tantrums are all part of normal childhood; moodiness and seeing how far you can go are part of normal adolescence and children with diabetes are just the same as any other when it comes to going through these stages. Most parents can usually work out satisfactory ways of dealing with these stages in children, but again if you feel concerned, talk it over with the staff at the clinic and they will be able to advise you, or suggest the right person to help.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 19 of 22	Next review: December 2015

Looking after yourself with diabetes

Keeping your blood sugars within the limits indicated on page 4 will help you to keep fit and well. The doctor, dietitian and clinic nurse are there to help you to do this.

As well as looking after the diabetes, it is also a good idea to keep fit, and to look after your general health. Here are some suggestions.

Teeth

Everyone wants a good set of teeth to last them for a lifetime. When your blood sugar is high, the saliva can be sugary too, and this might lead to tooth and gum disease. We particularly recommend that people with diabetes brush carefully and regularly, and get a regular check-up with a dentist.

Ordinary dental treatment is not a problem. If you need a general anaesthetic (that is, to be put to sleep), this should be done in hospital. Make sure your dentist knows that you have diabetes, and let your diabetes team know what is planned.

Exercise

Everyone should take regular exercise. It makes you stronger and fitter, and makes you look and feel good. It also helps prevent you from putting on too much weight, and helps guard against heart disease and the like in later life. It is especially useful for people with diabetes; Insulin works better if you are fit and take regular exercise.

Different people like different kinds of exercise: some prefer competitive games, some like group activities like aerobics or keep fit, and some people prefer swimming, cycling and walking. All these kinds of exercise are good for you - find out which suits you best, and try to do it on a regular basis.

Feet

Older people, who have had diabetes for some time, can get problems with their feet. This is because the circulation can be poor, and the sensation dulled. Poor foot posture will make matters worse. For these reasons, it is a good idea to take particular care with your feet - and to start young.

- Wear shoes made of canvas or leather, which allow your feet to breathe and allow your toes wriggling room. Your everyday shoes should have a fastening such as a lace, or buckle to ensure they fit properly.
- Wear comfortable, absorbent socks that are the right size and cushion your feet. Change them daily and don't use ones with holes in the toes.
- Don't walk around outside with no shoes or socks
- Wash your feet daily, and dry them carefully - especially in between the toes.
- Don't pick or bite your toenails, cut them with scissors following the natural contour of the nail.
- Don't cut your toenails too short. Leave a little bit of white showing when they are cut. Don't cut down the sides of nails. If the sides of nails become painful or swollen when you cut them like this, seek advice from a Podiatrist (foot specialist/ chiropodist).
- If you tend to get sweaty skin, a rub of surgical spirit on cotton wool twice a week can be useful.
- If you tend to have dry skin, use a moisturising cream regularly.
- Check your feet regularly for rubbed bits or broken skin. Clean and cover any areas of broken skin and see a Podiatrist (HPC registered) if healing is delayed
- See a Podiatrist if you have painful verrucae or corns. These need treatment in their own right – and may indicate problems with foot posture which will require treatment too.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 20 of 22	Next review: December 2015

Smoking

Smoking Damages Your Health.

It causes;

- **Lung Cancer**
- **Chronic Bronchitis**
- **Heart Disease**
- **Circulatory Problems**
- **Bad Breath** (ask any non-smoker!)
- **Wrinkles** (it makes the skin age prematurely)
- **Fertility problems** in both men and women
- **Poverty** (because it costs so much).

Smoking-related diseases are responsible for a high proportion of all premature deaths.

Smoking can be particularly harmful to people with diabetes, who are more prone to heart disease and circulatory problems than the average. Remember that tobacco is addictive. We strongly recommend that people with diabetes should not take up smoking. If you have started and wish to stop, look at www.canstopsmoking.com, or speak to your local GP or pharmacist.

Drinking alcohol

There is no reason why people with diabetes should not enjoy a drink. However, an alcoholic drink can make your blood sugar fall later in the evening. So...

If you are drinking, do not count the drink as carbohydrate in your diet. Take a carbohydrate snack in addition to your usual diet (solid food, for example a sandwich, or a take-away meal is best: sugary drinks and mixers do not last long enough). Take another (long-acting) carbohydrate snack before you go to bed.

Do not miss your normal insulin dose.

If you are hypo and smell of alcohol, people will assume that you are acting funny because you are drunk - so you might not get properly looked after. It is best to hang around with people who you know, and who know how to help you if you have a hypo. If you need emergency services, it is particularly important to carry identification (see below).

Try not to overdo it!

Be prepared.

You should always carry something sugary with you - like dextrose tablets, for example - so that you can take some if you feel hypo.

Identification.

The clinic can provide you with an identification card. Some people prefer to wear an identity bracelet or medallion, and a number of styles are available. Contact your clinic for further details. You may also wish to visit www.MedicAlert.org.uk, www.icegems.co.uk, www.identifyyourself.com or www.amazon.co.uk to see what's available.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 21 of 22	Next review: December 2015

Diabetes and the future

If you have had diabetes for a long time (and particularly if the blood sugar results have persistently been a lot higher than the ideal), it can lead to a number of [health problems](#) of in later life. It is part of the clinic routine to keep an eye out for these complications of diabetes, as a lot can be done to help if they are picked up early.

In children who have diabetes and are over 12 years old, particularly those who have had diabetes for more than three years, we aim to check the following each year: 1) eyesight; 2) examination of the back of the eyes with a light; 3) blood pressure, and 4) examination of an early morning urine specimen for protein.

It is uncommon for long-term complications of diabetes to arise during childhood. If we find anything abnormal, we will let you know what we have found, and discuss a plan of action with you.

Tool Kit for Diabetes in Childhood version 14	
Owner: George Farmer	Date of Issue: 15/12/14
Page: 22 of 22	Next review: December 2015