

Goals of diabetes education



A structured educational programme for children and young people with type 1 diabetes

HEALTHCARE PROFESSIONAL GUIDE

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Goals of diabetes education

What is *Goals of diabetes education*?

Goals of diabetes education is a structured education programme for children and young people (CYP) with type 1 diabetes. It is designed to facilitate patient-centred learning and enable CYP to gradually take charge of their diabetes over time.

Programme objectives

Goals of diabetes education has been created to:

- Enable healthcare professionals (HCPs) to set age-specific educational goals for their patients.
- Ensure patients have the necessary knowledge, skills and confidence to successfully manage their diabetes.
- Support those who care for CYP with diabetes on their journey from diagnosis through to the transition from paediatric to adult services.

Goals of diabetes education: A brief history



Goals of diabetes education was originally developed in 1996 by Lene Povlsen et al (Glostrup University Hospital, Denmark). This version was adapted for use in the UK in 2012, and has been updated by Helen Thornton (Clinical Nurse Specialist for Children and Young People with

Diabetes, St Helens and Knowsley Teaching NHS Trust) with support from Phil Unsworth (Diabetes Education Nurse Facilitator, Novo Nordisk) alongside a

multidisciplinary team of HCPs including:

- Dr Fiona Campbell, Consultant Paediatrician and Diabetologist, Leeds Children's Hospital
- Frances Hanson, Specialist Children's Diabetes Dietitian, Leeds Children's Hospital
- Dr Vicky Seagrave, Clinical Psychologist, St Helens and Knowsley Teaching NHS Trust

The 2016 edition addresses recent changes in the clinical management of diabetes and the latest NICE guideline,¹ which highlights the importance of providing ongoing support and education alongside insulin therapy.

1996

Goals of diabetes education was originally developed by Lene Povlsen et al., Glostrup University Hospital, Denmark.

2012

Goals of diabetes education adapted for use in the UK.

2016

The latest edition addresses recent changes in the clinical management of diabetes and the latest NICE guideline.¹

How to use *Goals of diabetes education*

This guide is intended to be used as a 'master', with duplicate handouts and record sheets created by photocopying the master or downloading from the Novo Nordisk website for HCPs (www.novonordiskpro.co.uk). Each section contains:

- **Guide for healthcare professionals**

An overview of the key facts that your patients should understand in relation to their diabetes. Use this guide to inform your own clinical practice and as part of a narrative discussion with your patients.

- **Handout for parents and young people**

Each handout reflects the corresponding 'Guide for healthcare professionals', summarising the key facts that patients should know in relation to the management of their diabetes. HCPs can access handouts via www.novonordiskpro.co.uk. Personalise the handout by completing fields specific to the patient (e.g. the threshold over which they are considered hyperglycaemic), then provide the handout to the parents of younger patients or the patients themselves when older.

- **Record sheet**

Use the record sheet to log the level of knowledge and skill of your patients and to set educational goals.

Provide them with a copy for reference each time it is updated. HCPs can access records sheets via www.novonordiskpro.co.uk. Add your centre's logo before printing.



Education and paediatric diabetes

CYP in any age group vary considerably in their ability to learn and accept new responsibilities. Diabetes education should therefore be tailored to the individual child's level of development and understanding. CYP should learn at their own pace and gain a gradual understanding of the importance of self-care as a means to better health outcomes.

Young people who are diagnosed later in childhood may not reach the learning goals as easily as those who received their diagnosis earlier. They will need time to grow in confidence and to develop understanding and skills.



KEENAN HENDRICKSE
Keenan has type 1 diabetes

Ideally, CYP should have a good understanding of their diabetes and possess all recommended skills by 14-years-old. Achieving this can improve diabetes control and reduce the risk of complications, as well as limiting any conflicts that can occur within a family due to the daily frustrations of managing a long-term condition.

The educational goals recommended in this booklet:

- Are based upon the expected abilities of CYP to learn and develop skills at different ages.
- Should be considered 'minimum requirements' for each age group; there will always be differences between individual children.
- Should be achieved over a two-year phase, enabling the child to gradually develop over time.

Diabetes Attitudes Wishes and Needs (DAWN) youth quality of life tool

As an addendum to *Goals of diabetes education*, you may consider using the DAWN youth quality of life tool, *Questions about living with diabetes*. Having diabetes requires a highly demanding daily programme for families which may have a negative effect on quality of life (QOL), and good QOL is known to be associated with better metabolic control.²

The questionnaire enables the identification of specific issues which are negatively affecting QOL, and provides an opportunity for enhanced communication between the patient, parents/carers and the diabetes care team.

The questionnaire is available from www.dawnstudy.com.

Guidelines referenced

This guide contains practical management advice informed by the following published guidelines:

- National Institute for Health and Care Excellence (NICE). Diabetes (type 1 and type 2) in Children and Young People: Diagnosis and Management 2015 (NG 18).
- Ly TT, Maahs DM, Rewers A, et al. ISPAD Clinical Practice Consensus Guidelines 2014 Compendium. Assessment and management of hypoglycemia in children and adolescents with diabetes. *Pediatr Diab.* 2014;15(Supplement 20):180–192.
- Martin D, Lange K, Sima A, et al. Recommendations for Age-appropriate Education of Children and Adolescents with Diabetes and Their Parents in the European Union. *Pediatr Diab.* 2012;13(Supplement 16):20–8.

About Novo Nordisk

Goals of diabetes education is part of the *With you all the way* paediatric support programme funded by Novo Nordisk, and provides practical information on diabetes and its management for healthcare providers, parents and their children.

Novo Nordisk is a global healthcare company with more than 90 years of innovation and leadership in diabetes care.

Visit www.novonordisk.co.uk for more information.

Visit www.with-you-all-the-way.co.uk/HCP to download other *With you all the way* resources.



About the National Children and Young People's Diabetes Network

Goals of diabetes education is endorsed by the National Children and Young People's Diabetes Network, which is committed to the education of children with diabetes and the HCPs who treat them.

Please visit www.cypdiabetesnetwork.nhs.uk for more details.

References:

1. National Institute for Health and Care Excellence (NICE). Diabetes (type 1 and type 2) in Children and Young People: Diagnosis and Management 2015 (NG 18).
2. Kalyva E, Malakonaki E, Eiser C, et al. Health-related quality of life (HRQoL) of children with type 1 diabetes mellitus (T1DM): Self and Parental Perceptions. *Pediatr Diab.* 2011;12(1):34–40.



Resources relevant for 6–7 year olds



Guide for healthcare professionals

This guide outlines the goals of diabetes education for your **6–7 year old** patients. Use this guide as part of a narrative discussion with your patients to assess their learning.



Handout for parents

This handout is designed to explain to parents what their children need to know about the management of diabetes. It has been tailored to the educational needs of **6–7 year olds**. Photocopy the handout page and provide to parents to take home.



Record sheets

Record sheets are provided to help you evaluate and monitor your patients' understanding of their diabetes. Complete the record sheet over the course of the two-year period, reflecting each patient's gradual achievement of the learning goals over that time.



Goals for 6–7 year olds

GUIDE FOR HEALTHCARE PROFESSIONALS

General Educational Level

To achieve the educational goals of this age group, educators should pay special attention to the child's knowledge of colours and numbers that will be used during teaching. It is also important to take into account whether the child understands the concept of time, and if they can tell the time on a watch, since this influences how much prompting will be required by adults.

Psychological Development Level

6- and 7-year-olds are curious and active investigators. Some are ready to learn, while others focus more on play. Imagination is important. Children at this stage tend to take literally what others say to them. Girls can often be more mature than boys.

Educational Goals

At this stage, parents/carers are responsible for the child's daily diabetes care.

Parents/carers should be encouraged to model good diabetes care and to vocalise what they are doing with their child rather than just doing it to them. Social learning theory, which provides the foundation for behaviour modelling, asserts that most behaviours are learned by observation and modelling. The child should be encouraged to help.

Diabetes in General

Children should be able to state in their own words that:

- They have diabetes.
- Their body needs insulin.
- They know where on their body they can inject insulin.
- When they take insulin and eat regularly they feel well and can do the same things as other children.

Children should know that:

- Diabetes is a lifelong condition that will never go away.
- Diabetes is not contagious.
- No-one knows for sure why some people get diabetes.
- It is not their fault or anybody else's fault that they have diabetes.



Food

Children should:

- Know the number of meals they need while at school and/or whilst with other carers.
- Know when to eat. For example, they may snack during a certain break in the day's activities or when an adult reminds them.
- Start to recognise foods and drinks that contain carbohydrates and start to understand that carbohydrates must be counted.¹
- Know that when sweets/chocolate are offered, they should explain that they have diabetes. If unsure about what to do, then they should know who to ask for help.
- Recognise which types of drinks they can consume freely without affecting their blood glucose levels.

Exercise

If the child participates in sports, it is the parent's responsibility to supply extra food or adjust the insulin dose accordingly.

- NICE recommends additional carbohydrate intake if blood glucose is <7 mmol/l prior to exercise.¹
- Parents should understand that if blood glucose levels are >14 mmol/l before exercise, they should also do a ketone test.²
- If ketones are present, children should not take part in physical activity and parents/carers may need to contact their diabetes care team.³

Children should:

- Be aware of the relationship between food, exercise and insulin.
- Be aware that active play and exercise can be fun as well as good for their health.

Insulin

Insulin administration for 6- and 7-year-olds is the parent's responsibility.

With supervision, children on injection therapy may help by:

- Finding the insulin device.
- Preparing the units of insulin.
- Pointing out where the insulin should be injected.
- Counting to 10 after the injection.⁴

Children should also be encouraged to:

- Use all available injection/infusion sites and not develop any favourites.
- Occasionally administer an injection under adult supervision.

If on an insulin pump, children should start to push the buttons on their pump.

Blood Glucose Testing

Blood glucose testing is the parent's responsibility.

Children should:

- Help in using the blood glucose meter under adult supervision.
- Be able to explain that the blood glucose test shows how much glucose is in their blood.

Low Blood Glucose (Hypoglycaemia)*

Some young children may not have good awareness of hypoglycaemia.

Children should:

- Be encouraged to say how they are feeling when their blood glucose is low. This will help them recognise their individual symptoms.
- Know that if they experience symptoms of low blood glucose, they must tell an adult straight away.

Children should help the adult with the following steps, where appropriate:

- Testing their blood glucose to confirm that they are experiencing hypoglycaemia.
- Taking glucose tablets or a sugary drink.¹
- Re-testing their blood glucose 15 minutes later to confirm recovery.¹
- Taking a snack if they are not due to eat a meal or are about to exercise.¹

Families should have an opportunity to revise how to use glucagon annually, and be prompted to check the expiration date of stored glucagon regularly.

High Blood Glucose (Hyperglycaemia)*

Children should start to recognise when their blood glucose numbers are too high and when to ask for help from an adult.

Parents should keep records of their child's blood glucose levels and insulin doses. They should understand that this is to monitor diabetes control and adjust the insulin dose as required, and that this is a very important task.

Illness

Parents should monitor the child's ketone levels during illness (even if blood glucose is not out of range), ensure that the child takes fluids and eats, and recalculate insulin doses if necessary.¹

Children should know that they should always turn to an adult for help if they feel ill.

Revisit this advice with the child and their parents/carers at least annually.¹

Emotional Wellbeing

Children should:

- Know who they can talk to if they are feeling sad or worried or have problems with friends, and that this is not uncommon.
- Be supported to feel confident in the management of their diabetes in school.
- Feel confident in the help and support they receive.

Families/carers should:

- Know if there is a clinical psychologist available as part of the healthcare team, what the psychologist does and how they might be able to help.¹

The child should be psychologically assessed each year to see if emotional support is required.

* The diabetes care team should have agreed target blood glucose levels for individuals and definitions of hypoglycaemia and hyperglycaemia. NICE suggests 4–7 mmol/l on waking and pre-meals, and 5–9 mmol/l post-meals.¹

References:

1. National Institute for Health and Care Excellence (NICE). Diabetes (type 1 and type 2) in Children and Young People: Diagnosis and Management 2015 (NG 18).
2. Diabetes UK. Sport and Blood Sugar Levels. Available at: www.diabetes.co.uk/diabetes-sport-and-blood-sugar.html. Last accessed: November 2015.
3. Diabetes UK. Top Physical Activity Tips. Available at: www.diabetes.org.uk/Information-for-parents/Living-with-diabetes-new/Physical-activity/Top-physical-activity-tips. Last accessed: November 2015.
4. Diabetes Care in the UK. FIT UK Forum for Injection Technique UK. The UK Injection Technique Recommendations; 3rd Edition. 2015.



Goals for 6–7 year olds

HANDOUT FOR PARENTS

Diabetes Knowledge

Your child should be able to say in their own words:

- That they have diabetes.
- That their body needs insulin.
- Where on the body they can inject insulin.
- That when they receive insulin and eat regularly, they feel well and can live like other children.

Your child should know that:

- They will always have diabetes.
- Diabetes cannot be caught from other people (not contagious).
- No one knows for sure why some people get diabetes.
- It is not their fault, nor anybody else's fault, that they have diabetes.

A Few Words About This Age Group

- Your child will be curious, active and ask you many questions. They will enjoy playing, be imaginative and may like to learn. You will have to explain many things to your child so that they can understand what is going on.
- Your child may know how to recognise numbers up to 10 and a few letters. At this age it is normal to not understand the concept of time or be able to tell the time. Your child may not yet know all the colours.

As a parent/carer you are responsible for taking care of your child's diabetes.

You are encouraged to model good diabetes care and to vocalise what you are doing with your child rather than just doing it to them. Social learning theory, which provides the foundation for behaviour modelling, asserts that most behaviours are learned by observation and modelling. Your child should be encouraged to help you under supervision.

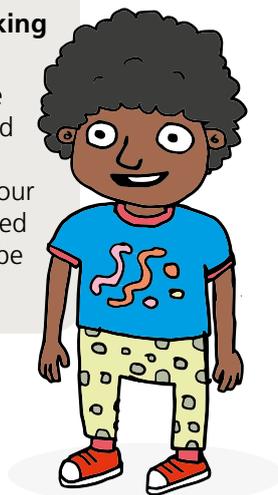


ALEX SILVERBERG
Alex has type 1 diabetes

Food

Your child should:

- Know the number of meals they need.
- Know when to eat at school or at nursery, and that they may snack during school breaks or when an adult reminds them.
- Start to recognise food and drinks that contain carbohydrates and start to understand that carbohydrates must be counted.
- Explain that they have diabetes when sweets are offered, and understand that they can either eat a small number and take the rest home, or take them all home.
- Know what types of drinks they can have freely without affecting their blood glucose levels.



Exercise

If your child participates in sports, it is your responsibility as a parent or carer to supply extra food or adjust the insulin dose accordingly. The target blood glucose pre-exercise is _____mmol/l. Do not exercise if ketones are above _____mmol/l.

- Blood glucose levels should be checked before exercise and active play.
- If blood glucose is less than 7 mmol/l, your child should take additional carbohydrate before exercising.
- If blood glucose levels are more than 14 mmol/l before exercise, your child's blood should be tested for ketones.
- Your child should be able to explain in simple terms the relationship between food, exercise and insulin.
- It is your responsibility as a parent or carer to encourage active play and exercise.

Insulin

Insulin administration is the parent's responsibility.

- You may encourage your child to assist by allowing them to prepare the pen device, point out the injection site, then count to 10 once the insulin is delivered.
- At this age, your child can be encouraged to inject themselves, but always under supervision.
- You should encourage your child to use all available injection/infusion sites and not develop any favourites.
- If your child uses an insulin pump they may be able to button-push under your supervision.

Blood Glucose Testing

- Your child may assist with blood glucose testing, but only under the supervision of an adult.
- Your child should know that the blood glucose test shows how much glucose is in their blood.

Hypoglycaemia or HYPO = Low Blood Glucose Level (less than _____mmol/l)

Children who have experienced a low blood glucose level should be able to describe their symptoms in their own words.

They should also know that:

- They have to tell an adult how they feel straight away.
- Their blood glucose level has to be tested to confirm that they are hypoglycaemic.
- They have to take glucose tablets or a sugary drink.
- Their blood glucose level should be re-tested 15 minutes later to confirm recovery.
- They may need to take a snack if they are not due to eat a meal or snack or about to exercise.

You should have an opportunity to revise how to use glucagon annually, and check the expiration date of stored glucagon regularly.

Hyperglycaemia or HYPER = High Blood Glucose Level (more than _____mmol/l)

Children should start to recognise when their blood glucose numbers are too high and ask for help from an adult.

You must keep records of your child's blood glucose readings and current insulin doses.

This is very important because it enables diabetes control to be assessed and adjustments to be made to the insulin dose.



Illness

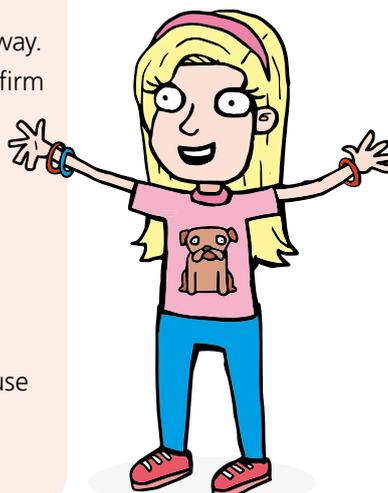
Know the sick day rules:

- Monitor your child's blood glucose levels and ketone levels (even if their blood glucose is not out of range).
- Adjust your child's insulin regimen, if necessary.
- Ensure that your child takes fluids and eats during illness.
- Ask for advice and help if you have any concerns.

Emotional Wellbeing

- You and your child can get 'fed up' with diabetes at times, or may have worries about diabetes. This is quite normal.
- Your child may also experience unwanted comments or bullying in school.
- You may be able to access support from a clinical psychologist if there is one attached to your diabetes team.

Your child should be psychologically assessed each year to see if emotional support is required.





RECORD SHEET FOR PATIENTS AGED 6–7 years

Name:

Instructions for use:

Use this sheet to log the level of knowledge and skill of your patients.
 It is recommended that a maximum of two 'goals to work towards' should be set on each occasion, with progress towards achieving these reviewed regularly.
 Provide the parents of your patients with a copy to take home each time it is updated.

Competency in achieving goals is defined as follows:

Fully achieved:

The patient demonstrates complete competence and confidence in fulfilling the educational goal outlined in the first column.

Partially achieved:

The patient has a partial understanding and/or some level of confidence relating to the educational goal.

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Diabetes Knowledge It is understood that parents/carers are responsible for taking care of their child's diabetes, but that their child may be allowed to assist under their supervision. The child should be able to say in their own words:					
• That he or she has diabetes.					
• That their body needs insulin.					
• Where on their body they can inject their insulin.					
• When they receive insulin and eat regularly, they feel well and can live like other children.					
The child should know that:					
• They will always have diabetes.					
• Diabetes cannot be caught from other people (not contagious).					
• No-one knows for sure why some people get diabetes.					
• It is not their fault, nor anybody else's fault, that they have diabetes.					



RECORD SHEET FOR PATIENTS AGED 6–7 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Food					
<ul style="list-style-type: none"> The child should know the number of meals they need, and when to eat at school or at nursery. 					
<ul style="list-style-type: none"> They may snack during school breaks or when an adult reminds them. 					
<ul style="list-style-type: none"> The child should start to recognise carbohydrate-containing foods and drinks at mealtimes, and start to understand that the carbohydrates in this food are counted. 					
<ul style="list-style-type: none"> When sweets are offered, the child should explain that they have diabetes. 					
<ul style="list-style-type: none"> If sweets are offered, the child can either eat a small amount and take the rest home or take them all home. 					
<ul style="list-style-type: none"> The child should know what types of drinks they can have freely without affecting their blood glucose levels. 					
Exercise					
<p>It is understood that it is the parent's responsibility to encourage active play and exercise, and that if the child participates in sports, it is the parent's responsibility to supply extra food or adjust the insulin dose accordingly. Your child's target blood glucose pre-exercise is _____mmol/l. Do not exercise if ketones are above _____mmol/l.</p> <p>The child should know that:</p>					
<ul style="list-style-type: none"> Blood glucose levels should be checked before exercise and active play. 					
<ul style="list-style-type: none"> If they participate in sports, they understand that it is the responsibility of their parent/carer to supply extra food and adjust the insulin dose if needed. 					
<ul style="list-style-type: none"> It is good if they can explain, in simple words, the relationship between food, exercise and insulin. 					
Insulin					
<p>It is understood by all that insulin administration is the parent's responsibility.</p>					
<ul style="list-style-type: none"> The parent/carer may allow the child to assist in preparing the pen device, pointing out the injection site to be used, then counting to 10 once the insulin is delivered. 					
<ul style="list-style-type: none"> At this age, the child can be encouraged to inject themselves, but always under supervision. 					
<ul style="list-style-type: none"> The parent/carer should encourage their child to use all available injection/infusion sites and not develop any favourites. 					
<ul style="list-style-type: none"> If the child uses an insulin pump, they may be able to button-push under supervision. 					
Blood Glucose Testing					
<ul style="list-style-type: none"> The child may assist with blood glucose testing, but only under the supervision of an adult. 					
<ul style="list-style-type: none"> The child should know that the blood glucose test shows how much glucose is in their blood. 					



RECORD SHEET FOR PATIENTS AGED 6–7 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Hypoglycaemia or HYPO (blood glucose level less than _____mmol/l) Children who have experienced a low blood glucose level should be able to describe their symptoms. They should know that:					
• They have to tell an adult how they feel straight away.					
• Their blood glucose must be tested to confirm that they are hypoglycaemic.					
• They have to take glucose tablets or a sugary drink.					
• Their blood glucose should be retested 15 minutes later to confirm recovery.					
• They should also take a snack if they are not due to eat a meal or snack, or about to exercise.					
• It is understood by parents/carers that they will have the opportunity to revise how to use glucagon annually, and must check the expiration date of stored glucagon regularly.					
Hyperglycaemia or HYPER (blood glucose level more than _____mmol/l) The child should start to recognise when their blood glucose numbers are too high. It is understood by parents/carers that they must keep records of the child's blood glucose levels and insulin doses in order to monitor blood glucose control and to help them adjust the insulin dose as required. It is understood that this is a very important task.					
Illness					
• The child should know that they must always turn to an adult for help if they feel ill.					
Emotional Wellbeing					
• The child should understand that they – and their parents/carers – can get 'fed up' with diabetes at times, or have worries about diabetes.					
• The child should understand that they may experience unwanted comments or bullying in school.					
• The child should feel supported by a clinical psychologist attached to their team (if available).					

Record any other education provided or notes here:



Authorisation date:

Date of next revision:





Resources relevant for 8–9 year olds



Guide for healthcare professionals

This guide outlines the goals of diabetes education for your **8–9 year old** patients. Use this guide as part of a narrative discussion with your patients to assess their learning.



Handout for parents

This handout is designed to explain to parents what their children need to know about the management of diabetes. It has been tailored to the educational needs of **8–9 year olds**. Photocopy the handout page and provide to parents to take home.



Record sheets

Record sheets are provided to help you evaluate and monitor your patients' understanding of their diabetes. Complete the record sheet over the course of the two-year period, reflecting each patient's gradual achievement of the learning goals over that time.

8-9 years





Goals for 8–9 year olds

GUIDE FOR HEALTHCARE PROFESSIONALS

General Educational Level

To achieve the educational goals of this age group, educators should pay special attention to the child's knowledge of numbers that are used during teaching.

Psychological Development Level

Children are very motivated to learn new things. Many are preoccupied with making things look right and with doing homework correctly. During this period, children are very ambitious and have a clear sense that older children can do more. It is important to support the child's self-esteem but not expect more than he or she is capable of at this age, even if the child believes otherwise.

Educational Goals

Parents/carers still have primary responsibility for daily diabetes care.

At this stage, the child takes over an increasing part of the practical responsibility for daily diabetes care. Parents/carers should be encouraged to model good diabetes care and to vocalise what they are doing with their child rather than just doing it to them. Social learning theory, which provides the foundation for behaviour modelling, asserts that most behaviours are learned by observation and modelling. The child should be encouraged to help as much as possible.



ALEJANDRO KULICK
Alejandro has type 1 diabetes

Diabetes in General

Children should be able to state in their own words that:

- They have diabetes.
- Their body needs insulin because it does not produce it.
- They know where on their body they can inject insulin.
- When they take insulin and eat regularly they feel well and can do the same things as other children.

Children should know that:

- Diabetes is a lifelong condition that will never go away.
- Diabetes is not contagious.
- No-one knows for sure why some people get diabetes.
- It is not the child's or anybody else's fault that he or she has diabetes.

Food

Children should:

- Know the number of meals they need at school and/or at after-school care.
- Know when to eat. For example, they may snack during a certain break in the day's activities, when a pre-set alarm on their watch beeps or when an adult reminds them.
- Start to recognise foods and drinks that contain carbohydrates and start to understand that carbohydrates must be counted.¹
- Know how many portions of fruit and vegetables should be eaten per day.¹
- Know which foods should be limited and the best time to eat them.
- Recognise types of drinks they can drink freely without affecting their blood glucose.

Exercise

If the child participates in sports, it is the parent's responsibility to supply extra food or adjust the insulin dose accordingly.

- NICE recommends additional carbohydrate intake if blood glucose is <7 mmol/l prior to exercise.¹
- Parents/carers should understand that if blood glucose levels are >14 mmol/l before exercise, they should also do a ketone test.²
- If ketones are present, the child should not take part in physical activity and may need to contact their diabetes care team.³

Children should:

- Be able to explain that exercise requires additional food and/or an adjusted insulin dose.
- Be aware that active play and exercise is fun as well as good for their health.

Insulin

The insulin dose and when to inject insulin is still the parent's responsibility.

Children should know:

- What types of insulin they take and when they take each type.
- The importance of injection/infusion site care.
- That the mealtime dose of insulin will vary based on how much carbohydrate is eaten.

If on an insulin pump, children should be taught to self-inject/button-push their pump under supervision.

Blood Glucose Testing

By now children should:

- Know why their blood glucose must be tested.
- Be able to use their blood glucose meter by themselves, **but the result should be assessed and recorded by a parent/carer.**
- Be encouraged to take part in conversations about what HbA_{1c} is and their individualised HbA_{1c} target regularly.¹

Low Blood Glucose (Hypoglycaemia)*

Children should know:

- The importance of recognising their own symptoms of low blood glucose levels.
- They have to tell an adult how they feel straight away.
- Their blood glucose has to be tested to confirm that they are hypoglycaemic.
- They have to take glucose tablets or a sugary drink.¹
- How much glucose they need to correct the situation.
- Their blood glucose should be re-tested 15 minutes later to confirm recovery.¹
- They should also take a snack if they are not due to eat a meal or snack or about to exercise.¹

Families should have an opportunity to revise how to use glucagon annually, and be prompted to check the expiration date of stored glucagon regularly.

High Blood Glucose (Hyperglycaemia)*

Children should be able to:

- Tell when their own blood glucose reading is too high, and realise that they must tell an adult about it.
- Realise the importance of testing for ketones at this time.¹

Illness

Parents/carers should monitor the child's ketone levels during illness (even if blood glucose is not out of range), ensure that the child takes fluids and eats, and recalculate insulin doses if necessary.¹

Children should know:

- That special 'sick day rules' apply when they are ill and have a fever.
- That they should always turn to an adult for help if they feel ill.
- The importance of testing for blood ketones at this time, even if their blood glucose is not out of range.¹

Revisit this advice with the child and their parents/carers at least annually.¹



ALEJANDRO KULICK
Alejandro has type 1 diabetes

Eating or Sleeping Away From Home

- Since insulin doses and injection sites remain the parent's responsibility at this age, arrangements must be made to help the child with their diabetes management before the child spends a night or weekend away from home.
- **Parents/carers should ensure that another adult will be present who can assume responsibility for the child's diabetes care.**
- **Parents/carers should give guidance to host parents on suitable foods or snacks for their child.**
- As the child is becoming more socially independent and may be moving out into different situations, it is advisable for them to carry some form of identification stating that they have been diagnosed with diabetes and require insulin.

Emotional Wellbeing

Children should:

- Know who they can talk to if they are feeling sad or worried or have problems with friends.
- Feel confident in the management of their diabetes in school and the help and support they receive.
- Be given the opportunity to discuss any concerns they have about the day-to-day management of their diabetes.¹

Parents/carers should:

- Know if there is a clinical psychologist available as part of the healthcare team, what the psychologist does and how they might be able to help.¹

The child should be psychologically assessed each year to see if emotional support is required.

* The diabetes care team should have agreed target blood glucose levels for individuals and definitions of hypoglycaemia and hyperglycaemia. NICE suggests 4–7 mmol/l on waking and pre-meals, and 5–9 mmol/l post-meals.¹

References:

1. National Institute for Health and Care Excellence (NICE). Diabetes (type 1 and type 2) in Children and Young People: Diagnosis and Management 2015 (NG 18).
2. Diabetes UK. Sport and Blood Sugar Levels. Available at: www.diabetes.co.uk/diabetes-sport-and-blood-sugar.html. Last accessed: November 2015.
3. Diabetes UK. Top Physical Activity Tips. Available at: www.diabetes.org.uk/Information-for-parents/Living-with-diabetes-new/Physical-activity/Top-physical-activity-tips. Last accessed: November 2015



Goals for 8–9 year olds

HANDOUT FOR PARENTS

Diabetes Knowledge

Your child should be able to say in their own words:

- That they have diabetes.
- That their body needs insulin because it cannot make enough by itself.
- Where on the body they can inject insulin.
- That they can feel well and live like other children when they eat regularly, receive insulin and keep their blood glucose level steady.

Your child should know that:

- They will always have diabetes.
- Diabetes is not caught from other people (not contagious).
- No one knows for sure why some people get diabetes.
- It is not their fault, nor anybody else's fault, that they have diabetes.

A Few Words About This Age Group

- Your child will be motivated to learn new things.
- They will concentrate on having things 'look right' and will ensure their homework is done correctly.
- They may be ambitious, but it is important that adults do not demand more than they can handle at this age.
- They may know numbers up to 1,000.
- They will understand the concept of time and tell the time.
- Towards the end of this period, your child will be learning the units of measurement, such as metres, grams and litres.

Your child will begin to take more practical responsibility for their diabetes care, but you are still responsible.

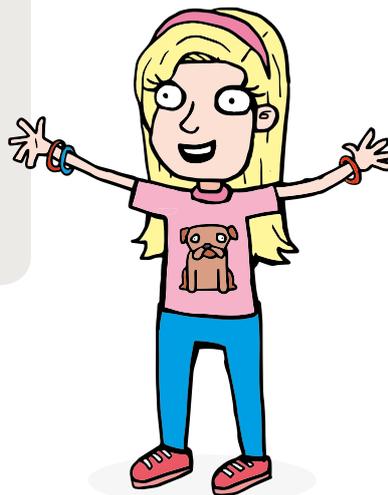


KELLY HECTOR
Kelly has type 1 diabetes

Food

Your child should:

- Know the number of meals they need at school and after school, and when food should be eaten.
- Start to recognise food and drinks that contain carbohydrates and start to understand that carbohydrates must be counted.
- Know which foods should be limited in quantity and the best time to eat them.
- Know how many portions of fruit and vegetables they should eat per day.
- Be able to recognise types of drinks they can drink freely without affecting blood glucose levels.



Exercise

If your child participates in sports, it is your responsibility as the parent or carer to supply extra food or adjust the insulin dose accordingly. Your child's target blood glucose pre-exercise is _____ mmol/l. Do not exercise if ketones are above _____ mmol/l.

- Blood glucose levels should be checked before exercise and active play.
- If this shows a blood glucose level of less than 7 mmol/l, your child should take additional carbohydrate.
- If blood glucose levels are more than 14 mmol/l before exercise, your child's blood should be tested for ketones (as exercise can increase the production of ketones).
- Your child should understand that exercise and sports require more food intake and possibly less insulin.
- It is your responsibility as a parent or carer to encourage active play or exercise for at least 60 minutes per day.

Insulin

Insulin administration is the parent's responsibility.

- You may encourage your child to assist by allowing them to prepare the pen device and point out the injection site to be used.
- At this age, your child can be encouraged to inject themselves, but always under supervision.
- If using an insulin pump, your child can start to push the buttons under supervision.
- You should supervise good injection/infusion site care, including the rotation of injection/infusion sites.
- Your child should understand that the amount of insulin they have at a meal will vary depending how much carbohydrate they eat.

Blood Glucose Testing

- Your child should know that the blood glucose test measures the level of glucose in their blood.
- They should know why it is important to know the level of glucose in their blood.
- Your child should be able to test their own blood glucose levels. **However, you as a parent or carer must evaluate the result.**
- **You must keep records of your child's blood glucose readings and current insulin doses. This is very important because it enables diabetes control to be assessed and adjustments to be made to the insulin dose.**

Hypoglycaemia or HYPO = Low Blood Glucose Level (less than _____ mmol/l)

Your child should know their own symptoms of a low blood glucose level and know how much glucose (or a similar source of sugar) is needed to correct the situation.

They should also know that:

- They have to tell an adult how they feel straight away.
- Their blood glucose has to be tested to confirm that they are hypoglycaemic.
- They have to take glucose tablets or a sugary drink.
- Their blood glucose should be re-tested 15 minutes later to confirm recovery.
- They should also take a snack if they are not due to eat a meal or snack or about to exercise.

You should have an opportunity to revise how to use glucagon annually, and check the expiration date of stored glucagon regularly.

Hyperglycaemia or HYPER = High Blood Glucose Level (more than _____ mmol/l)

- Your child should know when the blood glucose level is reading too high and inform an adult.
- They should realise the importance of testing for ketones at this time.





KELLY HECTOR
Kelly has type 1 diabetes

Illness

Know the 'sick-day rules':

- Monitor your child's blood glucose levels and ketone levels (even if their blood glucose is not out of range).
- Adjust your child's insulin regimen, if necessary.
- Ensure that your child takes fluids and eats during illness.
- Ask for advice and help if you have any concerns.

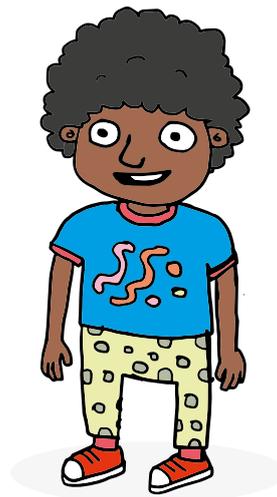
Eating or Sleeping Away from Home

- Your child can now inject insulin by themselves; however, **the insulin doses and when to inject are still your responsibility.**
- When your child is away from home, correctly instructed adults must be there to supervise at all times.
- Give guidance to these adults about suitable foods and drinks.
- As your child is becoming more socially independent (and may be moving out into different social situations), it is advisable for them to carry some form of identification, including an emergency contact number, stating that they have been diagnosed with diabetes and require insulin.

Emotional Wellbeing

- You and your child can get 'fed up' with diabetes at times, or may have worries about diabetes. This is quite normal.
- Your child may also experience unwanted comments or bullying in school.
- You may be able to access support from a clinical psychologist if there is one attached to your team.

Your child should be psychologically assessed each year to see if emotional support is required.





RECORD SHEET FOR PATIENTS AGED 8–9 years

Name:

Instructions for use:

Use this sheet to log the level of knowledge and skill of your patients.

It is recommended that a maximum of two 'goals to work towards' should be set on each occasion, with progress towards achieving these reviewed regularly.

Provide the parents of your patients with a copy to take home each time it is updated.

Competency in achieving goals is defined as follows:

Fully achieved:

The patient demonstrates complete competence and confidence in fulfilling the educational goal outlined in the first column.

Partially achieved:

The patient has a partial understanding and/or some level of confidence relating to the educational goal.

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Diabetes Knowledge The child should be able to say in their own words:					
• That they have diabetes.					
• That their body needs insulin.					
• Where on their body they can administer insulin.					
• That they can live like other children and feel well when they eat regularly, take insulin and keep their blood glucose level steady.					
The child should know that:					
• They will always have diabetes.					
• Diabetes cannot be caught from other people (not contagious).					
• No-one knows for sure why some people get diabetes.					
• It is not their fault, nor anybody else's fault, that they have diabetes.					
Food The child should:					
• Know the number of meals they need at school and after school, and when food should be eaten.					
• Start to recognise carbohydrate-containing foods and drinks and that the carbohydrates must be counted.					
• Recognise which foods should be limited in quantity and the best time to eat them.					
• Know how many portions of fruit and vegetables they should eat per day.					
• Recognise types of drinks they can drink freely without affecting blood glucose.					



RECORD SHEET FOR PATIENTS AGED 8–9 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
<p>Exercise</p> <p>It is understood that it is the parent's responsibility to encourage active play and exercise, and that, if the child participates in sports, it is the parent's responsibility to supply extra food or adjust the insulin dose accordingly. Your child's target blood glucose pre-exercise is _____mmol/l. Do not exercise if ketones are above _____mmol/l.</p> <p>The child should know that:</p> <ul style="list-style-type: none"> • Blood glucose levels should be checked before exercise and active play. • Exercise and sports require more food and possibly less insulin. 					
<p>Insulin</p> <p>Insulin administration is the parent's responsibility.</p> <ul style="list-style-type: none"> • Parents/carers may encourage the child to assist by allowing them to prepare the pen device and point out the injection site to be used. • At this age, the child can be encouraged to inject themselves, but always under supervision. • If using an insulin pump, the child can start to button-push under supervision. • The parent/carer should supervise good injection/infusion site care including the rotation of injection/infusion sites. • The child should understand that the amount of insulin they have during the day will vary depending on how much carbohydrate they eat. 					
<p>Blood Glucose Testing</p> <ul style="list-style-type: none"> • The child should know that the blood glucose test measures the level of glucose in the blood. They should know why the test is needed. • The child should be able to test their own blood glucose level. • The parent/carer must evaluate the result. • The parent/carer must keep records of the child's blood glucose readings and current insulin doses. 					



RECORD SHEET FOR PATIENTS AGED 8–9 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Hypoglycaemia or HYPO (blood glucose level less than _____mmol/l)					
The child should know:					
<ul style="list-style-type: none"> Their own symptoms of low blood glucose level and know how much glucose (or a similar source of sugar) they need to correct the situation. 					
<ul style="list-style-type: none"> They have to tell an adult how they feel straight away. 					
<ul style="list-style-type: none"> Their blood glucose must be tested to confirm that they are hypoglycaemic. 					
<ul style="list-style-type: none"> They have to take glucose tablets or a sugary drink. 					
<ul style="list-style-type: none"> Their blood glucose should be retested 15 minutes later to confirm recovery. 					
<ul style="list-style-type: none"> They should also have a snack if they are not due to eat a meal or snack or if they are about to exercise. 					
It is understood by parents/carers that they will have the opportunity to revise how to use glucagon annually, and must check the expiration date of stored glucagon regularly.					
Hyperglycaemia or HYPER (blood glucose level more than _____mmol/l)					
<ul style="list-style-type: none"> The child should know when the blood glucose level is reading too high and inform an adult. 					
<ul style="list-style-type: none"> They should realise the importance of testing for ketones at this time. 					
Illness					
<ul style="list-style-type: none"> The child should know that they must always turn to an adult for help if they feel ill. 					
Eating or Sleeping Away from Home					
It is understood by all that the insulin doses and when to inject are still the parent's responsibility.					
<ul style="list-style-type: none"> The child can now inject insulin by themselves. 					
<ul style="list-style-type: none"> When the child is away from home, correctly instructed adults must be there to supervise at all times. 					
<ul style="list-style-type: none"> Parents/carers must give guidance to these adults regarding suitable foods and drinks. 					
<ul style="list-style-type: none"> As the child is becoming more socially independent (and may be moving out into different social situations), it is advisable for them to carry some form of identification stating that they have been diagnosed with diabetes and require insulin. 					



RECORD SHEET FOR PATIENTS AGED 8–9 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Emotional Wellbeing					
<ul style="list-style-type: none"> Children should understand that they (and their parents/carers) can get 'fed up' with diabetes at times, or have worries about diabetes. 					
<ul style="list-style-type: none"> They should understand that they may experience unwanted comments or bullying in school. 					
<ul style="list-style-type: none"> They should feel supported by a clinical psychologist attached to the team (if available). 					
<ul style="list-style-type: none"> The child should receive a psychological assessment each year. 					

Record any other education provided or notes here:



Authorisation date:

Date of next revision:

Resources relevant for 10–11 year olds



Guide for healthcare professionals

This guide outlines the goals of diabetes education for your **10–11 year old** patients. Use this guide as part of a narrative discussion with your patients to assess their learning.



Handout for young people

This handout is designed to explain to young people what they need to know about the management of diabetes. It has been tailored to the educational needs of **10–11 year olds**. Photocopy the handout page and provide to the young person to take home.



Record sheets

Record sheets are provided to help you evaluate and monitor your patients' understanding of their diabetes. Complete the record sheet over the course of the two-year period, reflecting your patient's gradual achievement of the learning goals over that time.



10-11 years





Goals for 10–11 year olds

GUIDE FOR HEALTHCARE PROFESSIONALS

General Educational Level

To achieve the educational goals of this age group, educators should pay special attention to the child's knowledge of decimals, percentages, fractions and angles (such as 90 degrees).

Psychological Development Level

Friends are very important at this age. Peers provide a group in which children try out new skills – both educationally and socially. Children question their parents' wisdom, opinions and decisions. Girls are often more mature than boys. Girls usually associate with girls and boys with boys. Girls often form a best friendship, while boys tend to associate in groups.

Educational Goals

At this stage, the child should be able to handle the practical aspects of diabetes care, but may not yet be ready to determine insulin doses independently. The child will need background information about the causes, effects and treatment of diabetes. **However, the parent/carer should continue to oversee their diabetes care.**

Diabetes in General

Children should be able to state in their own words that:

- They have diabetes.
- Their body needs insulin because it does not produce it.
- They know the function of insulin.
- When they take insulin and eat regularly they feel well and can do the same things as other children.

Children should know that:

- Diabetes is a lifelong condition that will never go away.
- Diabetes is not contagious.
- No-one knows for sure why some people get diabetes.
- It is not the child's or anybody else's fault that he or she has diabetes.



Food

Children should:

- Know how many regular meals and snacks they need.
- Know when to eat.
- Be able to describe a healthy balanced meal.
- Know how many portions of fruit and vegetables they should eat per day.¹
- Know the best time to eat sweets/chocolate and how to incorporate them into a healthy diet.
- Be able to identify different sources of carbohydrate such as sucrose, lactose, fructose and starch.
- Be able to count carbohydrates by using simple food labels or visual carbohydrate counting resources.¹

Exercise

If the child participates in sports, it is the parent's responsibility to supply extra food or adjust the insulin dose accordingly.

- NICE recommends additional carbohydrate intake if blood glucose is <7 mmol/l prior to exercise.¹
- Parents/carers should ensure that the child monitors their blood glucose levels before exercise (and ketone levels if blood glucose levels are >14 mmol/l).²
- If ketones are present, the child should not take part in physical activity and may need to contact their diabetes care team.³

Children should:

- Be able to take precautions to avoid hypoglycaemia independently when exercising.
- Understand how food, exercise and insulin are related.
- Understand that they should be active for at least 60 minutes per day.

Insulin

Children should:

- Be able to administer their insulin independently by injection or pump.
- Know when to administer insulin and how to care for injection/infusion sites.
- Know the names and doses of their insulins, but not yet adjust insulin doses fully independently.
- Know how to store their insulins.
- Develop the skills needed to perform an infusion set change if using an insulin pump.

Blood Glucose Testing

Children should be able to:

- Explain that blood glucose testing is to ensure that it is within appropriate limits; neither too high nor too low.
- Know that their blood glucose levels should be tested regularly.
- Identify the most important blood testing times.
- Use the blood glucose meter by themselves.
- Understand the target range for their blood glucose levels.
- Explain the relationship between food, exercise, insulin and blood glucose level.
- Use a bolus advisor on a meter if applicable to their regimen.

Children should also be encouraged to take part in conversations about their individualised HbA_{1c} target.¹

Low Blood Glucose (Hypoglycaemia)*

Children should:

- Know when their blood glucose level should be tested and know at what glucose level they should act.
- Be able to explain the reasons for low blood glucose levels.
- Recognise their own symptoms of low blood glucose levels.
- Be able to treat low blood glucose levels independently by taking glucose tablets or another suitable form of glucose.¹
- Know to re-check blood glucose 15 minutes later and take more glucose if blood glucose has not recovered sufficiently.¹
- Know that they may require a snack if their next meal is more than 1–2 hours away, or if they are about to exercise.¹
- Understand that they cannot always rely on warning signs and symptoms and must test their blood glucose if possible.

Families should have an opportunity to revise how to use glucagon annually, and be prompted to check the expiration date of stored glucagon regularly.

High Blood Glucose (Hyperglycaemia)*

Children should:

- Be able to identify the possible causes of high blood glucose levels.
- Be able to identify symptoms of high blood glucose levels.
- Know that if they have certain symptoms that they should perform both a blood glucose test and also test for the level of blood ketones.¹
- Know that if their blood glucose level is too high or that blood ketones are present they must inform an adult immediately.

Illness

Parents should monitor the child's ketone levels during illness (even if blood glucose is not out of range), ensure that the child takes fluids and eats, and recalculate insulin doses if necessary.¹

Children should know:

- That special 'sick day rules' apply when they are ill and have a fever.
- That they should always turn to an adult for help.
- The importance of testing for blood ketones at this time, even if their blood glucose is not out of range.¹

Revisit this advice with the child and their parents/carers at least annually.¹



VINCENT REVO LONDA
Vincent has type 1 diabetes

Long-term Complications

- It should be emphasised to children that complications in the eyes, kidneys, nervous system and circulatory system can be prevented with good diabetes control.¹
- This is to be discussed in the context of the NICE target of HbA_{1c} <48 mmol/l (6.5%)¹ and their individual HbA_{1c} target.
- This information will help children understand the need for foot care and other necessary routine investigations in diabetes management.
- Good information can also help to allay fears when children hear about serious illnesses related to the long-term complications of diabetes.

Eating or Sleeping Away From Home

- Children of this age should be able to handle staying away from home for a few days on their own, but an adult should still be responsible for their overall diabetes care.
- As the child is becoming more socially independent (and may be moving out into different situations), it is advisable for them to carry some form of identification stating that they have been diagnosed with diabetes and require insulin.

Moving to Secondary School

Children will be entering their first transition as they move to secondary school. They should:

- Be informed of the changes they might experience in their school day.
- Be advised how to manage these changes, including using public transport and coping with the cafeteria.

Emotional Wellbeing

Children should:

- Know who they can talk to if they feel sad, worried or angry, or if they are experiencing friendship issues or bullying. They should also know that this happens to other children.
- Feel confident in the management of their diabetes in school, and in the help and support they receive.
- Be given the opportunity to discuss any concerns they have about the day-to-day management of their diabetes.¹
- Know to ask for support from their diabetes team if any aspects of their diabetes care are causing major conflict at home or with peers.¹
- Know if there is a clinical psychologist available as part of the team, understand what the psychologist does and how they might be able to help them.¹

Children should be psychologically assessed each year to see if emotional support is required.

* The diabetes care team should have agreed target blood glucose levels for individuals and definitions of hypoglycaemia and hyperglycaemia. NICE suggests 4–7 mmol/l on waking and pre-meals, and 5–9 mmol/l post-meals.¹

References:

1. National Institute for Health and Care Excellence (NICE). Diabetes (type 1 and type 2) in Children and Young People: Diagnosis and Management 2015 (NG 18).
2. Diabetes UK. Sport and Blood Sugar Levels. Available at: www.diabetes.co.uk/diabetes-sport-and-blood-sugar.html. Last accessed: November 2015.
3. Diabetes UK. Top Physical Activity Tips. Available at: www.diabetes.org.uk/Information-for-parents/Living-with-diabetes-new/Physical-activity/Top-physical-activity-tips. Last accessed: November 2015.



Goals for 10–11 year olds

HANDOUT FOR YOUNG PEOPLE AND PARENTS

Your diabetes is a shared responsibility between you and your parents or carers, so please use this document together with them.

General Diabetes Knowledge

You should be able to handle most practical aspects of your diabetes care, but you will not yet be able to adjust your insulin doses by yourself. You should know how insulin works and that it lowers your blood glucose level after a meal.

You will still need some background information about diabetes from your parents or carers, and they will continue to oversee your diabetes care.

Food

You should:

- Know the number of meals you need at school and after school, and when you should eat food.
- Know how many sweets you are allowed to eat as part of a healthy balanced diet.
- Be able to give examples of well-balanced meals and know how many portions of fruit and vegetables you should eat a day.
- Be able to give examples of different types of carbohydrate, like glucose, fructose, sucrose, lactose and starch.
- Start to learn how to count carbohydrates in different foods with help from your parents or carers.

Exercise

- You should know that blood glucose levels should be checked before exercise.
- You should know which readings mean you need to take a ketone test and which readings mean you need to eat more carbohydrate before exercising.
- Your target blood glucose pre-exercise is _____mmol/l. Do not exercise if ketones are above _____mmol/l.
- You should know what precautions to take when exercising or playing sports.
- You should understand how insulin, food and exercise are related.
- You should do some sort of physical activity for at least 60 minutes a day.



Insulin

You should know:

- When to take insulin – and be able to do it yourself with your pen or pump.
- How to care for your injection/infusion sites, including rotating them and not developing any favourite places to inject.
- Your insulin doses, but you should not change them without speaking to your parents or carers, or your diabetes team.
- Whether your insulin is rapid-acting (quick acting) or long-acting (slow acting).
- How to store your insulin.
- If you use an insulin pump you should also know how to administer an insulin injection by pen and how to help perform an infusion set change.

Blood Glucose Testing

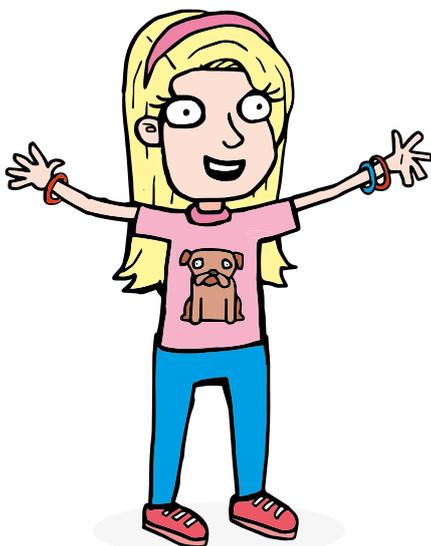
- You should know why your blood glucose level needs to be tested frequently, when to test it and the most important blood testing times.
- You should be able to test your own blood glucose level and use a bolus advisor if needed.
- You should know your target blood glucose level.
- You should be able to explain how your blood glucose level relates to insulin, food and exercise.
- You should take part in conversations about your own HbA_{1c} target.
- **It is important for your parents or carers to keep records of your blood glucose levels and insulin doses to help monitor your blood glucose control and to help you adjust your insulin dose if needed.**

Hypoglycaemia or HYPO = Low Blood Glucose Level (less than _____ mmol/l)

You should:

- Know at what number your blood glucose level is too low.
- Be able to explain the possible reasons for low blood glucose levels.
- Know your own signs of low blood glucose levels.
- Know how to correct low blood glucose with the right number of glucose tablets or a sugary drink.
- Know you should re-check blood glucose levels 15 minutes later and take more glucose if your blood glucose is not yet high enough.
- Know you might need a snack if a meal is more than 1–2 hours away or if you are exercising.
- Understand that you cannot always rely on warning signs and symptoms and must test your blood glucose levels regularly.

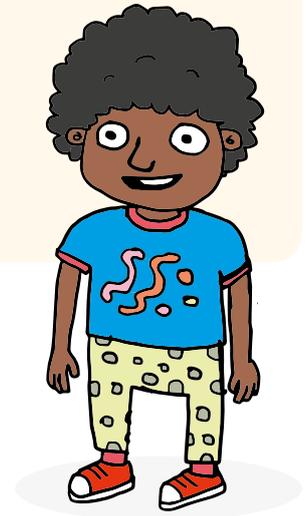
You should have an opportunity to revise how to use glucagon annually, and check the expiration date of stored glucagon regularly.



Hyperglycaemia or HYPER = High Blood Glucose Level (more than _____ mmol/l)

You should:

- Be able to explain the possible reasons for a high blood glucose level.
- Recognise the signs of high blood glucose level.
- Know when your blood glucose level is reading too high.
- Know that you must test your blood glucose level and test your blood for ketones.
- Know that you must tell an adult immediately if your blood glucose level is too high or if ketones are present in your blood.



Illness

You should know that:

- You must inform an adult when you are feeling ill.
- That special 'sick day rules' apply during illness – and what they are.
- Testing for ketones in your blood at this time is important even if your blood glucose is not out of range.
- You need to eat and drink even if you don't feel like it.

Long-term Complications

- You should start to understand why good glucose control is very important.
- Be aware that good glucose control and taking care of yourself – for example taking care of your feet – protects you from getting other diabetes-related illnesses in the future.
- You should start to understand the relationship between your HbA_{1c} levels and long-term complications, and be involved in setting your own HbA_{1c} target with your diabetes team and your parents or carers.



Eating or Sleeping Away from Home

- You should be able to handle a few days away from home as long as an adult is present to supervise your diabetes care at all times.
- As you are becoming more independent and going to more activities, parties and other social occasions, you should carry some form of identification, including a contact number, stating that you have been diagnosed with diabetes and require insulin.

Moving to Secondary School

- You may be living through a time of change as you move from primary to secondary school.
- You should discuss the changes in the timetable of your school day, and how to manage these changes, with your diabetes team.

Your parents or carers should ask for help to increase your independence by developing skills such as using public transport and coping with going to the school cafeteria.

Emotional Wellbeing

- You and your parents or carers can get 'fed up' of diabetes at times or may have worries about it. This is quite normal.
- If you need emotional support or help with managing the impact of diabetes on your life, you may be offered the chance to talk to a clinical psychologist if there is one attached to your diabetes team.
- At least once a year you will be asked questions about your emotional wellbeing to check whether you need any extra support.
- You should have regular opportunities to discuss your thoughts and feelings, including any worries about your diabetes, experiences of bullying or concerns about body image.
- You should ask for help from your parents/carers, or your diabetes team if you start to feel any aspects of your care are becoming too much for you, or if any aspects of your diabetes care are causing major problems at home or with friends.



RECORD SHEET FOR PATIENTS AGED 10–11 years

Name:

Instructions for use:

Use this sheet to log the level of knowledge and skill of your patients.

It is recommended that a maximum of two 'goals to work towards' should be set on each occasion, with progress towards achieving these reviewed regularly.

Provide the parents of your patients with a copy to take home each time it is updated.

Competency in achieving goals is defined as follows:

Fully achieved:

The patient demonstrates complete competence and confidence in fulfilling the educational goal outlined in the first column.

Partially achieved:

The patient has a partial understanding and/or some level of confidence relating to the educational goal.

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Diabetes Knowledge The child should know how insulin works. For example, they should understand that insulin lowers their blood glucose level after a meal. It is understood by all that the child will still need some background information about diabetes from their parents/carers, and that they will continue to oversee their diabetes care.					
Food Children should: <ul style="list-style-type: none"> Know the number of meals they need at school and after school, and when food should be eaten. Know how many sweets they are allowed to eat as part of a healthy, balanced diet. Be able to describe a healthy, balanced meal. Know how many portions of fruit and vegetables they should eat a day. Be able to identify different sources of carbohydrate, such as glucose, fructose, sucrose, lactose and starch. Start to learn how to count carbohydrates with the help of their parents/carers. 					
Exercise Children should: <ul style="list-style-type: none"> Know that their target blood glucose pre-exercise is _____mmol/l. Do not exercise if ketones are above _____mmol/l. Understand how insulin, food and exercise are related. Know that blood glucose levels should be checked before exercise. Know which readings mean that they must take a ketone test, and which readings mean they must eat more carbohydrate before exercising. Know what precautions to take when exercising or playing sports. Engage in some sort of physical activity for at least 60 minutes a day. 					



RECORD SHEET FOR PATIENTS AGED 10–11 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Insulin Children should know:					
• When to administer insulin and be able to do it independently with their pen or pump.					
• Their insulin dosages – but they should also know not to change them without speaking to their parents/carers or diabetes team.					
• How to care for their injection/infusion sites, including rotating their injection/infusion sites and not developing any favourites.					
• Which insulin is rapid (quick) acting, and which is long (slow) acting.					
• How to store their insulin.					
If on an insulin pump they should know:					
• How to administer an insulin injection by pen in case of pump failure, and help to perform an injection/infusion set change.					
Blood Glucose Testing Children should:					
• Know why their blood glucose level is tested frequently, when to test it and the most important blood testing times.					
• Be able to test their own blood glucose level and use a bolus advisor if required.					
• Know what blood glucose level they are aiming to achieve.					
• Be able to explain how their blood glucose level relates to insulin, food and exercise.					
• Take part in conversations about their own HbA _{1c} target.					
It is important for the parent/carer to keep records of their child's blood glucose levels and insulin doses. This is to monitor blood glucose control and to adjust the insulin dose, if needed.					



RECORD SHEET FOR PATIENTS AGED 10–11 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Hypoglycaemia or HYPO (blood glucose level less than _____mmol/l)					
Children should:					
• Know at what number their blood glucose level is too low.					
• Be able to explain the reasons for low blood glucose levels.					
• Know their own symptoms of low blood glucose levels.					
• Know how to correct their low blood glucose level with the right number of glucose tablets or a sugary drink.					
• Know that their blood glucose should be retested 15 minutes later to confirm recovery.					
• Know that they may require a snack if their next meal is more than 1–2 hours away, or if they are exercising.					
• Understand that they cannot always rely on warning signs and symptoms and must test their blood glucose levels regularly.					
It is understood by parents/carers that they will have the opportunity to revise how to use glucagon annually, and must check the expiration date of stored glucagon regularly.					
Hyperglycaemia or HYPER (blood glucose level more than _____mmol/l)					
Children should:					
• Be able to explain the possible reasons for high blood glucose levels.					
• Recognise the signs of high blood glucose.					
• Know that they must test their blood glucose level and test their blood for ketones.					
• Know when their blood glucose level is reading too high.					
• Know that they must inform an adult immediately if their blood glucose level is too high or if ketones are present in their blood.					



RECORD SHEET FOR PATIENTS AGED 10–11 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Illness					
Children should know:					
• That they must inform an adult when they are feeling ill.					
• That special sick day rules apply during illness.					
• That testing for ketones in their blood at this time is important even if their blood glucose is not out of range.					
• That they need to eat and drink even if they don't feel like it.					
• What the results of the tests mean (or begin to understand).					
Long-term Complications					
• The child should start to understand why good glucose control is very important.					
• They should understand the need for good glucose control and that taking care of themselves – for example taking care of their feet – protects them from getting complications in the future.					
• They should start to understand the relationship between HbA _{1c} levels and long-term complications, and agree individual targets with their diabetes team and parents/carers.					
Eating or Sleeping Away from Home					
• The child should be able to handle a few days away from home as long as an adult is present to supervise their diabetes care at all times.					
• As the child is becoming more socially independent (and may be moving out into different situations), it is advisable for them to carry some form of identification stating that they have been diagnosed with diabetes and require insulin.					



RECORD SHEET FOR PATIENTS AGED 10–11 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Moving to Secondary School					
<ul style="list-style-type: none"> The child will be living through a time of change as he or she moves from primary to secondary school. 					
<ul style="list-style-type: none"> The child should discuss how to manage changes in the timetable of their school day with their diabetes team. 					
<ul style="list-style-type: none"> The child should be provided with help to develop independence skills such as using public transport and coping with going to the school cafeteria. 					
Emotional Wellbeing					
Children should understand that:					
<ul style="list-style-type: none"> They can get 'fed up' with diabetes at times, or have worries about their diabetes, and that this is quite normal. 					
<ul style="list-style-type: none"> If they need emotional support or help with managing the impact of their diabetes on their life they will be offered the chance to talk to the clinical psychologist attached to the diabetes team (if available). 					
<ul style="list-style-type: none"> At least once a year, they will be asked questions about their emotional wellbeing to check whether they need any extra support. 					
<ul style="list-style-type: none"> They will have regular opportunities to discuss their thoughts and feelings, including any worries about their diabetes, experiences of bullying or concerns about matters such as body image. 					
<ul style="list-style-type: none"> They can ask for support from their diabetes team if any aspects of their diabetes care are causing major conflict at home or with friends. 					

Record any other education provided or notes here:



Authorisation date:

Date of next revision:



Resources relevant for 12–13 year olds



Guide for healthcare professionals

This guide outlines the goals of diabetes education for your **12–13 year old** patients. Use this guide as part of a narrative discussion with your patients to assess their learning.



Handout for young people

This handout is designed to explain to young people what they need to know about the management of diabetes. It has been tailored to the educational needs of **12–13 year olds**. Photocopy the handout page and provide to the young person to take home.



Record sheets

Record sheets are provided to help you evaluate and monitor your patients' understanding of their diabetes. Complete the record sheet over the course of the two-year period, reflecting your patient's gradual achievement of the learning goals over that time.





12-13 years



Goals for 12–13 year olds

GUIDE FOR HEALTHCARE PROFESSIONALS

General Educational Level

To achieve the educational goals of this age group, educators should take into account the young person's ability to calculate averages and assess the young person's reading ability.

Psychological Development Level

The physical changes of puberty affect young people's feelings about their body and its functions. Appearance is important at this age and most young people like to look like their peers. Relationships between parents/carers and the young person are characterised by the changing needs of independence versus dependence.

Educational Goals

Parents/carers are still required to share the responsibility of diabetes care in a supervisory and supportive capacity.

At this stage, the young person should be able to handle all the practical aspects of diabetes care. The young person should be increasing their background knowledge about diabetes.

Diabetes in General

In order to understand diabetes more completely, young people should know about the:

- Major internal organs.
- Digestive system.
- Function of the pancreas.



CAMERON HUBBARD
Cameron has type 1 diabetes

Food

Young people should:

- Know which foods are best to eat and drink as part of a healthy balanced diet, and the importance of this for growth.
- Be able to read and understand information provided on food labels for carbohydrate counting and for health.¹
- Be familiar with different forms of food sweeteners and be able to name some.
- Be able to join in social activities involving food with peers.
- Learn the skill of counting carbohydrates independently using labels, visual resources and apps.¹

Start to understand that different carbohydrates have different effects on blood glucose, depending on both the quantity and whether it is released slowly or quickly (glycaemic index).

Exercise

Parents/carers should ensure that the young person monitors blood glucose levels (and ketones if blood glucose is >14 mmol/l) before exercising.² If ketones are present, they should not take part in physical activity and may need to contact their diabetes care team.³

Young people should:

- Know that they should be active for at least 60 minutes per day.
- Know that activity and exercise is an important part of diabetes management.
- Be able to adjust food and insulin according to their exercise level, including eating more carbohydrate if pre-exercise blood glucose levels are <7 mmol/l, as recommended by NICE.¹
- Be discussing the importance of testing before, during and after exercise with their parents/carers and healthcare team.¹
- Be aware of the need for therapeutic exemption in some sports when competing at a national level, and advise accordingly.

Insulin

Parents/carers should continue to supervise diabetes care.

Young people should:

- Be able to administer their own insulin.
- In partnership with their parents/carers, gradually take over the responsibility for adjusting insulin doses based on their blood glucose profiles.
- Know how to adjust their dose of rapid-acting insulin, if necessary, before special events such as parties.
- Know how to treat high blood glucose levels.
- Have a greater understanding of the relationship between food, exercise and insulin.
- Understand that their insulin doses will increase rapidly during their rapid growth phase of development.
- Have a full understanding of injection/infusion site care and zonal site rotation.

If they use an insulin pump they should:

- Know how to administer an injection in the event of pump failure.
- Be developing skills in programming the pump.
- Be able to independently perform an infusion set change.



Blood Glucose Testing

Young people should:

- Know the causes and symptoms of both high and low blood glucose levels.
- Be able to explain the implications of their blood glucose readings.
- Know how to prevent and treat high or low blood glucose levels.
- Be able to programme their bolus advisor, with support from parents, if their regimen requires it.
- Be shown the downloads from their meters and/or pumps to enable them to start to understand and interpret the results.

Low Blood Glucose (Hypoglycaemia)*

Young people should know:

- The causes of low blood glucose levels.
- How to avoid low blood glucose levels.
- The symptoms of low blood glucose levels.
- How to treat low blood glucose levels in case they occur.
- How to test for low blood glucose levels on their own and how to obtain help from their parents or the diabetes team.

Families should have an opportunity to revise how to use glucagon annually, and check the expiration date of stored glucagon regularly.

High Blood Glucose (Hyperglycaemia)*

Young people should know:

- The causes of high blood glucose levels.
- How to avoid high blood glucose levels.
- The symptoms of high blood glucose levels.
- How to treat high blood glucose levels when they occur.
- The importance of testing for blood ketones.¹

Illness

Parents/carers are still responsible for diabetes care during illness.

Young people should:

- Know that they must inform an adult if they become ill.
- Be able to check their own blood glucose level.
- Check their own blood for ketones (even if their blood glucose is not out of range) and be able to interpret the results.¹
- Continue to eat and drink, even if they don't feel like it.¹

Revisit this advice with the young person and their parents/carers at least annually.¹

Long-term Complications

- Young people should recognise the direct relationship between blood glucose control and long-term complications of diabetes, in order to understand the importance of excellent diabetes care.
- This is to be discussed in the context of the NICE target of HbA_{1c} <48 mmol/l (6.5%)¹ and their individual HbA_{1c} target.
- Commencement of annual retinopathy screening is recommended.

Eating or Sleeping Away From Homes

- Young people should now be able to manage their diabetes almost entirely independently.
- As a precaution, teachers and other adults should be kept informed of the young person's diabetes care.
- As the young person is now more socially independent, it is advisable for them to carry some form of identification stating that they have been diagnosed with diabetes and require insulin.

Alcohol

Young people should receive practical advice about the special rules that apply when drinking alcohol.

They should know:

- That they should test their blood glucose level before going to bed.
- That they should eat extra food because of the risk of hypoglycaemia.¹
- That there is an increased risk of hypoglycaemia after alcohol consumption, including hypoglycaemia while sleeping, especially after exercise.¹

Parents/carers should be counselled about keeping their young people safe, and be aware that young people may experiment when out with friends.

Smoking

- Young people should be discouraged from starting to smoke.¹
- The effect of smoking on their diabetes should be discussed.¹

If they have started smoking they should receive advice about where to seek support locally to help them stop.

Transition Arrangements

You should start to make local transitional arrangements and set a clear pathway and goals for the young person and parents/carers to achieve.

Social Factors

Young people should be informed about job options, any limitations with respect to job choices and special considerations concerning diabetes and the work environment.

Emotional Wellbeing

Young people should:

- Know who they can talk to if they are upset, worried or experiencing problems with peers.
- Feel confident in the management of their diabetes in school and in the support they receive.
- Feel confident in managing their diabetes outside of the home, particularly in social situations.
- Be given the opportunity to discuss any concerns they have about the day-to-day management of their diabetes.¹
- Know to ask for support from their diabetes team if any aspects of their diabetes care are causing major conflict at home or with peers.¹
- Know if there is a clinical psychologist available as part of the team, understand what the psychologist does and how they might be able to help them.¹

The young person should be psychologically assessed each year to see if emotional support is required.

* The diabetes care team should have agreed target blood glucose levels for individuals and definitions of hypoglycaemia and hyperglycaemia. NICE suggests 4–7 mmol/l on waking and pre-meals, and 5–9 mmol/l post-meals.¹

References:

1. National Institute for Health and Care Excellence (NICE). Diabetes (type 1 and type 2) in Children and Young People: Diagnosis and Management 2015 (NG 18).
2. Diabetes UK. Sport and Blood Sugar Levels. Available at: www.diabetes.co.uk/diabetes-sport-and-blood-sugar.html. Last accessed November 2015.
3. Diabetes UK. Top Physical Activity Tips. Available at: www.diabetes.org.uk/Information-for-parents/Living-with-diabetes-new/Physical-activity/Top-physical-activity-tips. Last accessed November 2015.



Goals for 12–13 year olds

HANDOUT FOR YOUNG PEOPLE

General Diabetes Knowledge

You should know about vital organs such as the heart, kidneys and liver. You should also know about your digestive system and the pancreas.

Food

- You should know which foods and drinks are best to eat for good health and normal growth.
- You should be able to understand food labels for counting carbohydrates and for good health.
- You should feel confident in counting carbohydrates in familiar foods.
- You should understand that the carbohydrates in foods can be slow- or fast-acting (i.e. have a low or high glycaemic index).
- You should be familiar with different types of food sweetener and be able to name some if asked.
- You should be able to join in and eat with your friends.

Exercise

You should understand that:

- That blood glucose levels should be checked before exercise. You should know which readings mean that you need to take a ketone test and which readings mean you need to eat more carbohydrate before exercising.
- Your target blood glucose level pre-exercise is _____mmol/l.
- If your blood glucose level is less than 7 mmol/l, you should take additional carbohydrate before exercising.
- You should not exercise if blood ketones are above _____mmol/l.
- Daily exercise and activity is good for your health, for feeling well and for your diabetes management.
- You should do some physical activity for at least 60 minutes a day.
- You should be able to adjust your insulin dose and your food intake to your level of activity.
- You should discuss the importance of testing before, during and after exercise with your parents or carers and your diabetes team.
- You should be aware of any special rules about the use of your medication in competitive sports at regional or national level.



ANA MIRIAM MÉNDEZ VALDEZ
Ana has type 1 diabetes

Insulin

Your parents or carers should still continue to supervise your diabetes care.

- You should be able to take your daily insulin on your own.
- You should gradually take over responsibility for changing your insulin doses.
- Your insulin doses depend on:
 - Your blood glucose levels.
 - Your food intake.
 - Your level of activity (e.g. exercise levels).
- You should know how to adjust your dose of rapid-acting insulin before special events such as parties.
- You should have a good understanding of the relationship between food, exercise and insulin (see also Alcohol).
- You should understand that your insulin doses will increase rapidly during growth spurts.

If you use an insulin pump you should:

- Start to learn how to programme your pump with the help of your parents or carers.
- Be able to perform an infusion set change on your own.
- Know how to inject insulin with a pen in the event of a pump failure.

Blood Glucose Testing

- You should know the causes and symptoms of both high and low blood glucose levels.
- You should be able to interpret your blood glucose levels.
- You should be able to read your blood glucose levels and use these readings to adjust your insulin dose to control your blood glucose levels.
- If you use a bolus advisor, you should learn how to programme and use all the features of this device.
- You should be shown the download data for your blood glucose readings and/or pump, and be part of any discussions about what they mean.

Hypoglycaemia or HYPO = Low Blood Glucose Level (less than _____mmol/l)

You should know the following:

- The causes of low blood glucose levels.
- How to avoid low blood glucose levels.
- The symptoms of low blood glucose levels.
- How to treat low blood glucose if it occurs.

You can treat your low blood glucose levels on your own, your parents or carers can help, or the diabetes team can help.

You should have an opportunity to revise how to use glucagon annually, and be prompted to check the expiration date of stored glucagon regularly.

Hyperglycaemia or HYPER = High Blood Glucose Level (more than _____mmol/l)

You should know the following:

- The causes of high blood glucose levels.
- How to avoid high blood glucose levels.
- The symptoms of high blood glucose levels.
- How to treat high blood glucose when it occurs.
- The importance of checking for blood ketones.

You can treat your high blood glucose levels on your own, your parents or carers can help, or the diabetes team can help.

Illness

- You should tell an adult if you feel ill.
- If you are unwell, check your blood glucose levels.
- If you are unwell, check your blood for the presence of ketones, even if your blood glucose is not out of range.
- You should understand the results of the ketone tests and what actions to take.
- If you are unwell, your parents or carers will look after you.
- If you are unwell, remind your parents or carers to check your temperature.
- You need to eat and drink, even if you don't feel like it.

Long-term Complications

- You should understand that good glucose control is very important for preventing long-term complications.
- You should get your eyes checked every year to make sure there is no damage.
- You should start to understand the relationship between your HbA_{1c} and long-term complications, and agree your individualised target with your diabetes team and your parents or carers.

Being Away from Home

- You should be able to manage your diabetes if you are eating or sleeping away from home. If you feel uncertain about this, ask any member of your diabetes team for advice.
- As a precaution, let your teachers know about your diabetes.
- If another adult is supervising, such as a sports coach, let them know about your diabetes.
- You should carry some form of identification with you which states that you have diabetes and require insulin. A contact telephone number is also useful. This is because you are more likely to be out of the house with people who do not know about your diabetes.

Alcohol

- You should be given practical advice on the special rules that apply when drinking alcohol.
- You should know how different alcoholic drinks affect blood glucose levels.
- You should know that there is an increased risk of hypoglycaemia after alcohol consumption, including hypoglycaemia while sleeping, particularly after exercise.
- Extra food should be eaten by those that drink alcohol in order to avoid getting hypoglycaemia.



Smoking

- You should be made aware of the effects that smoking could have on your diabetes and long-term health.
- If you have started smoking you should be offered help to stop.

Transition

- Your diabetes team should start to discuss how you and your parents/carers will be prepared for transferring your diabetes care from the paediatric clinic to the young adult diabetes services in the future. This process is called transition.

Social Factors

There are very few jobs that you cannot do because of your diabetes, but there are some jobs for which people with type 1 diabetes may not apply. You should be aware of these.

Emotional Wellbeing

- You should have regular opportunities to discuss your thoughts and feelings, including any worries about your diabetes, experiences of bullying or concerns about body image.
- At least once a year, you will be asked questions about your emotional wellbeing to check whether you need any extra support.
- If you need emotional support or help with managing the impact of diabetes on your life, you may be offered the chance to talk to a clinical psychologist if there is one attached to the team.
- You should ask for help from your parents or carers, or your diabetes team, if you start to feel any aspects of your care are becoming overwhelming.
- You should ask for support from your diabetes team if any aspects of your diabetes care are causing major conflict at home or with friends.



RECORD SHEET FOR PATIENTS AGED 12–13 years Name:

Instructions for use:

Use this sheet to log the level of knowledge and skill of your patients.
 It is recommended that a maximum of two 'goals to work towards' should be set on each occasion, with progress towards achieving these reviewed regularly.
 Provide your patients with a copy to take home each time it is updated.

Competency in achieving goals is defined as follows:

Fully achieved:

The patient demonstrates complete competence and confidence in fulfilling the educational goal outlined in the first column.

Partially achieved:

The patient has a partial understanding and/or some level of confidence relating to the educational goal.

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Diabetes Knowledge Young people should: <ul style="list-style-type: none"> Know about the body's vital organs/systems, including the digestive system and the pancreas. 					
Food Young people should: <ul style="list-style-type: none"> Know which foods and drinks are best to eat to support good health and normal growth. Be able to understand food labels for carbohydrate counting and for good health. Feel confident in counting carbohydrates in familiar foods. Understand that carbohydrate-containing foods can be slow or fast-acting (have a low or high glycaemic index). Be familiar with different types of food sweeteners and be able to name some if asked. Be able to join in and eat with their friends. 					



RECORD SHEET FOR PATIENTS AGED 12–13 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
<p>Exercise</p> <p>Young people should understand that:</p> <ul style="list-style-type: none"> Blood glucose levels should be checked before exercise, also which readings mean that they need to take a ketone test and which readings mean they need to eat more carbohydrate before exercising. Their target blood glucose pre-exercise is _____mmol/l. They should not exercise if ketones are above _____mmol/l. Daily exercise and activity is good for their health, for feeling well and for their diabetes management. They should do some physical activity for at least 60 minutes a day. They need to adjust their insulin dose and their food intake to their level of activity. They should discuss the importance of testing before, during and after exercise with their parents/ carers and diabetes care team. There are special rules about the use of their medication in some competitive sports at regional or national level, and that they need to find out about these. 					
<p>Insulin</p> <p>It is understood by all that parents/carers should still continue to supervise the young person's diabetes care. The young person should:</p> <ul style="list-style-type: none"> Be able to take their daily insulin on their own. Gradually take over responsibility for changing insulin doses. Know that the required insulin doses depend on blood glucose levels, food intake, and level of activity. Know how to adjust the dose of rapid-acting insulin during special events, such as parties. Have a good understanding of the relationship between food, exercise and insulin. Understand that required insulin doses will increase rapidly during growth spurts. <p>Young people who use an insulin pump should:</p> <ul style="list-style-type: none"> Start to learn how to programme their pump with the help of parents/carers. Be able to independently perform an infusion set change. Be able to inject insulin with a pen in the event of pump failure. 					



RECORD SHEET FOR PATIENTS AGED 12–13 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Blood Glucose Testing Young people should:					
<ul style="list-style-type: none"> Know the causes and symptoms of both high and low blood glucose levels. 					
<ul style="list-style-type: none"> Be able to interpret their blood glucose levels. 					
<ul style="list-style-type: none"> Be able to use these readings to control their blood glucose levels. 					
<ul style="list-style-type: none"> Learn how to programme and use all the features of a bolus advisor if they have one. 					
<ul style="list-style-type: none"> Be shown their downloaded blood glucose data and /or pump readings, and be part of any discussions about what they mean. 					
Hypoglycaemia or HYPO (blood glucose level less than _____ mmol/l) Young people should know:					
<ul style="list-style-type: none"> The causes of low blood glucose levels. 					
<ul style="list-style-type: none"> How to avoid low blood glucose levels. 					
<ul style="list-style-type: none"> The symptoms of low blood glucose levels. 					
<ul style="list-style-type: none"> How to treat low blood glucose levels if they occur, including the need for a snack if a meal is more than 1–2 hours away or if exercising. 					
<ul style="list-style-type: none"> That they cannot always rely on warning signs and symptoms and must test their blood glucose if possible. 					
It is understood by parents/carers that they will have the opportunity to revise how to use glucagon annually, and must check the expiration date of stored glucagon regularly.					



RECORD SHEET FOR PATIENTS AGED 12–13 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Hyperglycaemia or HYPER (blood glucose more than _____mmol/l) Young people should know:					
• The causes of high blood glucose levels.					
• How to avoid high blood glucose levels.					
• The symptoms of high blood glucose levels.					
• How to treat high blood glucose levels when they occur.					
• The importance of checking for blood ketones in case of hyperglycaemia.					
• They can treat their high blood glucose levels on their own, their parents/carers can help or the diabetes team can help.					
Illness It is understood by all that parents/carers are responsible for managing their child's diabetes if the young person is unwell.					
• The young person should tell an adult if they feel ill.					
• If unwell, they should check their blood glucose levels.					
• If unwell, they should check for the presence of ketones in the blood, even if their blood glucose is not out of range.					
• The results of the ketone test and appropriate action to take should be understood.					
• If the young person is unwell, parents/carers should remember to check the young person's temperature.					
Long-term Complications Young people should:					
• Understand why good glucose control is very important. Good glucose control protects them from having complications in the future.					
• Get their eyes checked every year to make sure there is no damage.					
• Start to understand the relationship between their HbA _{1c} value and long-term complications, and agree their individualised target with the diabetes team and their parents/carers.					



RECORD SHEET FOR PATIENTS AGED 12–13 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Eating or Sleeping Away From Home					
<ul style="list-style-type: none"> The young person should be able to manage their diabetes if eating or sleeping away from home. If parents/carers feel uncertain about this, they should ask any member of the diabetes team for advice. 					
<ul style="list-style-type: none"> As a precaution, teachers should be told about the young person's diabetes. 					
<ul style="list-style-type: none"> If another adult is supervising, such as a sports coach, the parent/carer should also inform them about the young person's diabetes. 					
<ul style="list-style-type: none"> The young person should carry some form of identification with them, which states that they have diabetes and require insulin. 					
Alcohol					
Young people should:					
<ul style="list-style-type: none"> Be given practical advice on the special rules that apply when drinking alcohol. 					
<ul style="list-style-type: none"> Know how alcoholic drinks affect blood glucose levels. 					
<ul style="list-style-type: none"> Know that there is an increased risk of hypoglycaemia after alcohol consumption, including while sleeping and particularly after exercise. 					
<ul style="list-style-type: none"> Know what precautions to take when drinking alcohol. 					
<ul style="list-style-type: none"> Remember to eat extra food to reduce their chances of developing hypoglycaemia. 					
Smoking					
<ul style="list-style-type: none"> The young person is aware of the effects that smoking could have on their diabetes and long-term health. 					
<ul style="list-style-type: none"> If they have started smoking, they should know how to get help to stop smoking. 					
Transition					
<ul style="list-style-type: none"> The young person should start to discuss how they will be prepared for transferring from the paediatric diabetes clinic to the young adult diabetes service in the future. 					



RECORD SHEET FOR PATIENTS AGED 12–13 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS	DATE & SIGNATURE
Social Factors				
<ul style="list-style-type: none"> Young people should be informed about job options, any limitations with respect to job choices and special considerations concerning diabetes and the work environment. 				
Emotional Wellbeing				
Young people should understand that:				
<ul style="list-style-type: none"> They will have regular opportunities to discuss their thoughts and feelings, including any worries about their diabetes, experiences of bullying or concerns about matters such as body image. 				
<ul style="list-style-type: none"> At least once a year, they will be asked questions about their emotional wellbeing to check whether they need any extra support. 				
<ul style="list-style-type: none"> If they need emotional support or help with managing the impact of their diabetes on their life, they will be offered the chance to talk to the clinical psychologist attached to the team (if available). 				
<ul style="list-style-type: none"> They should know to ask for support from their diabetes team if any aspects of their diabetes care are causing major conflict at home or with friends. 				
<ul style="list-style-type: none"> They can get 'fed up' with diabetes at times or have worries about their diabetes, and that this is quite normal. 				

Record any other education provided or notes here:

Authorisation date: Date of next revision:

Resources relevant for 14–15 year olds



Guide for healthcare professionals

This guide outlines the goals of diabetes education for your **14–15 year old** patients. Use this guide as part of a narrative discussion with your patients to assess their learning.



Handout for young people

This handout is designed to explain to young people what they need to know about the management of diabetes. It has been tailored to the educational needs of **14–15 year olds**. Photocopy the handout page and provide to the young person to take home.



Record sheets

Record sheets are provided to help you evaluate and monitor your patients' understanding of their diabetes. Complete the record sheet over the course of the two-year period, reflecting your patient's gradual achievement of the learning goals over that time.





Goals for 14–15 year olds

GUIDE FOR HEALTHCARE PROFESSIONALS

General Educational Level

To achieve the educational goals of this age group, educators should take into account the teenager's knowledge of human anatomy, physiology and basic nutrition. It is also important to pay attention to their current individual educational attainments and needs.

Psychological Development Level

Girls are often more mature than boys at this age. Girls may tend to talk about feelings, whilst boys may find this more difficult. Both boys and girls are busy exploring ideals and the deeper questions of life that affect them, and therefore become more self-focused.

Educational Goals

Parents/carers should continue to supervise their young person's overall diabetes care.

The young person should have acquired all the necessary background information about diabetes, and be able to handle all practical aspects of diabetes care.

Diabetes in General

Young people should thoroughly understand the function of the pancreas and the effect of insulin on the body.

Food

Young people should:

- Understand which foods and drinks are best consumed to maintain good health.
- Be able to read and understand information provided on food labels.
- Be competent in the skill of counting carbohydrates using suitable resources e.g. books/apps/websites if required.¹
- Understand that some types of carbohydrate (low glycaemic index) will have beneficial effects on blood glucose.¹
- Be familiar with, and be able to name, various types of food sweeteners.
- Be able to take part in activities involving food with their friends.



Exercise

Young people should be encouraged to monitor blood glucose levels (and ketone levels, if necessary) before exercise.¹

All young people should be encouraged to be active for at least 60 minutes per day. This is essential for cardiovascular health, insulin resistance and weight management.

Young people should:

- Know how to prevent any problems that can occur during exercise or sports.
- Be learning through experience and the results of blood glucose testing how sports affect their blood glucose levels, and know to discuss management strategies with their team.
- Be learning to test their ketone levels if pre-exercise blood glucose levels are >14 mmol/l and know that if ketones are present, they should not take part in physical activity and may need to contact their diabetes care team.^{2,3}
- Understand the beneficial effects of attaining target glucose levels on performance if participating in competitive sports.
- Be made aware that NICE recommends additional carbohydrate intake if blood glucose is <7 mmol/l prior to exercise.¹
- Staff should be aware of the need for therapeutic exemption in certain sports when competing at a national level and advise accordingly.

Insulin

Young people should:

- In partnership with their parents/carers, gradually take over responsibility for adjusting insulin doses based on their blood glucose profiles.
- Have a competent understanding of the relationship between food, exercise and insulin (see also Alcohol).
- Understand that the timing of their insulin dose with respect to mealtimes is influenced by the type of insulin they use.
- Have a full understanding of injection/infusion site care and zonal site rotation.

If they use an insulin pump they should:

- Be developing skills in programming their pump, performing infusion set changes and using advanced bolus techniques to cover the carbohydrate content of meals and snacks.
- Be able to interpret the results from continuous glucose monitoring (CGM – if used), and know how to act on them.
- Be aware of how to calculate dose and how to inject insulin in the event of a pump failure. They should also know how to obtain a replacement pump and how to programme it.

Blood Glucose Testing

Young people are responsible for measuring and interpreting their blood glucose levels. They should be able to explain the implications of glucose readings outside the normal range.

They should be able to understand and interpret their blood glucose results and/or pump settings and use this information to help in discussions/changes in clinics.

Low Blood Glucose (Hypoglycaemia)*

- Young people should recognise the importance of informing others about what precautions to take so that friends and colleagues can provide assistance if needed in case of severe hypoglycaemia.
- Treatments for hypoglycaemia should be a part of the older teenager's emergency kit, and he or she should be able to instruct others in their use.

Families should have an opportunity to revise how to use glucagon annually, and be prompted to check the expiration date of stored glucagon regularly.

High Blood Glucose (Hyperglycaemia)*

Young people should:

- Know that if blood glucose levels are too high over a long period they are at risk of ketoacidosis.
- Know that the blood must be tested for the presence of ketones.¹
- Understand the causes and symptoms of high blood glucose levels as well as the principles of treatment.

Illness

Parents/carers are still responsible for diabetes care during illness.

Young people should:

- Know that they must inform an adult if they become ill.
- Be able to check their blood glucose level.
- Check their blood ketone level (even if their blood glucose is not out of range) and be able to interpret the results.¹
- Know that they must continue to eat and drink, even if they don't feel like it.¹
- Learn how to calculate how much extra insulin they require.

Revisit this advice with the child and their parents/carers at least annually.¹

Long-term Complications

Young people should:

- Understand the relationship between blood glucose control and long-term complications in order to understand why blood glucose control is so important.
- Discuss this in the context of the NICE target of HbA_{1c} <48 mmol/mol (6.5%)¹ and their individual HbA_{1c} target.
- Be aware of the need to attend all routine check-ups in order to detect long-term complications of diabetes at an early stage. These checks include HbA_{1c}, blood pressure monitoring, urine-testing for microalbuminuria, the level of sensation in their feet, blood investigations and regular eye examinations.¹
- Know why, and how frequently, each test should be performed, how the results are evaluated and understand the treatment possibilities should any test be positive.

Eating or Sleeping Away From Home

- Young people should now be able to manage their diabetes independently.
- As a precaution, teachers and other adults should be kept informed of the young person's diabetes.
- As the young person is now becoming more socially independent, it is advisable for them to carry some form of identification stating that they have been diagnosed with diabetes and require insulin.

Alcohol

Young people should receive practical advice regarding the use of alcohol.

They need to know:

- That they should eat food when they are drinking.¹
- Which alcoholic drinks contain carbohydrate, in order to understand the effect on their blood glucose.
- That there is an increased risk of hypoglycaemia after alcohol consumption, particularly after exercise, including hypoglycaemia while sleeping.¹
- That it is important to eat long-acting carbohydrate-containing foods and test their blood glucose level before going to sleep.
- That people with diabetes are placed at greater risk if they drink too much.
- That they may overlook the symptoms of hypoglycaemia when under the influence of alcohol.
- That the liver will not release its glucose stores in the event of a severe hypo.
- That having a reliable plan for awakening in the morning after drinking is a very important safety measure.

Parents/carers should be aware that their young people may be exposed to alcohol and understand the associated risks.

Because of these risks the young person with diabetes must:

- Eat extra food when drinking.
- Take less insulin with food if necessary.
- Inform friends about the relationship between drinking alcohol and blood glucose levels, so that hypoglycaemia is not mistaken for inebriation.

Smoking

Young people should:

- Be discouraged from taking up smoking.¹
- Be able to discuss the effect of smoking on their diabetes.¹

If they have started smoking they should receive advice about where to seek support locally to help them stop.

Substance Misuse

- Discuss the general dangers of recreational drugs and substance misuse and its possible effects on blood glucose.¹
- Offer referral to local addiction services as appropriate.

Sexuality and Pregnancy

All young people should:

- Be counselled about barrier contraception to protect against sexually transmitted infections (STIs).
- Receive advice on suitable contraception to prevent unwanted pregnancy (dispelling any myths about contraception or the ability to conceive), and advice on accessing contraception locally.
- Understand the importance of contraception and the benefits to planning any pregnancies.
- Be aware of the availability of emergency contraception and how to obtain it with immediate support from the diabetes team if they think they could be pregnant.
- Be aware of the risks surrounding pregnancy and diabetes.
- Be aware of factors which ensure the healthiest possible pregnancy, such as medication review, folic acid and excellent blood glucose control both before and throughout pregnancy.
- Be made aware that an HbA_{1c} target of 48 mmol/mol (6.5%) is recommended and pregnancy should be actively advised against if the HbA_{1c} is above 86 mmol/mol (10%).⁴
- Be aware that pregnancy involves a need to test blood glucose more often, as well as the need for more frequent visits to the diabetes clinic.

Transition Arrangements

Local transitional arrangements should be discussed further, with a clear pathway and goals for the young person and their parents/carers to achieve. Transition will be occurring during this phase.

Social Factors

Young people should:

- Be informed about job options, any limitations with respect to job choices and special considerations concerning diabetes and the work environment.
- Be made aware of precautions relating to body piercing and tattooing.
- Be given guidance on managing diabetes during exams and understand that they are entitled to a letter to support blood glucose testing or eating during an exam.



NOVA HOLMBERG
Nova has type 1 diabetes

Emotional Wellbeing

Young people should:

- Know who they can talk to if they feel upset, angry or worried or are experiencing issues in peer relationships.
- Feel confident in the management of their diabetes in school, and know how to access help and support if they should need it.
- Feel confident in managing their diabetes outside of the home, particularly in social situations.
- Be given the opportunity to discuss any concerns they have about day-to-day management of their diabetes, including any concerns about body image or disordered eating.¹
- Know to ask for support from their diabetes care team if any aspects of their care are causing major conflict at home or with peers.¹
- Know if there is a clinical psychologist available as part of the team, understand what a psychologist does and how they may be able to help them.¹

The young person should be psychologically assessed each year to see if emotional support is required.

* The diabetes care team should have agreed target blood glucose levels for individuals and definitions of hypoglycaemia and hyperglycaemia. NICE suggests 4–7 mmol/l on waking and pre-meals, and 5–9 mmol/l post-meals.¹

References:

1. National Institute for Health and Care Excellence (NICE). Diabetes (type 1 and type 2) in Children and Young People: Diagnosis and Management 2015 (NG 18).
2. Diabetes UK. Sport and Blood Sugar Levels. Available at: www.diabetes.co.uk/diabetes-sport-and-blood-sugar.html. Last accessed November 2015.
3. Diabetes UK. Top Physical Activity Tips. Available at: www.diabetes.org.uk/Information-for-parents/Living-with-diabetes-new/Physical-activity/Top-physical-activity-tips. Last accessed November 2015.
4. National Institute for Health and Care Excellence (NICE). Diabetes in Pregnancy: Management from Preconception to the Postnatal period 2015 (NG 3).



Goals for 14–15 year olds

HANDOUT FOR YOUNG PEOPLE

General Diabetes Knowledge

- By now, you should thoroughly understand the function of the pancreas and the effect of insulin on your body, and be able to handle all practical aspects of diabetes care.
- If you are uncertain about this, or if you are uncertain about anything else in this handout, you can ask any member of your diabetes team for advice. Alternatively, you can find information on the Diabetes UK website (www.diabetes.org.uk).

Although you are taking a greater role in managing your diabetes, your parents or carers should still continue to supervise your overall diabetes care.

Food

By now you should:

- Know which foods and drinks are best to eat for good health.
- Regularly include some slow-acting (low glycaemic index) carbohydrates in all your meals.
- Understand that some types of carbohydrate (low glycaemic index) will have beneficial effects on blood glucose levels.
- Understand the information on food labels.
- Be familiar with, and be able to name, various types of food sweeteners.
- Be able to take part in activities involving food with your friends.
- Be competent at carbohydrate counting, using suitable resources such as books, apps and websites if required.



NOVA HOLMBERG
Nova has type 1 diabetes

Exercise

- You should know that blood glucose levels should be checked before exercise.
- You should know that your target blood glucose before sport is _____mmol/l. Do not exercise if ketones are above _____mmol/l.
- You should know which readings mean that you need to take a ketone test, and which readings mean you need to eat more carbohydrate before exercising.
- You should be made aware of any special rules about the use of your medication in competitive sports at regional or national level.
- You should know that daily activity, including exercise, is essential for a healthy heart, bone strength and weight management.
- You should know that activity and exercise can have a positive impact on how well you feel.
- You should know how to prevent problems with your blood glucose levels that can happen during exercise or sport.
- You should be learning, through experience, and the results of blood glucose testing, how taking part in sport affects your blood glucose levels and how blood glucose can affect your performance.

Insulin

- You should be able to administer your own insulin either with a pen or a pump.
- You should be learning how to adjust your insulin doses based on your blood glucose levels, and have a good understanding of the relationship between food, exercise and insulin (**see also Alcohol**).
- You should understand how the type of insulin you take affects when it must be injected with respect to mealtimes.
- You should be able to examine, care for and rotate your injection/infusion sites.

If you use an insulin pump you should:

- Feel confident in using advanced bolus features – so that you can adjust the insulin dose to cover the carbohydrate content of meals and snacks – and in programming the pump.
- Be aware of how to calculate the dose and to inject insulin in the event of a pump failure. You should also know how to obtain a replacement pump and how to programme it.
- Be confident in performing your own infusion set changes.

If you use a continuous glucose monitor (CGM) you should be able to manage its insertion yourself, be able to interpret the results and know how to act on them.

Blood Glucose Testing

- You are responsible for measuring and interpreting your blood glucose levels.
- **It is important that you keep records of your blood glucose levels and your insulin doses. This information will help you assess your blood glucose control and adjust your insulin.**
- You should be able to programme your bolus calculator, download your blood glucose levels and, with support, interpret the results of these downloads.
- You should be able to explain the implications of blood glucose readings outside the normal range.

Hypoglycaemia or HYPO = Low Blood Glucose Level (less than _____mmol/l)

You should:

- Understand the importance of teaching your friends and schoolmates about diabetes precautions, especially the symptoms and treatment of hypoglycaemia.
- Know when and how to treat hypoglycaemia so that you can instruct potential helpers.
- Know the importance of checking your blood glucose levels after treatment to ensure that a normal blood glucose level is restored.
- Appreciate that treatments for hypoglycaemia must be part of your emergency kit, and that you should be able to instruct others in their use.

You should have an opportunity to revise how to use glucagon annually, and check the expiration date of stored glucagon regularly.

Hyperglycaemia or HYPER = High Blood Glucose Level (more than _____mmol/l)

You should:

- Know the causes and symptoms of high blood glucose levels and precautions to avoid them.
- Know that your blood must be tested for ketones.
- Be able to treat high blood glucose levels successfully by yourself.
- Keep records of your blood glucose levels and insulin doses to monitor your diabetes and adjust the insulin dose as required.

Illness

If you become ill, your parents or carers are still responsible for your care.

If you become ill, you must:

- Inform an adult.
- Check your blood glucose levels regularly.
- Check your blood to see if ketones are present, even if your blood glucose is not out of range.
- Report the presence of ketones in your blood to an adult immediately.
- Start to learn how to calculate the extra insulin doses required with help from your parents or carers.
- Eat and drink even if you don't feel like it.

Long-term Complications

- You should understand why good blood glucose control is vital in preventing long-term complications.
- You should understand all the routine check-ups needed to detect long-term complications of diabetes at an early stage. These include:
 - Your individualised HbA_{1c} target and what it means.
 - Blood pressure monitoring.
 - Blood investigations.
 - Urine tests for microalbuminuria.
 - Checking the level of sensation in your feet.
 - Regular eye examinations.

You should know:

- Why each test is performed.
- How the results are evaluated.
- The treatment possibilities should any test be positive.

Eating or Sleeping Away from Home

- You should now be able to manage your diabetes independently.
- As a safety measure, you should let your teachers know you have diabetes. You should also inform other adults who are in charge of your care e.g. sports coaches.
- Because you are now more socially independent (and will be in different situations), you should carry some form of identification stating that you have diabetes and require insulin. This could be a card, a bracelet or medical ID in your smartphone.

Alcohol

You should receive advice regarding alcoholic drinks.

You need to know:

- That you should eat food when you are drinking.
- Which alcoholic drinks contain carbohydrate, to understand their effect on blood glucose.
- That there is an increased risk of hypoglycaemia after alcohol consumption, including while sleeping and, especially, after exercise.
- Before going to sleep, it is important to eat long-acting carbohydrate-containing foods and to test your blood glucose level.
- That you run great risks if you drink too much.
- That you may overlook the symptoms of hypoglycaemia.
- That the liver will not release its sugar stores in the event of a severe hypo (hypoglycaemic episode).

Because of these risks, you must:

- Eat extra food when drinking alcohol.
- Consider taking less insulin with food if necessary.
- Tell your friends about the relationship between drinking alcohol and blood glucose levels. This is to ensure that your friends do not mistake hypoglycaemia for drunkenness.
- Have a reliable plan for waking up the morning after drinking.

Smoking

- You should be made aware of the effects that smoking could have on your diabetes and long-term health.
- If you have started smoking you should be offered help to stop.

Substance Misuse

You should be told of the effects that recreational drugs and substance misuse could have on your diabetes control and where you can get advice and support locally.

Sex and Pregnancy

- You should know the importance of practising safe sex and how to access contraception (including emergency contraception).
- You should also be aware that barrier contraception should also be used to protect from sexually transmitted infections (STIs).
- You should understand that having diabetes does not prevent you from becoming pregnant, but that it poses certain risks during pregnancy. You should inform your diabetes care team immediately if you suspect you could be pregnant.

- You should know how to ensure the safest possible pregnancy:
 - Excellent blood glucose control before attempting to get pregnant.
 - Review your medications and add folic acid supplements.
 - Excellent blood glucose control throughout pregnancy.
 - Frequent visits to the diabetes clinic.
 - Frequent blood glucose tests.

Transition

- You should be able to describe the transition process by which your diabetes care will be transferred from the paediatric clinic to a young adult diabetes team in your local area.
- You should work with your diabetes team in setting your own goals for your diabetes.

Social Factors

- You should be able to discuss strategies for management of your diabetes during exams.
- There are very few jobs that you cannot do because of your diabetes; however, there are some jobs for which people with type 1 diabetes may not apply. You should be made aware of which jobs these are.
- You should know that it may be harder for a person with diabetes to get certain types of insurance.
- You should be made aware of precautions relating to body piercing and tattooing.

Emotional Wellbeing

- You should have regular opportunities to discuss your thoughts and feelings, including any worries about your diabetes, experiences of bullying or any concerns about body image.
- At least once a year you will be asked questions about your emotional wellbeing to check whether you need any extra support.
- If you need emotional support or help with managing the impact of diabetes on your life, you may be offered the chance to talk to a clinical psychologist if there is one attached to the team.
- You should ask for support from your diabetes team if any aspects of your diabetes care are causing major conflict at home or with friends.
- You should ask for help from your parents or carers, or your diabetes team, if you feel that any aspects of your care are becoming overwhelming.



RECORD SHEET FOR PATIENTS AGED 14–15 years

Name:

Instructions for use:

Use this sheet to log the level of knowledge and skill of your patients.
It is recommended that a maximum of two 'goals to work towards' should be set on each occasion, with progress towards achieving these reviewed regularly.
Provide your patients with a copy to take home each time it is updated.

Competency in achieving goals is defined as follows:

Fully achieved:

The patient demonstrates complete competence and confidence in fulfilling the educational goal outlined in the first column.

Partially achieved:

The patient has a partial understanding and/or some level of confidence relating to the educational goal.

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Diabetes Knowledge It is understood by all that although the young person is taking a greater role in managing their diabetes, parents/carers should still continue to supervise overall diabetes care.					
<ul style="list-style-type: none"> By now, the young person should thoroughly understand the function of the pancreas and the effect of insulin on the body, and be able to handle all practical aspects of diabetes care. 					
<ul style="list-style-type: none"> If the young person is uncertain about any aspect of their diabetes, they can ask a member of the diabetes team for advice. 					
Food By now, young people should:					
<ul style="list-style-type: none"> Know which foods are best to eat for good health and regularly include some slow-acting (low glycaemic index) carbohydrates in all their meals. 					
<ul style="list-style-type: none"> Understand that some types of carbohydrate (low glycaemic index) will have beneficial effects on blood glucose. 					
<ul style="list-style-type: none"> Understand the information on food labels. 					
<ul style="list-style-type: none"> Be familiar with, and be able to name, various types of food sweeteners. 					
<ul style="list-style-type: none"> Be able to take part in activities involving food with their friends. 					
<ul style="list-style-type: none"> Be able to count the carbohydrate content of foods using suitable resources (including books, apps and websites if required). 					



RECORD SHEET FOR PATIENTS AGED 14–15 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Exercise Young people should:					
<ul style="list-style-type: none"> • Know that blood glucose levels should be checked before exercise. 					
<ul style="list-style-type: none"> • Know that their target blood glucose before sport is _____mmol/l, and that they should not exercise if ketones are above _____mmol/l. 					
<ul style="list-style-type: none"> • Know which readings mean that they need to take a ketone test, and which readings mean that they need to eat more carbohydrate before exercising. 					
<ul style="list-style-type: none"> • Know that daily activity, including exercise, is essential for a healthy heart, bone strength and weight management. 					
<ul style="list-style-type: none"> • Know that activity and exercise can have a positive impact on how well they feel. 					
<ul style="list-style-type: none"> • Know how to prevent problems that can happen with their blood glucose levels during exercise or sport. 					
<ul style="list-style-type: none"> • Be learning through experience and the results of blood glucose testing, how taking part in sport affects their blood glucose levels and how blood glucose can affect performance. 					
<ul style="list-style-type: none"> • Be made aware of any special rules about the use of their medication in competitive sports at regional or national level. 					



RECORD SHEET FOR PATIENTS AGED 14–15 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Insulin					
The young person should:					
• Be able to administer their own insulin either with a pen or a pump.					
• Be learning how to adjust insulin doses based on blood glucose levels.					
• Have a good understanding of the relationship between food, exercise and insulin (see Alcohol).					
• Know that the timing of insulin doses with respect to mealtimes is different with different types of insulin.					
• Be able to examine and care for their own injection/infusion sites and understand zonal site rotation.					
If using an insulin pump, the young person should:					
• Feel confident in using advanced bolus features in order to adjust the insulin dose to take account of the carbohydrate content of meals and snacks, and in programming the pump.					
• Know how to calculate the dose and to inject insulin in the event of a pump failure.					
• Know how to obtain a replacement pump and how to programme it in the event of a pump failure.					
• Be confident to perform infusion set changes.					
If using a continuous glucose monitor (CGM), the young person should:					
• Be able to insert the sensor themselves, and interpret the results, and know how to act on them.					
Blood Glucose Testing					
Young people should:					
• Understand that they are responsible for measuring and interpreting their blood glucose levels.					
• Understand that it is important that they keep records of their blood glucose levels and their insulin doses.					
• Understand that this information will help them assess their blood glucose control and adjust their insulin doses.					
• Be able to programme their bolus calculator, maybe download their blood glucose data to a computer and, with support, interpret the results of downloads.					
• Be able to explain the implications of readings outside the normal range.					



RECORD SHEET FOR PATIENTS AGED 14–15 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Hypoglycaemia or HYPO (blood glucose less than _____mmol/l) Young people should:					
<ul style="list-style-type: none"> Understand the importance of teaching their friends and schoolmates about diabetes precautions, especially the symptoms and treatment of hypoglycaemia. 					
<ul style="list-style-type: none"> Know when and how to treat hypoglycaemia so that they can instruct potential helpers. 					
<ul style="list-style-type: none"> Know the importance of checking their blood glucose levels after treatment to ensure that a normal blood glucose is restored. 					
<ul style="list-style-type: none"> Understand that treatments for hypoglycaemia should be a part of their emergency kit, and they should be able to instruct others in their use. 					
It is understood by parents/carers that they will have the opportunity to revise how to use glucagon annually, and must check the expiration date of stored glucagon regularly.					
Hyperglycaemia or HYPER (blood glucose more than _____mmol/l) Young people should:					
<ul style="list-style-type: none"> Know the causes and symptoms of high blood glucose levels and precautions to avoid it. 					
<ul style="list-style-type: none"> Know the importance of checking for blood ketones in case of hyperglycaemia. 					
<ul style="list-style-type: none"> Understand the results of the ketone test and know the appropriate action to take. 					
<ul style="list-style-type: none"> Be able to treat high blood glucose levels successfully by themselves. 					
<ul style="list-style-type: none"> Keep records of their blood glucose levels and insulin doses to monitor their diabetes and adjust the insulin dose as required. 					



RECORD SHEET FOR PATIENTS AGED 14–15 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Illness It is understood by all that if a young person becomes ill, parents/carers are still responsible for their care. Young people should know to do the following in the event of illness:					
• Inform an adult if they become ill.					
• Regularly check their blood glucose levels.					
• Check to see if ketones in the blood, even if blood glucose is not out of range.					
• Tell an adult if they find ketones are present in their blood.					
• Start to learn how to calculate the extra insulin doses required (with help from their parents/carers).					
• Take food and drink, even if they don't feel like it.					
Long-term Complications The young person should understand why good blood glucose control is vital in preventing long-term complications. They should understand all the routine check-ups needed to detect long-term complications of diabetes at an early stage. These include:					
• Their individualised HbA _{1c} target and what it means.					
• Blood pressure monitoring.					
• Blood investigations.					
• Urine tests for microalbuminuria.					
• Checking the level of sensation in the feet.					
• Regular eye examinations.					
The young person should know:					
• Why each test is performed.					
• How the results are evaluated.					
• The treatment possibilities should any test be positive.					



RECORD SHEET FOR PATIENTS AGED 14–15 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Eating or Sleeping Away From Home					
<ul style="list-style-type: none"> The young person should now be able to manage their diabetes independently. 					
<ul style="list-style-type: none"> As a safety measure, teachers and other adults should be kept informed of the young person's diabetes care. 					
<ul style="list-style-type: none"> As the young person is now socially independent, they should understand that it is advisable for them to carry some form of identification stating that they have been diagnosed with diabetes and require insulin. 					
Alcohol					
Young people should receive advice regarding alcoholic drinks. They need to know that:					
<ul style="list-style-type: none"> They should eat food when they are drinking. 					
<ul style="list-style-type: none"> Certain alcoholic drinks contain carbohydrate, and to understand the effect on that these will have on blood glucose. 					
<ul style="list-style-type: none"> There is an increased risk of hypoglycaemia after alcohol consumption, including while sleeping. 					
<ul style="list-style-type: none"> Before going to sleep, it is important to eat long-acting carbohydrate foods and test their blood glucose level. 					
<ul style="list-style-type: none"> They run great risks if they drink too much. 					
<ul style="list-style-type: none"> They may overlook the symptoms of hypoglycaemia. 					
<ul style="list-style-type: none"> The liver will not release its sugar stores in the event of a severe hypo. 					
Because of these risks, they must know to:					
<ul style="list-style-type: none"> Eat extra food when drinking alcohol. 					
<ul style="list-style-type: none"> Consider taking less insulin if necessary. 					
<ul style="list-style-type: none"> Tell their friends about the relationship between drinking alcohol and blood glucose levels to ensure that they do not mistake hypoglycaemia for drunkenness. 					
<ul style="list-style-type: none"> Have a reliable plan for waking up the morning after drinking. 					



RECORD SHEET FOR PATIENTS AGED 14–15 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Smoking					
<ul style="list-style-type: none"> The young person should understand the effects that smoking could have on their diabetes and long-term health. 					
<ul style="list-style-type: none"> If they have started smoking they should be made aware of how to get help to stop smoking. 					
Substance Misuse					
The young person should be told of the effects that recreational drugs and substance misuse could have on diabetes control and where advice and support can be found locally.					
Sex and Pregnancy					
Young people should:					
<ul style="list-style-type: none"> Know the importance of practising safe sex and how to access contraception, including emergency contraception. 					
<ul style="list-style-type: none"> Understand that barrier contraception should be used to protect against sexually transmitted infections (STIs). 					
<ul style="list-style-type: none"> Understand that having diabetes does not prevent them from becoming pregnant, but does pose certain risks during pregnancy, and that they must inform their diabetes care team immediately if they suspect that they could be pregnant. 					
<ul style="list-style-type: none"> Know how to ensure the safest possible pregnancy: 					
<ul style="list-style-type: none"> Achieve excellent blood glucose control before attempting to get pregnant. 					
<ul style="list-style-type: none"> Review their medications and add folic acid supplements. 					
<ul style="list-style-type: none"> Achieve excellent blood glucose control throughout pregnancy. 					
<ul style="list-style-type: none"> Make frequent visits to the diabetes clinic. 					
<ul style="list-style-type: none"> Take frequent blood glucose tests. 					
Transition					
The young person should be able to describe their transition process and work with the diabetes team in setting their own goals.					



RECORD SHEET FOR PATIENTS AGED 14–15 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Social Factors					
Young people should:					
• Be able to discuss strategies for management of diabetes during exams.					
• Be made aware that there are very few jobs that they cannot do because of their diabetes, but that there are some jobs for which people with type 1 diabetes may not apply. They should be made aware of which these are.					
• Know that it may be harder for a person with diabetes to get certain types of insurance.					
• Be made aware of precautions relating to body piercing and tattooing.					
Emotional Wellbeing					
Young people should understand that:					
• They should have regular opportunities to discuss their thoughts and feelings, including any worries about their diabetes, experiences of bullying or concerns about matters such as body image.					
• At least once a year they will be asked questions about their emotional wellbeing to check whether they need any extra support.					
• If they need emotional support or help with managing the impact of diabetes on their life, they will be offered the chance to talk to the clinical psychologist attached to the team (if available).					
• They should ask for support from their diabetes team if any aspects of their diabetes care are causing major conflict at home or with friends.					
• They should ask help from parents/carers, or the diabetes team if they start to feel any aspects of their care is becoming overwhelming.					

Record any other education provided or notes here:

Authorisation date: Date of next revision:

Resources relevant for 16–18 year olds



Guide for healthcare professionals

This guide outlines the goals of diabetes education for your **16–18 year old** patients. Use this guide as part of a narrative discussion with your patients to assess their learning.



Handout for young people

This handout is designed to explain to young people what they need to know about the management of diabetes. It has been tailored to the educational needs of **16–18 year olds**. Photocopy the handout page and provide to the young person to take home.



Record sheets

Record sheets are provided to help you evaluate and monitor your patients' understanding of their diabetes. Complete the record sheet over the course of the two-year period, reflecting your patient's gradual achievement of the learning goals over that time.







Goals for 16–18 year olds

GUIDE FOR HEALTHCARE PROFESSIONALS

General Educational Level

To achieve the educational goals of this age group, HCPs should take into account whether or not the teenager has acquired an adult level of education.

Psychological Development Level

Young people are preparing themselves for their future adult lives. They may be making plans for further education or for moving out of the family home. Real separation from parents/carers occurs now, as teenagers find their place within their own generation.

Educational Goals

During this period, diabetes care becomes a matter to be handled by the teenager with the help of the diabetes care team. Many young people will still appreciate support from parents/carers, particularly when things are not running smoothly.

The older teenager should be motivated to seek further knowledge and experience, as well as additional background information about diabetes.

Diabetes in General

Young people should:

- Know how the body works in order to understand the full implications of having diabetes.
- Be familiar with all major body organs and systems, including the heart, liver, kidneys, pancreas, circulatory system and digestive system.
- Be familiar with the way in which nutrients are used by the body.

Food

Young people should:

- Continue to broaden their knowledge of general nutrition, including energy-producing foods, vitamins and minerals and appropriate portion sizes.
- Know how food is used by the body and be able to apply their knowledge to daily situations such as religious fasting, playing sports, school and college, eating fast food and going to parties.
- Be able to shop for groceries by themselves and be able to prepare nutritious meals and snacks independently.



KYLIE SIMS
Kylie has type 1 diabetes

- Be competent in counting carbohydrates.¹
- Understand that excess amounts of fat or protein will have adverse effects on blood glucose.

Exercise

- Young people should recognise that regular daily activity, including exercise, is essential for cardiovascular health and weight management, even for those not interested in sports.
- Young people should be able to apply all relevant exercise precautions, including testing ketone levels if pre-exercise blood glucose levels are >14 mmol/l and avoiding physical activity if ketones are present.^{2,3} This applies whether they compete in sports events or follow a daily exercise routine such as jogging or taking long walks.
- They should know that NICE recommends additional carbohydrate intake if blood glucose is <7 mmol/l prior to exercise.¹
- They should know that activity and exercise can have a positive impact on mental health.
- Staff should be aware of the need for therapeutic exemption in certain sports when competing at a national level and advise accordingly.

Insulin

Young people should:

- Learn to be fully independent in matching blood glucose readings, diet and exercise to appropriate doses of insulin.
- Have a greater understanding of the relationship between food, exercise and insulin (**see also Alcohol**).
- Understand that the timing of their insulin dose with respect to mealtimes is influenced by the type of insulin they use.

If they use an insulin pump they should:

- Now be able to use their pump fully independently.
- Know how to order supplies, perform an infusion set change, programme the device and use advanced bolus features to cover the carbohydrate content of meals and snacks.
- Be aware of how to calculate the dose and inject insulin in the event of a pump failure.
- Know how to obtain a replacement pump and how to programme it.

Blood Glucose Testing

Young people are responsible for measuring and interpreting their blood glucose levels.

They should be able to:

- Explain the implications of blood glucose levels outside the normal range.
- Explain the causes of both high and low blood glucose levels, recognise the symptoms of each and know how to prevent and treat either condition.
- Be able to understand and interpret their blood glucose levels and/or pump settings and to use this information to help in discussions/changes in clinics.

They should also:

- Understand that it is important to keep records of blood glucose levels and current insulin doses in a diary or via computer downloads or smartphone apps. This is to aid assessment of blood glucose control and calculation of insulin adjustments.
- See blood glucose levels as helpful information for them to use to assist with their diabetes management, not just for the clinic staff.

High Blood Glucose (Hyperglycaemia)*

Young people should:

- Know that if blood glucose levels are too high over a long period they are at risk of ketoacidosis.
- Know that the blood must be tested for the presence of ketones.¹
- Understand the causes and symptoms of high blood glucose levels as well as the principles of treatment.

Low Blood Glucose (Hypoglycaemia)*

- Young people should recognise the importance of informing others about what precautions to take so that friends and colleagues can provide assistance if needed in case of severe hypoglycaemia.
- Treatments for hypoglycaemia should be a part of the older teenager's emergency kit, and he or she should be able to instruct others in their use.

Families should have an opportunity to revise how to use glucagon annually, and be prompted to check the expiration date of stored glucagon regularly.

Illness

Young people should:

- Be able to take appropriate precautions independently when they are ill. This includes testing for blood ketones even if their blood glucose is not out of range.¹
- Know how to adjust insulin to accommodate a fever and understand how to handle episodes of nausea and vomiting.
- Realise that it may be necessary to get help from the diabetes care team, and know how to do so.
- Have an awareness of preventative medicine, such as immunisations and vaccinations.

Revisit this advice with the young person at least annually.¹

Long-term Complications

Young people should:

- Be aware of the need to attend all routine check-ups and medical examinations in order to detect long-term complications of diabetes at an early stage.
- Have discussed this in the context of the NICE target of HbA_{1c} <48 mmol/mol (6.5%)¹ and their individual HbA_{1c} target.
- Be aware that these checks include HbA_{1c}, blood pressure monitoring, urine tests for microalbuminuria, the level of sensation in the feet, and regular eye examinations.¹
- Know why each test is performed, how the results are evaluated and the treatment possibilities should any test be positive.
- Know how to arrange their own retinopathy screening and any local arrangements for accessing their annual reviews.

Alcohol

Young people should receive practical advice regarding the use of alcohol.

They need to know that:

- They should eat when they are drinking.¹
- Some alcoholic drinks contain carbohydrate, and be able to understand their effect on blood glucose levels.
- It is important to consume long-acting carbohydrate-containing foods and test their blood glucose level before going to sleep.
- People with diabetes are placed at greater risk if they drink too much.
- They and others may overlook the symptoms of hypoglycaemia.
- There is an increased risk of hypoglycaemia after alcohol consumption, particularly after exercise, including hypoglycaemia while sleeping.¹
- The liver will not release its glucose stores in the event of severe hypoglycaemia.

Because of these risks the young person with diabetes must:

- Eat extra food when drinking.
- Take less insulin with food if necessary.
- Inform friends about the relationship between drinking alcohol and blood glucose levels, so that hypoglycaemia is not mistaken for inebriation.
- Know that having a reliable plan for awakening the morning after drinking is a very important safety measure, especially if away from home e.g. in university halls.

Smoking

- Young people should be discouraged from taking up smoking. Its effects on their diabetes should be discussed.¹
- If they have started smoking they should receive advice about where they can seek support locally to help them stop.¹

Substance Misuse

Discuss the general dangers of recreational drugs and substance misuse and its possible effects on blood glucose with the young person.¹ Offer referral to local addiction services as appropriate.

Sexuality and Pregnancy

All young people should:

- Be counselled about barrier contraception to protect against sexually transmitted infections (STIs).
- Receive advice on suitable contraception to prevent unwanted pregnancy (dispelling any myths about contraception or the ability to conceive), and advice on how to access contraception locally.

- Understand the importance of contraception and the benefits of planning any pregnancies.
- Be aware of the availability of emergency contraception and how to obtain it with immediate support from the diabetes team if they think they could be pregnant.
- Be aware of the risks surrounding pregnancy and diabetes.
- Be aware of the factors which ensure the healthiest possible pregnancy, such as medication review, use of folic acid and excellent blood glucose control before and throughout pregnancy.
- Be made aware that an HbA_{1c} target of 48 mmol/mol (6.5%) is recommended and pregnancy should be actively advised against if the HbA_{1c} is above 86 mmol/mol (10%).⁴
- Be aware that pregnancy involves the need to test blood glucose more often, and for more frequent visits to the diabetes clinic.
- Be informed that if they have concerns about sexual dysfunction, they can discuss this with any team member that they feel comfortable speaking to.

Travel

Young people should:

- Be able to travel independently, including trips abroad or to events such as festivals.
- Be secure in their knowledge of the extra precautions necessary to maintain good blood glucose control.
- Be aware of the importance of good blood glucose control before beginning a trip.
- Be well-informed about special diabetes concerns, such as how to carry and store insulin while away.
- Carry some form of identification stating that they have been diagnosed with diabetes and require insulin.
- Understand the importance of, and how to obtain, travel insurance.

Driving

- Young people should be advised about the process for applying for a licence including the declarations that will be required.
- Refer to the most current guidance from the Driver and Vehicle Licensing Agency (DVLA), which covers insurance, hypoglycaemia management and carrying identification.



KYLIE SIMS
Kylie has type 1 diabetes

Transition Arrangements

Transition will be occurring during this phase. Local transitional arrangements should be discussed further, with a clear pathway and goals for the young person and their parents/carers to achieve. The young person should be empowered to see diabetes team members on their own if they wish to do so.

The young person should be able to discuss consent and confidentiality with the team.

Social Factors

Young people should know:

- How to manage diabetes during exams and understand that they are entitled to a letter to support blood glucose testing or eating during an exam.
- The rules and regulations for accessing diabetes care services and sources of necessary supplies including insulin, insulin devices, blood glucose meters, test strips, pump supplies etc.
- That they should start to become independent in ordering and collecting their prescriptions from their general practitioner (GP).
- That from the age of 18 years, they will need to obtain a prescription exemption certificate from their GP.

Young people should:

- Be informed about job options, any limitations with respect to job choices and special considerations concerning diabetes and the work environment.
- Gain an understanding of patient confidentiality and have the opportunity to contact their diabetes team members directly if they wish to do so.
- Be made aware of precautions relating to body piercing and tattooing.

Emotional Wellbeing

Young people should:

- Know who they can talk to if they feel upset, angry or worried or are experiencing issues in peer relationships.
- Feel confident in the management of their diabetes in school/college, and how to access help and support if they should need it.
- Feel confident in managing their diabetes outside of the home, particularly in social situations.
- Be given the opportunity to discuss any concerns they have about the day-to-day management of their diabetes, including any concerns about body image, disordered eating or conflicts about their diabetes with their parents/carers and peers.¹
- Know to ask for support from their diabetes team if any aspects of their diabetes care are causing major conflict at home or with peers.¹
- Know if there is a clinical psychologist available as part of the team, understand what a psychologist does and how they may be able to help them.¹

The young person should be psychologically assessed each year to see if emotional support is required.

* The diabetes care team should have agreed target blood glucose levels for individuals and definitions of hypoglycaemia and hyperglycaemia. NICE suggests 4–7 mmol/l on waking and pre-meals, and 5–9 mmol/l post-meals.¹

References:

1. National Institute for Health and Care Excellence (NICE). Diabetes (type 1 and type 2) in Children and Young People: Diagnosis and Management 2015 (NG 18).
2. Diabetes UK. Sport and Blood Sugar Levels. Available at: www.diabetes.co.uk/diabetes-sport-and-blood-sugar.html. Last accessed November 2015.
3. Diabetes UK. Top Physical Activity Tips. Available at: www.diabetes.org.uk/Information-for-parents/Living-with-diabetes-new/Physical-activity/Top-physical-activity-tips. Last accessed November 2015.
4. National Institute for Health and Care Excellence (NICE). Diabetes in Pregnancy: Management from Preconception to the Postnatal Period (NG 3).



Goals for 16–18 year olds

HANDOUT FOR YOUNG PEOPLE

General Diabetes Knowledge

- You should know about all the major body organs such as the heart, kidneys, liver and pancreas.
- You should be familiar with the circulatory system, the digestive system and the processes by which nutrients are absorbed by the body.
- You should have a good knowledge of how the body works in order to understand the range of issues that you may face in the future.
- You should understand the action of insulin.

Food

- You should gain a deeper understanding of nutrition, including energy-producing foods, vitamins and minerals, and suitable portion sizes.
- You should feel competent at counting carbohydrates when away from home.
- You should learn how to cook healthy meals at home.
- You should apply the principles of good nutrition to daily situations such as school, playing sports, religious fasting, eating fast foods and going to parties.
- You should understand that excessive amounts of fat or protein will have adverse effects on your blood glucose levels.

Exercise

- You should know that blood glucose levels should be checked before exercise and which readings mean that you need to take a ketone test, and which readings mean you need to eat more carbohydrate before exercising.
- You should know that your target blood glucose before sport is _____mmol/l. Do not exercise if blood ketones are above _____mmol/l.
- You should understand that daily activity, including exercise, is essential for a healthy heart, bone strength and weight management, even if you don't like sports.
- You should be able to apply all relevant precautions to avoid low glucose levels while exercising, whether you compete in competitive sporting events or follow an exercise routine, such as jogging or taking long walks.
- You should know that activity and exercise can have a positive impact on how well you feel.
- You should be made aware of any special rules about the use of your medication in competitive sports at national or international level.



JACK EDWARDS
Jack has type 1 diabetes

Insulin

You should:

- Know the name(s) of the insulins you use and how they work.
- Understand how the type of insulin you take affects when it must be injected with respect to mealtimes.
- Be almost fully independent in matching blood glucose levels, diet and exercise to appropriate doses of the different insulin types you use.
- Have a greater understanding of the relationship between food, exercise and insulin (see also Alcohol).
- Be able to examine, care for and rotate your injection/infusion sites.

If you use an insulin pump you should be able to:

- Order your supplies.
- Perform an infusion set change, programme the device and use advanced bolus features so that you can adjust the insulin dose to cover the carbohydrate content of meals and snacks.
- Use a continuous glucose monitor (CGM).
- Calculate your insulin dose and inject it in the event of a pump failure, also how to obtain a replacement pump and how to programme it.

Blood Glucose Testing

You must measure and interpret your blood glucose levels.

You should be able to explain:

- The causes of high and low blood glucose levels.
- The symptoms of high and low blood glucose levels.
- How to prevent and treat either condition.
- The long-term implications of blood glucose levels outside the normal range.

You should:

- Be able to interpret downloads of blood glucose readings, CGM readings and pump settings.
- **Understand that it is important that you keep records of your blood glucose levels and your insulin doses. This information will help you assess your blood glucose control and adjust your insulin. This may be in a diary or via data downloads or a smartphone app.**
- Understand that blood glucose levels are a tool to assist you with your diabetes management, and are not just for the clinic staff.

Hypoglycaemia or HYPO = Low Blood Glucose Level (less than _____mmol/l)

You should:

- Understand the importance of teaching your friends and schoolmates about diabetes precautions, especially the symptoms and treatment of hypoglycaemia.
- Know when and how to treat hypoglycaemia so that you can instruct potential helpers.
- Know the importance of checking your blood glucose levels after treatment to ensure that a normal blood glucose level is restored.
- Appreciate that treatments for hypoglycaemia must be part of your emergency kit, and be able to instruct others in their use.

You should have an opportunity to revise how to use glucagon annually, and know to check the expiration date of stored glucagon regularly.

Hyperglycaemia or HYPER = High Blood Glucose Level (more than _____mmol/l)

You should:

- Know the causes and symptoms of high blood glucose levels and precautions to avoid them.
- Know that your blood must be tested for ketones.
- Understand the results of the ketone test and know the appropriate action to take.
- Be able to treat high blood glucose levels successfully by yourself.
- **Keep records of your blood glucose levels and insulin doses to monitor your diabetes and to help adjust your insulin dose as required.**

Illness

You should:

- Be able to take appropriate precautions when you are ill, including more frequent testing of blood glucose levels and testing for blood ketones even if your blood glucose level is not out of range.
- Know how to adjust insulin doses to accommodate a fever.
- Know what to do in the event of episodes of nausea and vomiting.
- Realise that it may be necessary to get help from the diabetes care team, and have their contact numbers available.
- Be aware of medicines to prevent illness, such as vaccines.

Long-term Complications

- You should know about the different follow-up examinations that are necessary, including:
 - Your individualised HbA_{1c} target and what it means.
 - Blood pressure monitoring.
 - Blood investigations.
 - Urine testing for microalbuminuria.
 - Checking sensation in the feet.
 - Eye examinations.
- You should know why and how these tests are performed, how the results are evaluated and what treatments are possible if any tests show signs of long-term complications.
- You also should know how to arrange your own retinopathy screening and any local arrangements for accessing your annual reviews.

Alcohol

You should receive advice regarding the effects of alcoholic drinks.

You need to know that:

- You should eat food when you are drinking.
- Different alcoholic drinks have different effects on blood glucose.
- You must eat foods containing long-acting carbohydrate and test your blood glucose level before going to sleep.
- You run significant risks if you drink too much.
- You may overlook the symptoms of hypoglycaemia and mistake them for the effects of alcohol.
- There is an increased risk of hypoglycaemia after alcohol consumption, including while sleeping and particularly after exercise.
- The liver will not release its glucose stores in the event of a severe hypoglycaemic episode.

Because of these risks, you must:

- Eat extra food when drinking and take less insulin with food if necessary.
- Have a reliable plan for waking up the morning after drinking.
- Inform your friends about the relationship between drinking alcohol and blood glucose levels, so that if you develop hypoglycaemia it is not mistaken for drunkenness.

Smoking

- You should be made aware of the effects that smoking could have on your diabetes and long-term health.
- If you have started smoking you should be offered help to stop.

Substance Misuse

You should be told of the effects that recreational drugs and substance misuse could have on your blood glucose control, and where you can get advice and support locally to help you discontinue their use.

Sex and Pregnancy

You should:

- Know the importance of practising safe sex and how to access contraception (including emergency contraception).
- Be aware also that barrier contraception should also be used to protect against sexually transmitted infections (STIs).
- Know that you can talk to any diabetes care team member if you have any concerns about sexual dysfunction.
- Understand that having diabetes does not prevent you from becoming pregnant, and that it poses certain risks during pregnancy. You should inform your diabetes care team immediately if you suspect you could be pregnant.
- Know how to ensure the safest possible pregnancies:
 - Achieve excellent blood glucose control before attempting to get pregnant.
 - The need for medications to be reviewed and for folic acid supplements.
 - Achieve excellent blood glucose control throughout pregnancy.
 - The need for frequent visits to the diabetes clinic.
 - The need for frequent blood glucose tests.

Travel

- You should be able to travel independently, not only locally but also abroad.
- You should be confident in your knowledge of the extra precautions necessary to maintain good blood glucose control.
- You should be aware of the importance of good blood glucose control before beginning a trip.
- You should be well-informed about special concerns, such as how to carry and store insulin while travelling.
- It is advisable to carry some form of identification, including an emergency contact number, stating that you have been diagnosed with diabetes and require insulin.
- You should know the importance of taking out travel insurance and the amount of cover you require.

Driving

You should:

- Be advised about the process for applying for a licence including the declarations that will be required.
- Refer to the most up-to-date guidelines issued by the Driver and Vehicle Licensing Agency (DVLA), which covers insurance, hypoglycaemia management and carrying identification.

Transition

- The transition process whereby your future care will be transferred to a young adult team in your local area will be underway.
- You should be able to describe your transition process, and work with your diabetes team in setting your own goals.
- You should start seeing members of the diabetes care team on your own to develop confidence in managing your own consultations.
- You should be able to discuss any issues around consent and patient confidentiality with your team.
- You may start to meet members of your young adult diabetes team.



JACK EDWARDS
Jack has type 1 diabetes

Social Factors

You should:

- Know how to access your general practitioner (GP) and be informed about prescription rules with respect to diabetes care services, insulin, insulin pens, blood glucose meters, test strips, pump supplies etc.
- Start to order and collect your prescriptions yourself.
- Be aware that from the age of 18 years, you will need a prescription charge exemption certificate from your GP.
- Be able to discuss strategies for the management of your diabetes during exams.
- Know that there are very few jobs that you cannot do because of your diabetes, but that there are some jobs for which people with type 1 diabetes may not apply. You should be aware of which jobs these are.
- Know that it may be harder for a person with diabetes to get certain types of insurance.
- Be made aware of precautions relating to body piercing and tattooing.
- Have an understanding of patient confidentiality and the opportunity to contact your diabetes team members directly if you wish.

Emotional Wellbeing

- You should have regular opportunities to discuss your thoughts and feelings, including any worries about your diabetes, experiences of bullying or concerns about body image.
- At least once a year you will be asked questions about your emotional wellbeing to check whether you need any extra support.
- If you need emotional support or help with managing the impact of diabetes on your life, you may be offered the chance to talk to a clinical psychologist if there is one attached to the team.
- You should ask for support from your diabetes team if any aspects of your diabetes care are causing major conflict at home or with friends.
- You should ask help from your parents or carers or your diabetes team if you feel that any aspects of your care are becoming overwhelming.



RECORD SHEET FOR PATIENTS AGED 16–18 years Name:

Instructions for use:

Use this sheet to log the level of knowledge and skill of your patients.
 It is recommended that a maximum of two 'goals to work towards' should be set on each occasion, with progress towards achieving these reviewed regularly.
 Provide your patients with a copy to take home each time it is updated.

Competency in achieving goals is defined as follows:

Fully achieved:

The patient demonstrates complete competence and confidence in fulfilling the educational goal outlined in the first column.

Partially achieved:

The patient has a partial understanding and/or some level of confidence relating to the educational goal.

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Diabetes Knowledge					
Young people should:					
• Have a good knowledge of how the body works in order to understand the range of issues that they may face in the future.					
• Know about all major body organs such as the heart, kidneys, liver and pancreas.					
• Be familiar with the circulatory system, the digestive system and the process through which nutrients are absorbed by the body.					
• Understand the action of insulin.					
Food					
Young people should:					
• Gain a deeper understanding of nutrition and food in general, including energy producing foods, vitamins and minerals and suitable portion sizes.					
• Feel competent at carbohydrate counting when away from home.					
• Learn how to cook healthy meals at home.					
• Apply the principles of good nutrition to daily situations such as playing sports, eating fast food and going to parties.					
• Understand that excess amounts of fat or protein will have adverse effects on blood glucose levels.					



RECORD SHEET FOR PATIENTS AGED 16–18 years

EDUCATIONAL GOAL	FULLY ACHIEVED (✓/NA)	PARTIALLY ACHIEVED (✓/NA)	GOALS TO WORK TOWARDS		DATE & SIGNATURE
			GOAL	REVIEW DATE	
Exercise Young people should:					
<ul style="list-style-type: none"> • Know that blood glucose levels should be checked before exercise, which readings mean that they need to take a ketone test and which readings mean they need to eat more carbohydrate before exercising. 					
<ul style="list-style-type: none"> • Know their target blood glucose before sport is _____mmol/l and that they should not exercise if ketones are above _____mmol/l. 					
<ul style="list-style-type: none"> • Understand that daily activity, including exercise, is essential for a healthy heart, bone strength and weight management, even if they don't like sports. 					
<ul style="list-style-type: none"> • Be able to apply all relevant exercise precautions to avoid low glucose levels, whether they compete in competitive sporting events or follow an exercise routine, such as jogging or taking long walks. 					
<ul style="list-style-type: none"> • Know that activity and exercise can have a positive impact on their emotional health. 					
<ul style="list-style-type: none"> • Be made aware of any special rules about the use of their medication in competitive sports at national or international level. 					
Insulin Young people should:					
<ul style="list-style-type: none"> • Know the name(s) of the insulin(s) they use and how they work. 					
<ul style="list-style-type: none"> • Understand how the type of insulin they take affects when it must be injected with respect to mealtimes. 					
<ul style="list-style-type: none"> • Be almost fully independent in matching blood glucose readings, diet and exercise to appropriate doses of the different insulins they use. 					
<ul style="list-style-type: none"> • Have a greater understanding of the relationship between food, exercise and insulin. 					
<ul style="list-style-type: none"> • Be able to examine and care for their injection/infusion sites and have an understanding of the need for zonal site rotation. 					
<ul style="list-style-type: none"> • If using an insulin pump, they should be able to: <ul style="list-style-type: none"> • Order supplies. • Perform an infusion set change, programme the device and use advanced bolus features. • Use a continuous glucose monitor (CGM). • Calculate the dose and inject insulin in the event of a pump failure. 					
<ul style="list-style-type: none"> • Know how to obtain a replacement pump and how to programme it. 					



RECORD SHEET FOR PATIENTS AGED 16–18 years

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			GOAL	REVIEW DATE	
Blood Glucose Testing The young person must measure and interpret their blood glucose levels. They should be able to explain:					
• The causes of high and low blood glucose levels.					
• The symptoms of high and low blood glucose levels.					
• How to prevent and treat either condition.					
• The long-term implications of blood glucose levels outside the normal range.					
They should:					
• Be able to interpret downloads of blood glucose readings, continuous glucose monitor (CGM) readings and pump settings.					
• Understand that it is important to keep records of blood glucose levels and insulin doses. This information will help them assess their diabetes control and to adjust insulin doses. This may be in a diary, via data downloads or using a smartphone app.					
• Understand that blood glucose levels are a tool to help them to manage their diabetes, and are not just for the clinic staff.					
Hypoglycaemia or HYPO (blood glucose less than _____ mmol/l) Young people should:					
• Understand the importance of teaching their friends and schoolmates about diabetes precautions, especially the symptoms and treatment of hypoglycaemia.					
• Know when and how to treat hypoglycaemia so that they can instruct potential helpers.					
• Know the importance of checking their blood glucose levels after treatment to ensure that a normal blood glucose level is restored.					
• Understand that treatments for hypoglycaemia should be a part of their emergency kit, and that they should be able to instruct others in their use.					
Young people should know that they will have the opportunity to revise how to use glucagon annually, and must check its expiration date regularly.					



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Hyperglycaemia or HYPER (blood glucose more than _____mmol/l) Young people should:					
<ul style="list-style-type: none"> • Know the causes and symptoms of high blood glucose levels and precautions to avoid them. 					
<ul style="list-style-type: none"> • Know the importance of checking for blood ketones in case of hyperglycaemia. 					
<ul style="list-style-type: none"> • Understand the results of the ketone test and know the appropriate action to take. 					
<ul style="list-style-type: none"> • Be able to treat high blood glucose levels successfully by themselves. 					
<ul style="list-style-type: none"> • Keep records of their blood glucose levels and insulin doses to monitor their diabetes and to adjust the insulin dose as required. 					
Illness					
<ul style="list-style-type: none"> • The young person must be able to take appropriate precautions when they are ill, including more frequent testing of blood glucose and testing for blood ketones, even if blood glucose levels are not out of range. 					
<ul style="list-style-type: none"> • They should know how to adjust insulin to accommodate a fever and how to handle episodes of nausea and vomiting. 					
<ul style="list-style-type: none"> • They must realise that it may be necessary to get help from the diabetes care team and have their contact numbers available. 					
<ul style="list-style-type: none"> • They should be aware of preventative medicine such as vaccines. 					



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Long-term Complications					
<ul style="list-style-type: none"> The young person should know about the different follow-up examinations that are necessary, including: <ul style="list-style-type: none"> Their individualised HbA_{1c} target and what it means. Blood pressure monitoring. Blood investigations. Urine testing for microalbuminuria. Checking sensation in the feet. Eye examinations. 					
<ul style="list-style-type: none"> They should know why and how these tests are performed, how the results are evaluated and what treatments are possible if any tests show signs of long-term complications. 					
<ul style="list-style-type: none"> They also should know how to arrange their own retinopathy screening and any local arrangements for accessing their annual reviews. 					
Alcohol					
Young people should receive advice regarding alcoholic drinks. They need to know that:					
<ul style="list-style-type: none"> They should eat when they are drinking. 					
<ul style="list-style-type: none"> Different alcoholic drinks have different effects on blood glucose. 					
<ul style="list-style-type: none"> They must eat foods containing long-acting carbohydrates and test their blood glucose level before going to sleep. 					
<ul style="list-style-type: none"> They run significant risks if they drink too much. 					
<ul style="list-style-type: none"> They may overlook the symptoms of hypoglycaemia and mistake them for the effects of alcohol. 					
<ul style="list-style-type: none"> There is an increased risk of hypoglycaemia after alcohol consumption, including while sleeping and, particularly, after exercise. 					
<ul style="list-style-type: none"> The liver will not release its glucose stores in the event of a severe hypo (hypoglycaemic episode). 					
Because of these risks, they must know to:					
<ul style="list-style-type: none"> Eat extra food when drinking and take less insulin if necessary. 					
<ul style="list-style-type: none"> Have a reliable plan for waking up the morning after drinking. 					
<ul style="list-style-type: none"> Inform their friends about the relationship between drinking alcohol and blood glucose levels, so that if they develop hypoglycaemia it is not mistaken for inebriation. 					



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Smoking					
<ul style="list-style-type: none"> The young person should understand the effects that smoking could have on their diabetes and long-term health. 					
<ul style="list-style-type: none"> If they have started smoking, they should be made aware of how to get help to stop smoking. 					
Substance Misuse					
<ul style="list-style-type: none"> The young person should be told of the effects that recreational drugs and substance misuse could have on their blood glucose control, and where advice and support to help to stop can be accessed locally. 					
Sex and Pregnancy					
Young people should:					
<ul style="list-style-type: none"> Know the importance of practising safe sex and how to access contraception, including emergency contraception. 					
<ul style="list-style-type: none"> Understand that barrier contraception should be used to protect against sexually transmitted infections. 					
<ul style="list-style-type: none"> Be made aware that they can talk to any team member if they have any concerns about sexual dysfunction. 					
<ul style="list-style-type: none"> Understand that having diabetes does not prevent them from becoming pregnant, but that it does pose certain risks during pregnancy and that they must inform their diabetes care team immediately if they suspect they could be pregnant 					
<ul style="list-style-type: none"> Know how to ensure the safest possible pregnancy by: <ul style="list-style-type: none"> Achieving excellent blood glucose control before attempting to get pregnant. Reviewing medications and adding folic acid supplements. Achieving excellent blood glucose control throughout pregnancy. Making frequent visits to the diabetes clinic. Taking frequent blood glucose tests. 					



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Travel Young people should:					
<ul style="list-style-type: none"> • Be able to travel independently not only locally but also abroad. 					
<ul style="list-style-type: none"> • Be secure in their knowledge of the extra precautions necessary to maintain good blood glucose control while travelling. 					
<ul style="list-style-type: none"> • Be aware of the importance of good blood glucose control before beginning a trip. 					
<ul style="list-style-type: none"> • Be well-informed about special diabetes concerns, such as how to carry and store insulin. 					
<ul style="list-style-type: none"> • Know that it is advisable to carry some form of identification stating that they have been diagnosed with diabetes and require insulin. 					
<ul style="list-style-type: none"> • Know the importance of taking out travel insurance and the amount of cover they require. 					
Driving Young people should:					
<ul style="list-style-type: none"> • Refer to the most up-to-date guidelines issued by the Driver and Vehicle Licensing Agency (DVLA), which covers insurance, hypoglycaemia management and carrying identification. 					
<ul style="list-style-type: none"> • Be advised about the process for applying for a licence including the declarations that will be required. 					
Transition Young people should:					
<ul style="list-style-type: none"> • Be able to describe the transfer of their care and work with the diabetes team in setting their own goals. 					
<ul style="list-style-type: none"> • Start seeing members of the team on their own and feel confident in managing the consultation. 					
<ul style="list-style-type: none"> • Be able to discuss any issues around consent and patient confidentiality with their team. 					
<ul style="list-style-type: none"> • Start to meet members of their young adult diabetes team. 					



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Social Factors					
Young people should:					
<ul style="list-style-type: none"> Know how to access their general practitioner (GP) and be informed about prescription rules with respect to diabetes care services, insulin, insulin pens, blood glucose meters, test strips, pump supplies etc. 					
<ul style="list-style-type: none"> Start to order and collect their prescriptions themselves. 					
<ul style="list-style-type: none"> Be aware that from the age of 18 years they will require a prescription exemption certificate from their GP. 					
<ul style="list-style-type: none"> Be able to discuss strategies for the management of their diabetes during exams. 					
<ul style="list-style-type: none"> Know that there are very few jobs that they can't do because of their diabetes, but that there are some jobs for which people with type 1 diabetes may not apply. 					
<ul style="list-style-type: none"> Know that it may be harder for a person with diabetes to get certain types of insurance. 					
<ul style="list-style-type: none"> Be made aware of precautions relating to body piercing and tattooing. 					
<ul style="list-style-type: none"> Have an understanding of patient confidentiality and the opportunity to contact their team members directly if they wish. 					
Emotional Wellbeing					
Young people should understand that:					
<ul style="list-style-type: none"> They should have regular opportunities to discuss their thoughts and feelings, including any worries about their diabetes, experiences of bullying or concerns about matters such as body image. 					
<ul style="list-style-type: none"> At least once a year they will be asked questions about their emotional wellbeing to check whether they need any extra support. 					
<ul style="list-style-type: none"> If they need emotional support or help with managing the impact of diabetes on their life, they will be offered the chance to talk to the clinical psychologist attached to the team (if available). 					
<ul style="list-style-type: none"> They should ask for support from their diabetes team if any aspects of their diabetes care are causing major conflict at home or with friends. 					
<ul style="list-style-type: none"> They should ask for help from their parents or carers or their diabetes team if they feel that any aspect of their care is becoming overwhelming. 					

Record any other education provided or notes here:

Authorisation date: Date of next revision:

Visit www.with-you-all-the-way.co.uk/HCP to access materials from the *With you all the way* campaign.

Visit www.novonordiskpro.co.uk to download *Goals of diabetes education* resources.

