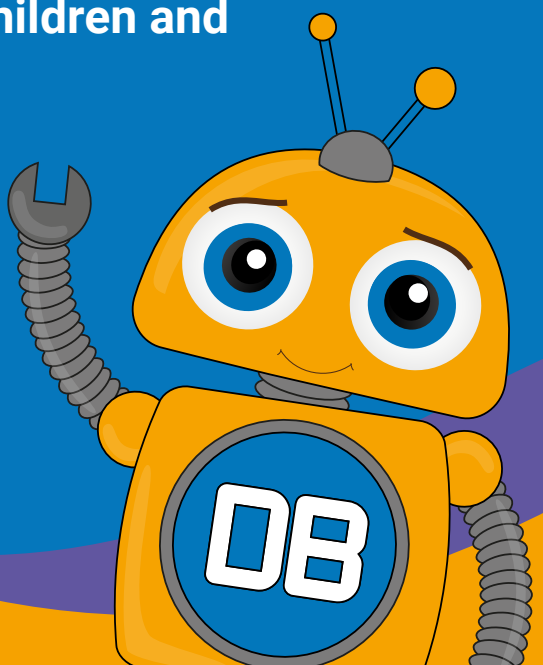
DigiBete

DigiBete Structured Education

Goals of Diabetes Education

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

HEALTHCARE PROFESSIONAL GUIDE



DigiBete Structured Education

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 manage their diabetes independently over time.

Programme objectives

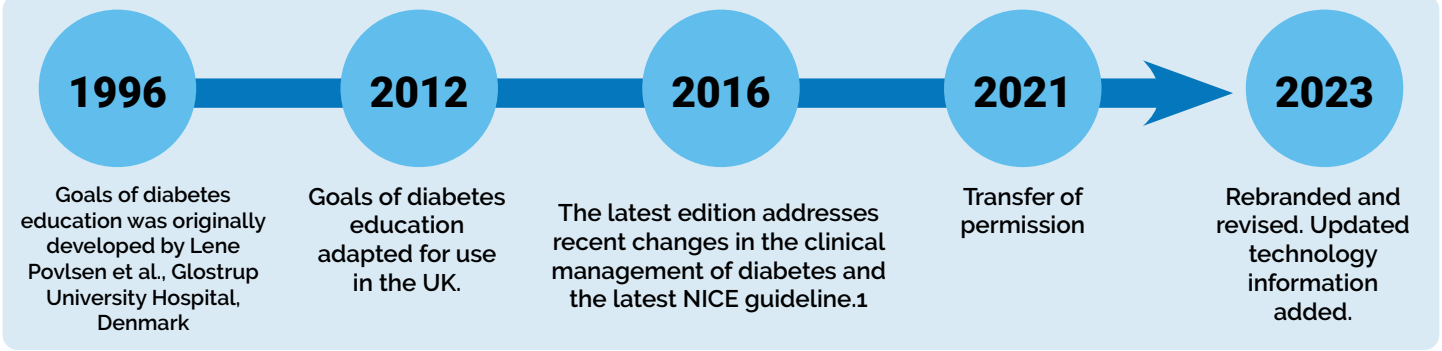
Goals of Diabetes Education has been created to:

- 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) and introduced for use in the UK in 2012 and updated in 2016 to reflect NICE guidance (1). The 2023 version encompasses resources relevant to 0-5 year olds. The focus is on helping parents explain to their children about diabetes management tailored to their educational needs. The 2023 version had been revised and updated by a multidisciplinary clinical team to reflect newer technologies and updated NICE and ISPAD guidance from 2022. Language within diabetes has evolved and therefore this has also been updated to encourage positive interactions.

Previously published by Novo Nordisk, DigiBete has been granted the UK rights to Goals of Diabetes Education and has rebranded and digitized the programme to make it easily accessible to CYP diabetes teams throughout the UK.



DigiBete Structured Education

How to use Goals of Diabetes Education

This printed guide is intended to be a 'master' reference copy for each service.

Each age category contains:

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

Handout for parents and young people
Each handout reflects the corresponding 'Guide for Healthcare Professionals', summarising the key facts that CYP should know in relation to the management of their diabetes. Handouts for families and CYP can be accessed via the DigiBete website for printing or uploaded as a PDF and sent to individuals via the DigiBete app.

Record sheet
Use the record sheet to log the level of knowledge and skill of your patients and set educational goals. It can also be used to set realistic expectations for levels of independence of CYP at different ages.

Individual record sheets are available as rewritable PDF documents for HCPs to record progress and store electronically. Individual hospital logos can be added to the record sheets. Use the record sheet to log the level of knowledge and skills of patients and set educational goals. They can be shared with families as a PDF and sent and stored via the DigiBete app.

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-management of diabetes for better long term health outcomes.

Ideally, CYP should have a good understanding of their diabetes and possess recommended practical skills by 14 years old. They should still be supported by their parents/carers for making diabetes decisions.

Achieving a certain level of independence can improve potential family conflicts over diabetes care, but parental support should be encouraged for oversight of management and acknowledgement of the daily responsibilities of a long-term condition.

Young people who are diagnosed later in childhood may not reach learning goals as easily as those who have had diabetes for longer. CYP with additional learning needs may take longer to achieve educational goals based on their abilities rather than their age.

DigiBete Structured Education

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 and will depend on time since their diagnosis.

- Should be achieved over a two-year phase, enabling the child to gradually develop over time.

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 (updated 2022) (NG18) https://www.nice.org.uk/guidance/ng18
- ISPAD Clinical Practice Consensus Guidelines 2022 https://www.ispad.org/general/custom.asp?page=ISPADGuidelines2022
- Language Matters: Language and Diabetes 2018 language-matters.pdf (england.nhs.uk)
- Diabetes Care in the UK. FIT UK Forum for Injection Technique UK. The UK Injection Technique Recommendations; 4th Edition 2016 FIT_UK_Recommendations_4th_Edition.pdf (fit4diabetes.com)

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.

Resources relevant for 0–5 year olds

Guide for healthcare professionals
This guide outlines the goals of diabetes education for your 0-5 year old patients. Use this guide as part of a narrative discussion with patients and parents 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 0-5 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.

DigiBete Structured Education

Goals for 0–5 year olds

GUIDE FOR HEALTHCARE PROFESSIONALS

General Educational Level: Advice for parents/carers

To achieve educational goals of this age group, educators should copy the learning available in nurseries and early years settings – colours, numbers, early phonics, storytelling and imaginative play. Children may ask a lot of why, when, how questions.

Psychological Development Level: Advice for parents/carers

The preschool period is a time of rapid development of children's thinking abilities or cognition. Children learn through play and doing. Children use routines to help their understanding of events.

Educational Goals: Advice for parents/carers

At this stage, parents/carers, with the support of healthcare teams, are completely responsible for the child's daily diabetes care.

Parents/carers should be encouraged to model good diabetes care, to vocalise and use 'think aloud' explanations of 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 with diabetes tasks if they are old enough and able.

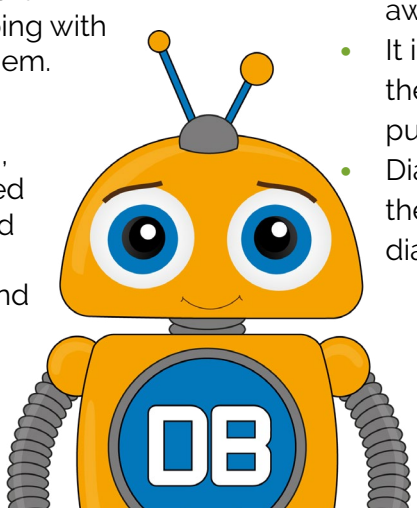
Diabetes in General: Advice for parents/carers

Depending on age – children may be able to state in their own words that:

- They have diabetes.
- Their body needs insulin every day.
- They have to have injections or wear an insulin pump.

By the age of 5 if not before, children should know that:

- Diabetes is lifelong and will not go away.
- It is not their fault or anyone's fault they have diabetes – it is not a punishment.
- Diabetes is not catching/contagious – their siblings or friends will not catch diabetes from them.



Food: Advice for parents/carers

Children of this age need structure around mealtimes to allow good, learned feeding behaviours.

- Have regular meal and snack times so the child is not too hungry or too tired to eat.
- Continuous eating or 'grazing' behaviour should be avoided.
- Eating together as a family or with siblings makes it a social occasion.
- Offer small, age-appropriate portions so they are likely to eat what is offered and not put off by too much food.
- Small, nutritious food snacks between meals at set times should be expected for this age group.
- Let young children feed themselves with finger foods and then using children's cutlery.
- Limit mealtimes to 20 minutes.
- Insulin doses may need to be split around a meal if the child is an unreliable eater.
- Replace uneaten carbs with alternative food carbs – milk, yogurt, fruit, plain biscuit – rather than hypo treatment or a sweet option.
- All children under 5 should receive a vitamin supplement (A,D,C) irrespective of diabetes.

Children should:

- Know to ask an adult before taking or eating food.
- Know that they need insulin at mealtimes (via injections or a pump).
- Be encouraged to try and eat a wide variety of foods.

Exercise: Advice for parents/carers

Activity and active play should be encouraged as part of a healthy lifestyle and is an important part of diabetes management – create opportunities for this to happen. If participating in a structured activity (swimming, soft play session, sports) additional precautions may be needed to prevent hypoglycaemia. Children under 5 should be active for 3 hours per day.

Individualised exercise plans should be discussed with the parents/carers based on circumstances.

- Target glucose before exercise is 7-10mmol/L.
  Exercise should be postponed if ketones are 0.6mmol/L or above.
  Exercise should not be done if ketones are 1.5mmol/L or above.
- Extra carbohydrate may be necessary if glucose is less than 7mmol/L before activity.
- Exercise snacks should be healthy - fruit, dried fruit, cereal bars, rather than sweets. crisps or sugary biscuits.
- Insulin reductions can be made if exercise is planned.
- Check glucose before outdoor play which is likely to be more physical and affected by temperature.
- Use of a continuous glucose sensor is often essential for this age group especially during activity.
- If glucose is above 14mmol/L, a ketone check should also be performed to ensure sufficient insulin.
- If ketones are present parents should understand that insulin is needed, and activity should be delayed.

Children should:

- Know they might need a snack before exercise.
- Enjoy being active and having fun with family and/or friends.
- Know that diabetes will not stop play or them having fun.

Diabetes Technology: Advice for parents/carers

Very young children may be offered technology to help manage their diabetes. This may include continuous glucose sensors (preferably with alarms to alert to low or high glucose levels), insulin pumps or smart insulin pens. These devices may be used separately or together to create a safer environment for the child and provide more information to the adults caring for them.

Any adult caring for a young child with diabetes should have appropriate and ongoing training and support from healthcare staff or a parent, to ensure they feel confident in operating or using the technology.

Insulin: Advice for parents/carers

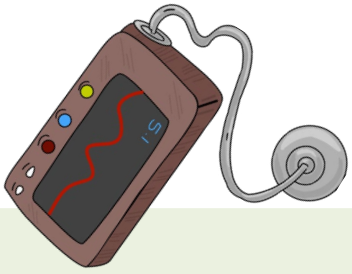
Insulin administration via injection or insulin pump is an adult's responsibility. Anyone caring for a child with diabetes should have appropriate training from parents or healthcare staff to allow safe administration of insulin.

With supervision, children may help with the process by:

- Finding the injecting device/cannula set.
- Deciding a new site for the injection/cannula insertion.
- Counting to 10 after insulin has been injected.

Children may know, depending on age:

- That an adult will give their insulin via injection or insulin pump.
- That their insulin pump is not a toy.
- That they need to wear their insulin pump most of the time.
- That only an adult can make their pump work.
- That other children should not touch their pump.



Glucose Monitoring: Advice for parents/carers

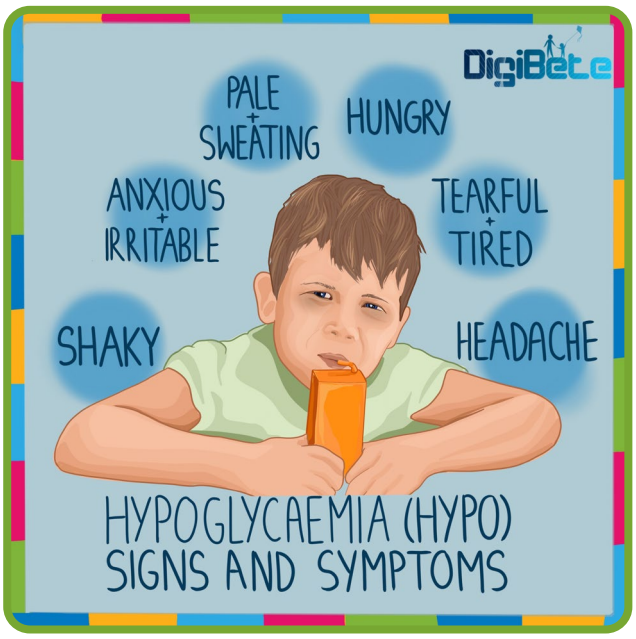
(Recommended glucose targets 4-10mmol/L)

A glucose monitoring system with alarms is the safest way of managing diabetes in this age group. Regular blood glucose checks throughout a 24h period (including overnight) should be done by an adult if there is no access to a glucose sensor. 6-10 BG checks per day is optimal if there is no glucose sensor.

Parents should respond promptly to alarms at all times of day or night. Glucose values should be double checked with a finger prick blood sample if symptoms do not match a sensor reading, or when hypoglycaemia or hyperglycaemia is suggested.

Children may, depending on age:

- Know that their glucose sensor is not a toy.
- Know that they need to wear their sensor most of the time.
- Know that different fingers are used for checking glucose values.
- Listen for an alarm and tell an adult if they hear one.
- Recognise glucose numbers that are too low.



Low blood glucose (Hypoglycaemia*) Advice for parents/carers

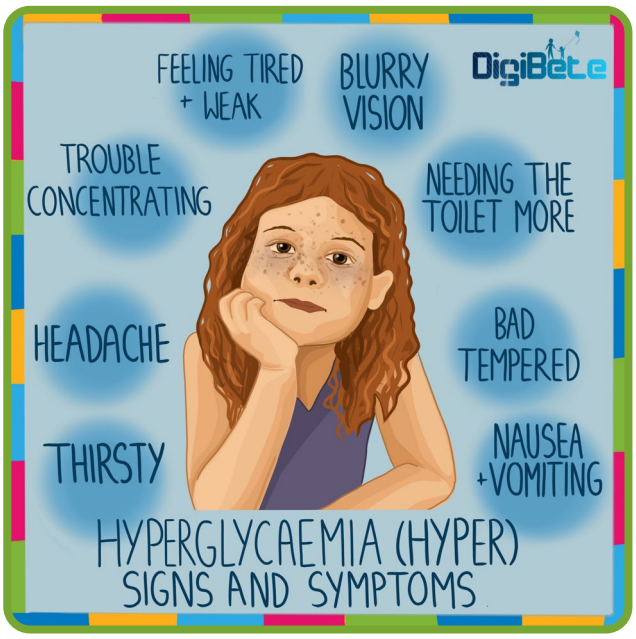
Children in this age group may not have good awareness of hypoglycaemia or may not be able to communicate their feelings of hypoglycaemia. Regular checking of sensor glucose readings or checking blood glucose and acting accordingly, is important for safety. Parents should use language reflecting hypo treatment as a medicine, not a sugary treat.

If a hypo is identified, ask the child if they feel 'different' or 'funny', to try and train them to associate these feelings with low glucose values. 3.9mmol/L is a recommended value for initiating hypo treatment.

Children should:

- Be encouraged to say how they feel if a hypo is identified.
- Tell an adult immediately if they do not feel well.
- Know they need a sugary drink or tablets or treatment if told by an adult.

Families should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency. Some childcare facilities may store glucagon.



High blood glucose (Hyperglycaemia*) and illness: Advice for parents/carers

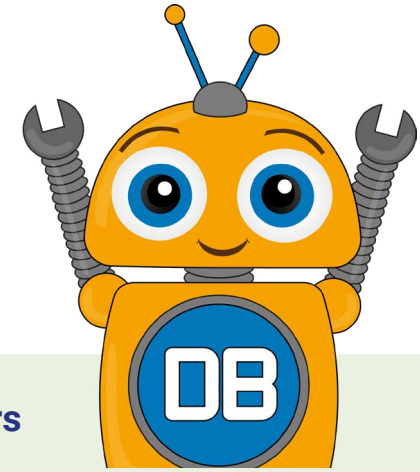
High blood glucose levels are likely to cause symptoms of thirst, increased wet nappies or bed wetting, tiredness, poor or emotional behaviour, or maybe a sign of illness (see below).

If glucose levels are constantly high over several days, insulin adjustments may be needed and parents should contact their team for guidance. Rapid periods of growth can cause higher glucose levels, needing adjustments to insulin.

Children in this age group are more likely to have regular childhood infections, irrespective of diabetes. These illnesses may often cause high glucose levels as the body tries to fight the infection. Vomiting or diarrhoea may cause low glucose levels.

Blood Ketone levels should be monitored during any type of illness episode, even with low glucose levels. Young children can become ketotic more quickly than older children. Contact healthcare staff promptly for advice during illness. Never stop insulin during illness. Sometimes admissions to hospital for fluids and insulin cannot be avoided in this age group.

Young children are more likely to have 'starvation ketones' first thing in the morning, due to long periods of sleeping and fasting overnight. These are not associated with illness and will clear quickly when breakfast is given with insulin.



Emotional Wellbeing: Advice for parents/carers

Caring for a young child with diabetes can have a significant impact on adults. Lack of sleep can also affect a parent's ability to care for someone with diabetes. Clinical psychology support is available for parents, recognising the challenges that parents face, caring for children with diabetes. Putting parents in touch with local support groups or other families who may have had similar lived experience, who understand the circumstances and may be able to offer practical help and emotional support.

- Children may start to realise that they are different from their siblings or friends.
- Siblings may feel jealous of the necessary increased attention given to the child with diabetes.
- Involve siblings in diabetes care and discussion.
- Avoid speaking negatively about diabetes in front of children.
- Access films or books to help children understand diabetes.
- Clinical psychologists or play specialists may be able to help with distraction techniques for distressing procedures.

Children should:

- Be able to talk about their feelings towards diabetes.
- Have their feelings acknowledged if they are sad, cross, frustrated or worried about diabetes.
- Have the opportunity to meet other children with diabetes, or access video resources showing other children with T1 diabetes.

*The diabetes care team should have agreed target blood glucose levels for individuals and definitions of hypoglycaemia and hyperglycaemia.
ISPAD suggests a Time in Range (TIR) of 4-10mmol/L and fasting target range of 4-8mmol/L.
ISPAD suggests 3.9mmol/L as the value to initiate hypo treatment.

DigiBete Structured Education

Goals for 0–5 year olds

HANDOUT FOR PARENTS

A few words about this age group

Parents should copy the learning available in nurseries and early years settings – colours, numbers, early phonics, storytelling and imaginative play. Children may ask a lot of why, when, how questions.

The preschool period is a time of rapid development of children's thinking abilities or cognition. Children use routines to help their understanding of events.

At this stage, parents/carers, with the support of healthcare teams, are completely responsible for the child's daily diabetes care.

You are encouraged to model good diabetes care, to vocalise and use 'think aloud' explanations of what you are doing with your child, rather than just doing it to them. Social learning theory which provides the foundation for behaviour modelling, says that most behaviours are learned by observation and modelling. Your child should be encouraged to help with some diabetes tasks if they are old enough and able. It will depend at what age they are diagnosed as to how involved they are.

Diabetes Knowledge:

Depending on age – children may be able to state in their own words that:

- They have diabetes – they may know the word even if they do not know what it is.
- Their body needs insulin every day.
- They have to have injections or wear an insulin pump.

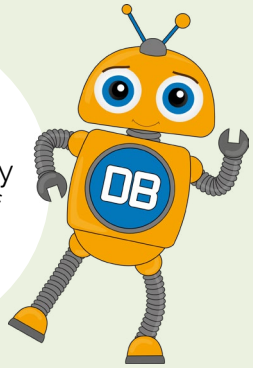
Story books are available to help with understanding of Type 1 diabetes.

Video resources showing other children with Type 1 diabetes can be shared.

Children should be told that:

- Diabetes is lifelong and will not go away.
- It is not their fault or anyone's fault they have diabetes – it is not a punishment.
- Diabetes is not catching/contagious – their siblings or friends will not catch diabetes from them.

Diabetes words and routines may become part of children's play.



Food

Children of this age need structure around mealtimes to allow good learned feeding behaviours.

- Have regular meal and snack times so the child is not too hungry or too tired to eat.
- Continuous eating or 'grazing' should be avoided.
- Eating together as a family or with siblings makes it a social occasion.
- Offer small, age appropriate portions so they are likely to eat what is offered and not put off by too much food.
- Small, nutritious food snacks between meals at set times should be expected for this age group.
- Let young children feed themselves with finger foods and then using children's cutlery.
- Limit mealtimes to 20 minutes.
- Insulin doses may need to be split around a meal if the child is an unreliable eater, to reduce the risk of hypoglycaemia.
- Replace uneaten carbs with alternative food carbs – milk, yogurt, fruit, plain biscuit, rice cakes – rather than hypo treatment or a sweet option.
- All children under 5 should receive a vitamin supplement (A,D,C) irrespective of diabetes.

Children should:

Know to ask an adult before taking or eating food.
Know that they need insulin at mealtimes (via injections or a pump).
Be offered and encouraged to try a wide variety of foods.

Exercise

Activity and active play should be encouraged as part of a healthy lifestyle and is an important part of diabetes management – parents should create opportunities for this to happen. Play in the garden, park, walking the dog, a bike or scooter ride all count as active play. If participating in a structured activity (swimming, soft play session, sports) additional precautions may be needed to prevent hypoglycaemia. Children under 5 should be active for 3 hours per day.

- Extra carbohydrate may be necessary if glucose is less than 7mmol/L before activity.
- Insulin reductions can be made if exercise is planned.
- Check glucose before outdoor play which is likely to be more physical and affected by temperature.
- Use of a continuous glucose monitor is hugely beneficial in this age during activity.
- If glucose is above 14mmol/L, a ketone check should also be performed to ensure sufficient insulin on board.
- A supervising adult should have easy access to hypoglycaemia treatment and know when to use it.

Your child should:

- Know they might need a snack before exercise.
- Enjoy being active and having fun with family and/or friends.
- Know that diabetes will not stop play, but to report if they feel funny.

Diabetes Technology

Very young children may be offered technology to help manage their diabetes. This may include continuous glucose sensors (preferably with alarms to alert to low or high glucose levels), insulin pumps or smart insulin pens. These devices may be used separately or together to create a safer environment for the child and provide more information to the adults caring for them.

Any adult caring for a young child with diabetes should have appropriate and ongoing training and support from healthcare staff or a parent, to ensure they feel confident in operating or using the technology.

Insulin

Insulin administration via injection or insulin pump is an adult's responsibility. Anyone caring for a child with diabetes should have appropriate training from parents or healthcare staff to allow safe administration of insulin.

With supervision, children may help with the process by:

- Finding the injecting device/cannula set.
- Deciding a new site for the injection/cannula insertion.
- Counting to 10 after insulin has been injected.

Children may know, depending on age:

- That an adult will give their insulin via injection or insulin pump.
- That their insulin pump is not a toy.
- That they need to wear their insulin pump most of the time.
- That only an adult can make their pump work.
- That other children should not touch their pump.

Glucose Monitoring

A glucose monitoring system with alarms is the safest way of managing diabetes in this age group. Regular blood glucose checks throughout a 24h period (including overnight) should be done by an adult if there is no access to a glucose sensor. 6-10 BG checks per day are optimal if there is no glucose sensor. Parents should respond promptly to alarms at all times of day or night. Glucose values should be double checked with a finger prick blood sample if symptoms do not match a sensor reading, or when hypoglycaemia or hyperglycaemia is suggested.

Children may, depending on age and length of diagnosis:

- Know that their glucose sensor is not a toy.
- Know that they need to wear their sensor most of the time.
- Know that different fingers are used for checking glucose values.
- Be able to scan their own sensor.
- Listen for an alarm and tell an adult if they hear one.
- Recognise glucose numbers that are too low 3.9mmol/L is a recommended value for initiating hypo treatment.

Hyperglycaemia or HYPER = High Blood Glucose Level (10mmol/L or more) and Illness

High blood glucose levels are likely to cause symptoms of thirst, increased wet nappies or bed wetting, tiredness, poor or emotional behaviour, or maybe a sign of illness (see below).

If glucose levels are constantly high over several days, insulin adjustments may be needed and parents should contact their team for guidance. Rapid periods of growth can cause higher glucose levels, needing adjustments to insulin.

Children in this age group are more likely to have regular childhood infections, irrespective of diabetes. These illnesses may often cause high glucose levels as the body tries to fight the infection. Vomiting or diarrhoea may cause low glucose levels.

Blood Ketone levels should be monitored during any type of illness episode, even with low glucose levels. Young children can become ketotic more quickly than older children.

Contact healthcare staff for advice during illness. Never stop insulin during illness. Sometimes admissions to hospital for fluids and insulin cannot be avoided in this age group.

Young children are more likely to have 'starvation ketones' first thing in the morning, due to long periods of sleeping and fasting overnight. These are not associated with illness and will clear quickly when breakfast is given with insulin.

Hypoglycaemia or HYPO = Low Blood Glucose Level (3.9mmol/L or less)

Children in this age group may not have good awareness of hypoglycaemia or may not be able to communicate their feelings of hypoglycaemia. Regular checking of sensor glucose readings or checking blood glucose and acting accordingly, is important for safety. Parents should use language reflecting hypo treatment as a medicine, not a sugary treat.

If a hypo is identified, ask the child if they feel 'different' or 'funny', to try and train them to associate these feelings with low glucose values.

Children should:

- Be encouraged to say how they feel if a hypo is identified.
- Tell an adult immediately if they do not feel well.
- Know they need a sugary drink or tablets or treatment if told by an adult.

Families should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency. Some childcare facilities may store glucagon.

Emotional Wellbeing

Caring for a young child with diabetes can bring significant challenges for adults. Lack of sleep can also affect parent's ability to care for someone with diabetes. Parents may change their working patterns to accommodate this additional responsibility. Clinical psychology support is available for parents, recognizing the challenges that they face and the importance of their wellbeing as well as that of their child. Find local support groups or other families who may have had similar lived experience, who understand their circumstances and may be able to offer practical help and support.

- Children may start to realise that they are different from their siblings or friends.
- Siblings may feel jealous of the necessary increased attention given to the child with diabetes.
- Avoid speaking negatively about diabetes in front of children.
- Access films or books to help children understand their diabetes.
- Clinical psychologists or play specialists may be able to help with distraction techniques for distressing procedures.

Children should:

- Be able to talk about their feelings towards diabetes.
- Have their feelings acknowledged if they are sad, cross, frustrated or worried about diabetes.
- Have the opportunity to meet other children with diabetes, or access video resources showing other children with T1 diabetes.

DigiBete Structured Education

Record Sheet for patients aged 0–5 years

Name: .....

Instructions for use:
Use this sheet to log the level of knowledge and skill of parents or children (at the older age range, depending on when they were diagnosed).

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 (Yes/NA)	Partially Achieved (Yes/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 the child may choose to be involved in some aspects, with their close supervision.					
Depending on age, children may be able to state in their own words:					
They have diabetes.					
Their body needs insulin every day.					
They have to have injections or wear an insulin pump.					

DigiBete Structured Education

Record Sheet for patients aged 0–5 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Diabetes Knowledge					
Depending on age, the child may know that:					
They will always have diabetes.					
It is not their fault or anyone's fault they have diabetes.					
Diabetes is not catching (contagious).					
Food **Parents/carers should:**					
Offer regular set meal and snack times for good food routines.					
Offer small, age appropriate nutritious meals.					
Know strategies to manage food refusal.					
Provide a children's vitamin supplement.					
Limit sweets/chocolate/sugary treats.					
Carb count meals and snacks at home and in childcare settings.					

DigiBete Structured Education

Record Sheet for patients aged 0–5 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Food **Depending on age, children may:**					
Ask an adult before taking/eating food.					
Know they need insulin at meal/snack times.					
Be offered and encouraged to try a wide variety of food.					
Exercise: **Parents/carers should:**					
Create opportunities for a minimum of 180minutes (3 hours) activity per day.					
Know how to make insulin reductions if required.					
Provide extra carbohydrate snacks for activity if required.					
Know that target blood glucose is 7-10mmol/L before exercise.					
Know the child should not exercise if ketones are above 1.5mmol/L					
Depending on age, children may:					
Know they might need a snack before exercise.					
Enjoy being active.					
Know that diabetes will not stop play, but to report if they feel unwell or 'funny'.					

DigiBete Structured Education

Record Sheet for patients aged 0–5 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Insulin: **Parents/carers should:**					
Know how to operate any insulin pump worn by the child.					
Know how to give an insulin injection, routinely or in case of pump failure.					
Know how to share insulin pump data with the diabetes team (if applicable).					
Depending on age, children may know:					
An adult will give their insulin via injection or insulin pump.					
They need to wear their insulin pump (if applicable) most of the time.					
They need insulin injections with their food (if applicable).					
To count to 10 after the insulin injection (if applicable).					

DigiBete Structured Education

Record Sheet for patients aged 0–5 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Glucose Monitoring: **Parents/carers should:**					
Know how to operate any sensor technology worn by the child.					
Know how to change the sensor (if applicable).					
Know what the alarms mean and how to respond.					
Know how many glucose checks should be done daily if a sensor is not worn.					
Depending on age, children may know:					
They need to wear their sensor (if applicable) most of the time.					
They may need blood glucose checking with a finger prick device.					
That different fingers are used for checking blood glucose values.					

DigiBete Structured Education

Record Sheet for patients aged 0–5 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Glucose Monitoring: **Depending on age, children may know:**					
They should tell an adult if they hear a sensor alarm (if applicable).					
Low Blood Glucose (Hypoglycaemia - 3.9mmol/L or less) **Parents/carers should know:**					
At what glucose level they would treat a hypo.					
How much hypo treatment is appropriate for their child.					
When to use a glucagon product e.g Glucagen or Ogluo.					
Depending on age, children may:					
Tell an adult if they do not feel well.					
Tell an adult if they hear a sensor alarm (if applicable).					
Know they need a sugary drink or tablets or treatment if told by an adult.					

DigiBete Structured Education

Record Sheet for patients aged 0–5 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
High Blood Glucose (Hyperglycaemia - 10mmol/L or more) and Illness **Parents/carers should know:**					
What glucose level is considered high, needing action.					
At what glucose levels they should check ketones.					
What ketone level is considered high, needing action.					
Never stop insulin during illness.					
To ring the diabetes team for help if unsure during illness.					
Emotional Wellbeing **Parents/carers should know:**					
That their own mental and emotional health is important in being able to care for their child.					
Diabetes psychology services are available to them, not just their child.					

DigiBete Structured Education

Record Sheet for patients aged 0–5 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Emotional Wellbeing **Depending on age, children may:**					
Wish to talk about their diabetes.					
Meet other children with T1 diabetes or watch video resources of other children with T1 diabetes.					

Record any other education provided or notes here:

NHS

Authorisation date: .....

Date of next revision .....

DigiBete

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.

DigiBete Structured Education

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.

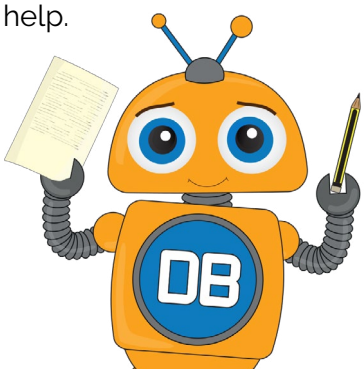
Psychological Development Level

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.

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 and use 'think aloud' explanations of 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 may be able to state in their own words that:

- They have diabetes.
- Their body needs insulin every day.
- 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 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.
- 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

It is the parents responsibility to encourage active play and exercise, and to create opportunities for children to be active for at least 60 minutes each day. If the child participates in sports, it is the parent's responsibility to supply extra food or adjust the insulin dose accordingly. Continuous glucose sensors are hugely beneficial when managing activity.

Individualised exercise plans should be discussed with the child based on circumstances.

- Target glucose before exercise is 7-10mmol/L. Exercise should be postponed if ketones are 0.6mmol/L or above.
  Exercise should not be done if ketones are 1.5mmol/L or above.
- Additional carbohydrate intake is recommended, if blood glucose is <7mmol/L prior to exercise.
- Parents should understand that if blood glucose levels are >14 mmol/L before exercise, they should also do a ketone test.
- If ketones are present, children should not take part in physical activity and parents/carers may need to contact their diabetes care team.

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.

Diabetes Technology

Children may be offered technology to help manage their diabetes. This may include continuous glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to create a safer environment for the child and provide more information to the adults caring for them. Any adult caring for a young child with diabetes should have appropriate and ongoing training and support from healthcare staff or a parent, to ensure they feel confident in operating or using the technology.

Insulin

Insulin administration via injection or insulin pump is an adult's responsibility. Anyone caring for a child with diabetes should have appropriate training from parents or healthcare staff to allow safe administration of insulin.

With supervision, children may help with the process by:

- Finding the injecting device/insulin pump.
- Deciding a new site for the injection/cannula insertion.
- Preparing the units on the injection device or insulin pump.
- Counting to 10 after insulin has been injected or start to press the buttons on the pump under supervision.

Children should know:

- That an adult will give their insulin via injection or insulin pump.
- That their insulin pump is not a toy.
- That they need to wear their insulin pump most of the time.
- That only an adult can make their pump work.
- They can occasionally administer an injection under supervision.
- That different areas must be used for injections or pump cannulas.

Glucose monitoring

Blood glucose monitoring is the parent's responsibility.

A glucose monitoring system with alarms is the safest way of managing diabetes in this age group. Regular blood glucose checks throughout a 24h period (including overnight) should be done by an adult if there is no access to a glucose sensor. 6-10 BG checks per day is optimal if no glucose sensor. Parents should respond promptly to alarms at all times of day or night.

Glucose values should be double checked with a finger prick blood sample if symptoms do not match a sensor reading, or when hypoglycaemia or hyperglycaemia is suggested on the monitor.

Children should

- Know that their glucose sensor is not a toy.
- Know that they need to wear their sensor most of the time.
- Know that different fingers are used for checking glucose values.
- Listen for an alarm and tell an adult if they hear one.
- Recognise glucose numbers that are too low.
- Help in using the blood glucose meter under adult supervision.
- Be able to explain that the blood glucose check shows how much glucose is in their blood.

Low Blood Glucose (Hypoglycaemia*)

Children may not have good awareness of hypoglycaemia or may not be able to communicate their feelings of hypoglycaemia. Regular checking of sensor glucose readings or checking blood glucose and acting accordingly, is important for safety. Parents should use language reflecting hypo treatment as a medicine, not a sugary treat. If a hypo is identified, ask the child if they feel 'different' or 'funny', to try and train them to associate these feelings with low glucose values.

Children should:

- Be encouraged to say how they feel if a hypo is identified. This will help them recognize their individual symptoms.
- Tell an adult immediately if they do not feel well.
- Help with checking a blood glucose level to confirm a hypo if needed.
- Know they need a sugary drink or tablets or treatment if told by an adult.
- Re check their blood glucose level after 15mins to confirm recovery.
- Know they may need a snack if they are not due a meal or if pre/post exercise.

Families should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency. Some childcare facilities may store glucagon on site at a family's request.

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 review their child's glucose values and insulin doses between clinic appointments by uploading data and seeking help from their diabetes nurse if needing support to change doses.

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.

- Adjust insulin doses promptly. During illness children may need significantly more insulin. Occasionally with diarrhoea and vomiting illness they may need less insulin.
- Never stop insulin.
- Children need to take fluids and eat small amounts regularly during illness.

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.

Emotional Wellbeing

Caring for a child with diabetes can bring significant challenges for adults. Lack of sleep can also affect parent's ability to care for someone with diabetes. Clinical psychology support is available for parents, recognising these challenges and the importance of parental wellbeing as well as their child. Local support groups or other families who may have had similar lived experience, who understand their circumstances and may be able to offer practical help and support.

- Children may start to realise that they are different from their siblings or friends.
- Siblings may feel jealous of the necessary increased attention given to the child with diabetes.
- Involve siblings in diabetes care and discussion.
- Avoid speaking negatively about diabetes in front of children.
- Access films or books to help children understand diabetes.
- Clinical psychologists or play workers may be able to help with distraction techniques for distressing procedures.

Children should:

- Be able to talk about their feelings towards diabetes.
- Have their feelings acknowledged if they are sad, cross, frustrated or worried about diabetes.
- Be supported to feel confident in the management of their diabetes in school.
- Know who they can talk to if they are feeling sad or worried or have problems with friends, and that this is not uncommon.
- 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.

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.
ISPAD suggests a Time in Range (TIR) of 4-10mmol/L and fasting target range of 4-8mmol/L.
ISPAD suggests 3.9mmol/L as the value to initiate hypo treatment.

DigiBete Structured Education

Goals for 6-7 year olds

HANDOUT FOR PARENTS

A Few Words About This Age Group

Your child will be curious, active and may 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 using 'think aloud' explanations of what you are doing with your child rather than just doing it to them. Social learning theory, which provides the foundation for behaviour modelling, suggests that most behaviours are learned by observation and modelling. Your child should be encouraged to help you under supervision.

Diabetes Knowledge

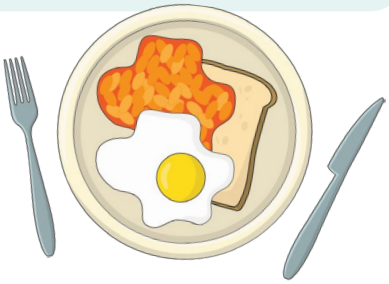
Your child should be able to say in their own words:

- 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.

Food



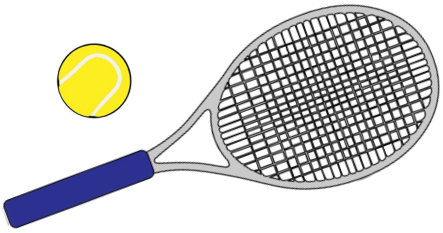
Your child should:

- 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.

Insulin

Insulin administration via injection or insulin pump is an adult's responsibility.

- Your child can assist with finding the injection device/insulin pump.
- You may encourage your child to assist by preparing the units on the injection device or insulin pump.
- Your child may count to 10 after insulin has been injected or start to press the buttons on the pump under supervision.
- At this age your child may want to take part with injecting themselves, but always with supervision.
- Encourage your child to identify a new site for the injection/cannula insertion.
- Your child should know that their insulin pump is not a toy.



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 7mmol/L. Postpone exercise if ketones are above 0.6mmol/L. Do not exercise if ketones are above 1.5mmol/L.

- It is the parent's/carer's responsibility to encourage active play and exercise, and to create opportunities for children to be active for at least 60 minutes each day.
- Continuous glucose sensors are hugely beneficial for this age group when managing activity.
- Blood glucose levels should be checked before exercise and active play.
- If blood glucose is less than 7mmol/L, your child may need additional carbohydrate before exercising.
- If blood glucose levels are more than 14 mmol/L before exercise, your child's blood should be checked for ketones.
- Your child should be able to explain in simple terms the relationship between food, exercise and insulin.

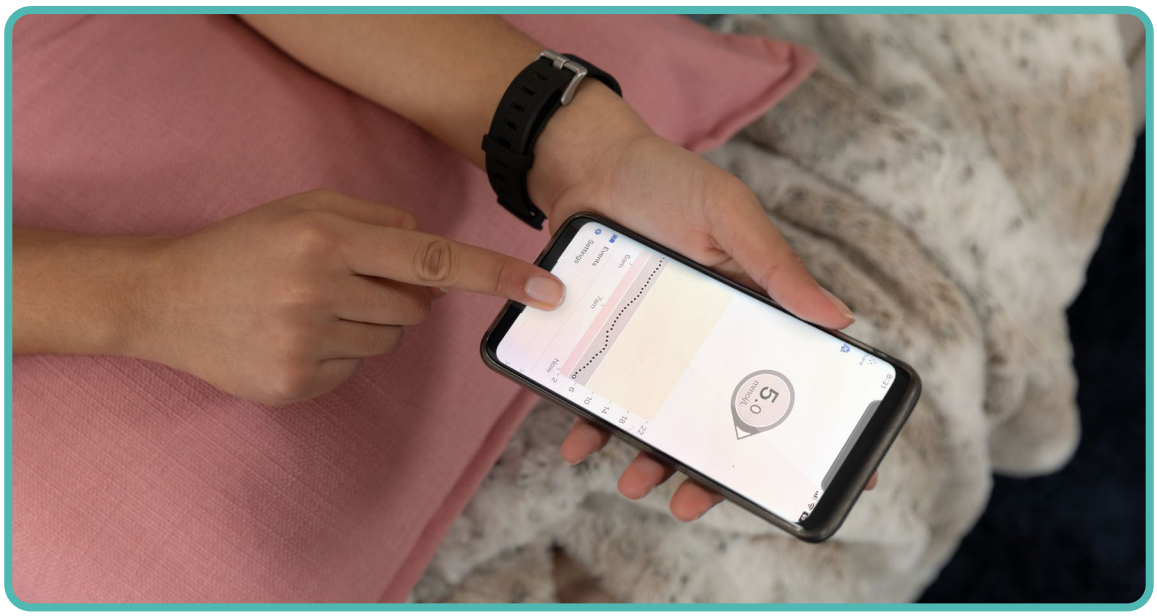
Diabetes Technology

Children may be offered technology to help manage their diabetes. This may include continuous glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to create a safer environment for the child and provide more information to the adults caring for them.

Any adult caring for a young child with diabetes should have appropriate and ongoing training and support from healthcare staff or a parent, to ensure they feel confident in operating or using the technology.

Operating and caring for diabetes technology is the parent's responsibility.

- Children may help with reading out numbers on sensors or pressing buttons on insulin pumps under strict supervision.
- Involve your child in locating new cannula/ sensor sites encouraging use of all available



Glucose monitoring

Glucose monitoring is the parent's responsibility.

- Your child should know that their glucose sensor is not a toy.
- Your child should know that they need to wear their sensor most of the time.
- 6-10 blood glucose checks per day is optimal if not wearing a sensor.
- Your child may assist with blood glucose monitoring and know that different fingers are used.
- Your child should tell an adult if they hear a sensor alarm.
- Your child should recognise glucose numbers that are too low.
- Your child should be able to explain that the blood glucose check shows how much glucose is in their blood.

Hyperglycaemia or HYPER = High Blood Glucose Level (10mmol/L or more)

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

Parents should review their child's glucose values and insulin doses between clinic appointments by uploading data and seeking help from their diabetes nurse if needing support to change doses.

Hypoglycaemia or HYPO = Low Blood Glucose Level (3.9mmol/L or less)

Children may not have good awareness of hypoglycaemia or may not be able to communicate their feelings of hypoglycaemia. Regular checking of sensor glucose readings or checking blood glucose and acting accordingly, is important for safety. Parents should use language reflecting hypo treatment as a medicine, not a sugary treat. If a hypo is identified, ask the child if they feel 'different' or 'funny', to try and train them to associate these feelings with low glucose values.

Children should:

- Be encouraged to say how they feel if a hypo is identified. This will help them recognise their individual symptoms.
- Tell an adult immediately if they do not feel well.
- Be encouraged to help with checking a blood glucose level to confirm a hypo if needed.
- Know they need a sugary drink or tablets or treatment if told by an adult.
- Know their blood glucose level should be rechecked after 15mins to confirm recovery.
- Know they may need a snack if they are not due a meal or if pre/post exercise.

You should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly. Expired glucagon may not work effectively in an emergency. Some childcare facilities may store glucagon on site at a family's request.

Emotional Wellbeing

Caring for a child with diabetes can bring significant challenges. Lack of sleep can also affect your ability to care for someone with diabetes. Clinical psychology support is available for you as a family. Local support groups or other families who may have had similar lived experience, who understand the circumstances may be able to offer practical help and support.

- Your child may start to realise that they are different from their siblings or friends.
- Siblings may feel jealous of the necessary increased attention given to the child with diabetes.
- Involve siblings in diabetes care and discussion.
- Avoid speaking negatively about diabetes in front of children.
- Access films or books to help children understand diabetes.
- Clinical psychologists or play workers may be able to help with distraction techniques for distressing procedures.

Children should:

- Be able to talk about their feelings towards diabetes.
- Have their feelings acknowledged if they are sad, cross, frustrated or worried about diabetes.
- Be supported to feel confident in the management of their diabetes in school.

Illness

Know the sick day rules:

- Monitor your child's glucose and ketone levels (even if their glucose is not out of range).
- If sensor readings are higher than target, you may need to check with a finger prick blood glucose reading.
- Adjust your child's insulin doses promptly. During illness your child may need significantly more insulin. Occasionally with diarrhoea and vomiting illness they may need less insulin.
- Never stop insulin.
- Encourage your child to take fluids and eat small amounts regularly during illness.
- Ring your diabetes team for help if you are unsure of what to do.

DigiBete Structured Education

Record Sheet for patients aged 6-7 years

Name: .....

Instructions for use:
Use this sheet to log the level of knowledge and skill of parents or children (at the older age range, depending on when they were diagnosed)

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 (Yes/NA)	Partially Achieved (Yes/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.					

DigiBete Structured Education

Record Sheet for patients aged 6-7 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
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, and when to eat at school or at nursery.					
They may snack during school breaks or when an adult reminds them.					
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.					

DigiBete Structured Education

Record Sheet for patients aged 6-7 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Food					
When sweets are offered, the child should explain that they have diabetes.					
If sweets are offered, the child can either eat a small amount and take the rest home or take them all home.					
The child should know what types of drinks they can have freely without affecting their blood glucose levels.					
Exercise					
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 7-10mmol/L. Do not exercise if ketones are above 1.5mmol/L.					
The child should know that:					
Blood glucose levels should be checked before exercise and active play.					

DigiBete Structured Education

Record Sheet for patients aged 6-7 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Exercise					
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.					
It is good if they can explain, in simple words, the relationship between food, exercise and insulin.					
Technology					
Children can read out glucose number on glucose sensors and press buttons on insulin pumps if they feel able, always with adult supervision.					
Children can identify appropriate cannula and sensor sites on rotation.					
Insulin **It is understood by all that insulin administration is the parent's responsibility.**					
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.					

DigiBete Structured Education

Record Sheet for patients aged 6-7 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Insulin					
At this age, the child can be encouraged to inject themselves, but always under supervision.					
The parent/carer should encourage their child to use all available injection/infusion sites and not develop any favourites.					
If the child uses an insulin pump, they may be able to button-push under supervision.					
If the child wears an insulin pump, they are aware it is not a toy.					
Glucose Monitoring					
The child may assist with glucose checking, but only under the supervision of an adult.					
The child should know that glucose checking is an essential part of diabetes management.					
The child should know to tell an adult if they hear a sensor alarm.					
The child should know that the glucose number relates to how much glucose is in their blood.					

DigiBete Structured Education

Record Sheet for patients aged 6-7 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Hypoglycaemia or HYPO (blood glucose level 3.9mmol/L or less)					
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 checked to confirm that they are hypoglycaemic, sometimes with a finger prick					
They have to take glucose tablets or a sugary drink.					
Their blood glucose should be rechecked (by finger prick or sensor reading) 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 10mmol/L or more)					
The child should start to recognise when their blood glucose numbers are too high.					

DigiBete Structured Education

Record Sheet for patients aged 6-7 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
It is understood by parents/carers that they should keep records of the child's glucose levels, by sharing glucose data with HCP. This allows adjustments of insulin doses as required.					
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 may experience inquisitive or unkind comments from peers at school.					
The child should feel supported by a clinical psychologist attached to their team (if available). The child should feel able to speak to parents or HCP in clinic if they are having difficult feelings about diabetes.					

Record any other education provided or notes here:

NHS

Authorisation date: ..... Date of next revision .....

DigiBete

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.

DigiBete Structured Education

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.
It is a time of rapid physical, mental and emotional growth and children begin to move into more abstract thinking and understand numbers in a more complex way.

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 using 'think aloud' explanations of 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. Children may start to enter into more complex conversations. Parents should discuss what they are doing and why.

Psychological Development Level

Children are very motivated to learn new things. They become more independent and may start to show genuine empathy for others. 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.

Diabetes in General

Children may 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 their fault or anybody else's fault they have 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.
- Know how many portions of fruit and vegetables should be eaten per day.
- 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.

Diabetes Technology

Children may be offered technology to help manage their diabetes. This may include continuous glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to create a safer environment for the child and provide more information to the adults caring for them.

Any adult caring for a child with diabetes should have appropriate and ongoing training and support from healthcare staff or a parent, to ensure they feel confident in operating or using the technology.

Exercise

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

Individualised exercise plans should be discussed with the child based on circumstances.

- Target glucose before exercise is 7-10mmol/L. Exercise should be postponed if ketones are 0.6mmol/L or above. Exercise should not be done if ketones are 1.5mmol/L or above.
- It is the parents responsibility to encourage active play and exercise, and to create opportunities for children to be active for at least 60 minutes each day.
- Continuous glucose sensors can be hugely beneficial in managing BG levels during activity
- NICE recommends additional carbohydrate intake if blood glucose is <7 mmol/L prior to exercise.
- Parents/carers should understand that if blood glucose levels are >14 mmol/L before exercise, they should also do a ketone check.
- If ketones are present, the child may need to delay or postpone activity and they may need contact with the diabetes care team.

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

Insulin administration via injection or insulin pump is still an adult's responsibility. Anyone caring for a child with diabetes should have appropriate training from parents or healthcare staff to allow safe administration of insulin.

Children should know:

- If on injections - What type of insulin they take and when they take each type.
- How to prepare the injection device or insulin pump.
- The importance of using different sites for insulin.
- Be taught how to self-administer insulin using an injection or pump under supervision.
- That the meal dose of insulin will vary based on the carbohydrate content of the meal.

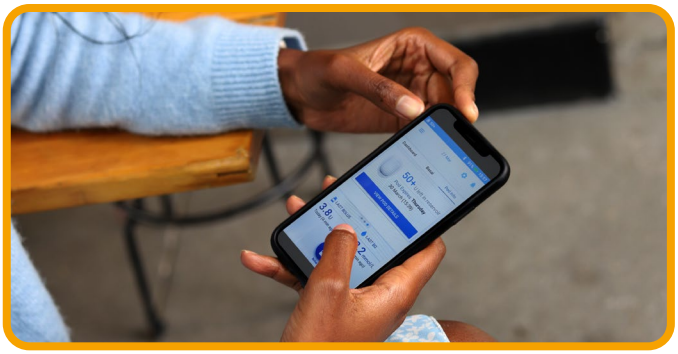
Glucose Monitoring

Glucose monitoring is still the parent's responsibility. A glucose monitoring system with alarms is the safest way of managing diabetes. Regular blood glucose checks throughout a 24h period (including overnight) should be done by an adult if there is no access to a glucose sensor. 6-10 BG checks per day is optimal if there is no sensor worn. Parents should respond promptly to alarms at all times of day or night.

Glucose values should be double checked with a finger prick blood sample if symptoms do not match a sensor reading, or when hypoglycaemia or hyperglycaemia is suggested on the monitor.

Children should:

- Know why their glucose values are monitored.
- Be able to use meters and glucose sensors and understand what the alarms and arrows mean.
- Recognise the numbers of when they are in target, or above or below target.
- Be encouraged to learn about the significance of HbA1c and their own target for it.



Low Blood Glucose (Hypoglycaemia*)

Children should know:

- The importance of recognising their own symptoms of low blood glucose levels.
- They must tell an adult how they feel straight away.
- Their blood glucose has to be checked to confirm that they are hypoglycaemic.
- They have to take glucose tablets or a sugary drink.
- How much glucose they need to correct the situation.
- 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.
- That if they wear a sensor and it alarms to tell an adult.
- If the arrows suggest blood glucose level is falling that they may need some glucose treatment to prevent a hypo.
- Know they may need less glucose treatment depending on the number.

Families should have an opportunity to revise how to use glucagon annually or access video resources.

Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency. Some childcare or education facilities may store glucagon on site at a family's request.

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.

Adjust insulin doses promptly. During illness children may need significantly more insulin. Occasionally with diarrhoea and vomiting illness they may need less insulin.

Encourage parents to ring for help if they are unsure what to do.

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

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.
- If sensor readings are higher than target, they may need to check with a finger prick blood glucose reading.
- Never stop insulin.

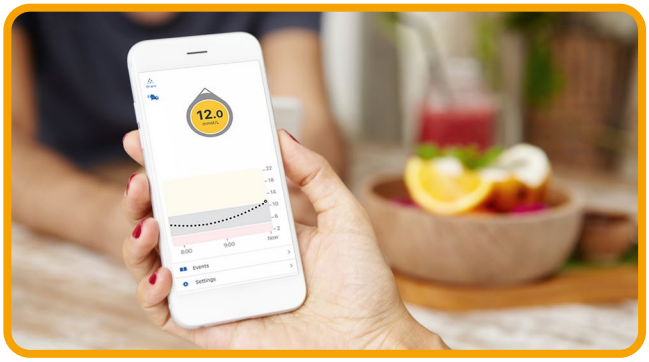
Eating or Sleeping Away From Home

- 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.
- If wearing a sensor parents may be able to see and monitor glucose levels remotely on another device.

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 checking for ketones at this time.
- Parents should review their child's glucose values and insulin doses between clinic appointments by uploading data and seeking help from their diabetes nurse if needing support to change doses.



Emotional Wellbeing

Caring for a child with diabetes can bring significant challenges for adults. Lack of sleep can also affect a parent's ability to care for someone with diabetes. Clinical psychology support is available for parents, recognising these challenges and the importance of wellbeing among the family. Local support groups or other families who may have had similar lived experiences, who understand the circumstances may be able to offer practical help and support.

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.
- Help children to develop resilience by talking through issues and working together.

Children should:

- Know who they can talk to if they are feeling sad, worried, cross or frustrated 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.
- Be encouraged to talk about their feelings towards diabetes.
- Be encouraged to let an adult know if they receive unkind comments around diabetes
- 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.
ISPAD suggests a Time in Range (TIR) of 4-10mmol/L and fasting target range of 4-8mmol/L.
ISPAD suggests 3.9mmol/L as the value to initiate hypo treatment.

DigiBete Structured Education

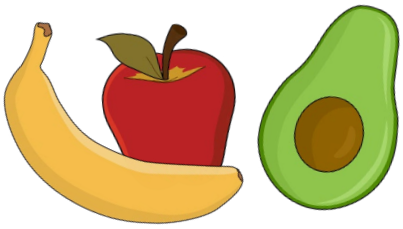
Goals for 8-9 year olds

HANDOUT FOR PARENTS

A Few Words About This Age Group

- Your child will be motivated to learn new things.
- They may concentrate on having things 'look right'.
- 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 may 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.
- They may start to show genuine empathy for others.
- Children become more independent.

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.

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

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, or site their pump cannula.
- 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.

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 7-10mmol/L.
- Do not exercise if ketones are above 1.5mmol/L.
- Continuous glucose sensors can be hugely beneficial in managing BG level during activity.
- Blood glucose levels should be checked before exercise and active play.
- If this shows a blood glucose level of less than 7mmol/L, your child should take additional carbohydrate.
- If blood glucose levels are more than 14mmol/L before exercise, your child's blood should be checked 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.

Glucose Monitoring

A glucose monitoring system with alarms is the safest way of managing diabetes. Regular blood glucose checks throughout a 24h period (including overnight) should be done by an adult if there is no access to a glucose sensor. 6-10 blood glucose checks per day is optimal if there is no sensor. Parents should respond promptly to alarms at all times of day or night.

Glucose values should be double checked with a finger prick blood sample if symptoms do not match a sensor reading, or when hypoglycaemia or hyperglycaemia is suggested on the monitor.

Children should know:

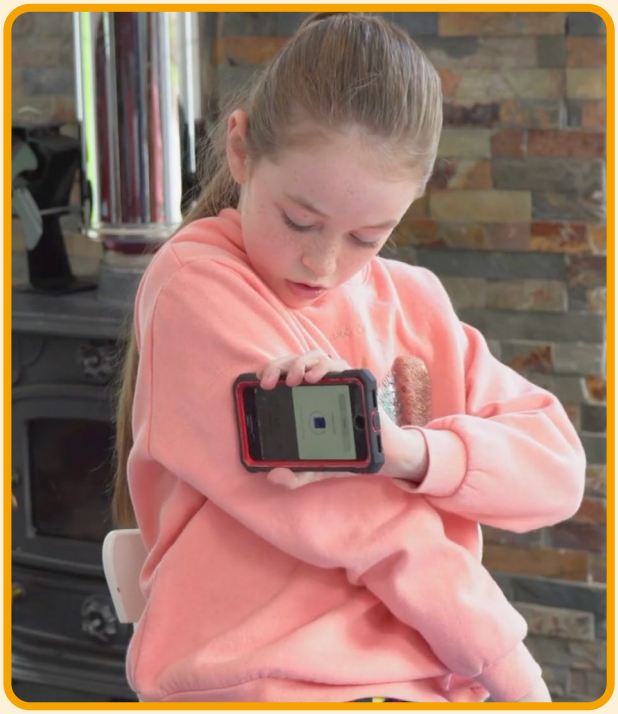
- know why their glucose values are monitored.
- Be able to use meters and glucose sensors and understand what the alarms and arrows mean.
- Alert an adult if the glucose sensor alarms
- Recognise the numbers of when they are in target, or above or below target.
- be encouraged to learn about the significance of HbA1c and their own target for it.

Diabetes Technology

Children may be offered technology to help manage their diabetes. This may include continuous glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to create a safer environment for the child and provide more information to the adults caring for them. Any adult caring for a child with diabetes should have appropriate and ongoing training and support from healthcare staff or a parent, to ensure they feel confident in operating or using the technology.

Operating and caring for diabetes technology is the parent's responsibility.

- Children may help with using glucose sensors and insulin pumps under supervision.
- Involve your child in locating new sites and inserting new cannula/sensors.



Hypoglycaemia or HYPO = Low Blood Glucose Level (3.9mmol/L or less)

Your child should know their own symptoms of a low blood glucose level and know how much glucose (or other appropriate treatment) 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 checked to confirm that they are hypoglycaemic.
- They have to take glucose tablets or a sugary drink.
- Their blood glucose should be re-checked 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.
- If the arrows suggest BG level is falling that they may need some glucose treatment to prevent a hypo.
- Know they may need less glucose treatment depending on the number.

Families should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency. Some childcare or education facilities may store glucagon on site at a family's request.

Insulin

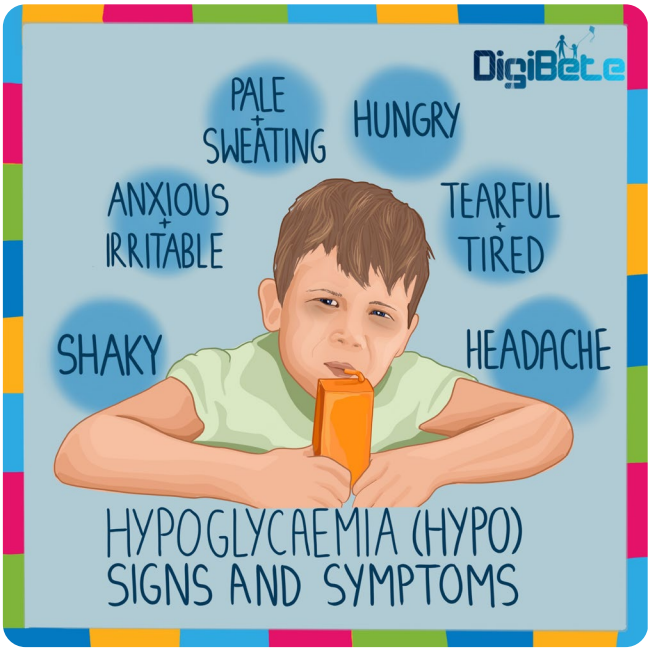
Insulin administration via injection or insulin pump is still an adult's responsibility. Anyone caring for a child with diabetes should have appropriate training from parents or healthcare staff to allow safe administration of insulin.

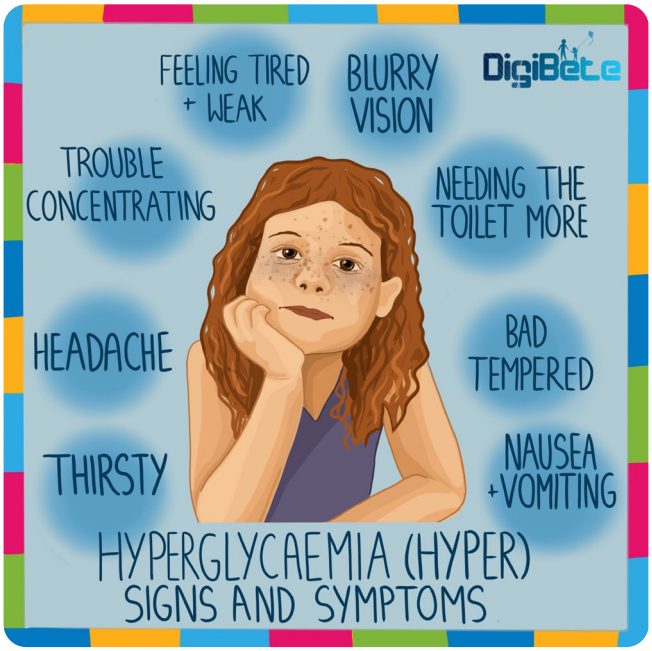
Children should know:

- If on injections - What type of insulin they take and when they take each type.
- How to prepare the injection device or insulin pump.
- The importance of using different sites for insulin.
- Be taught how to self-administer insulin using an injection or pump under supervision.
- That the meal dose of insulin will vary based on the carbohydrate content of the meal.

Hyperglycaemia or HYPER = High Blood Glucose Level (10mmol/L or more)

- Your child should know when the blood glucose level is reading too high and inform an adult.
- They should realise the importance of checking for ketones at this time.
- Parents should review their child's glucose values and insulin doses between clinic appointments by uploading data and seeking help from their diabetes nurse if needing support to change doses.





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 doses, if necessary.
- Ensure that your child takes fluids and eats during illness.
- Ask for advice and help if you have any concerns.
- If sensor readings are higher than target, you may need to check with a finger prick blood glucose reading.
- Adjust insulin doses promptly. During illness children may need significantly more insulin. Occasionally with diarrhoea and vomiting illness they may need less insulin.
- Never stop insulin.
- Ring for help if you are unsure what to do.

Eating and sleeping away from home

- Your child may now give insulin by themselves; however, the insulin doses and when to give 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.
- If wearing a sensor parents may be able to see and monitor glucose levels remotely on another device.

Emotional Well-being

Living with or caring for a child with diabetes can bring significant challenges for parents. Lack of sleep can also affect your ability to care for someone with diabetes. Clinical psychology support is available for you as a family. Local support groups or other families who may have had similar lived experience, who understand the circumstances may be able to offer practical help and support. Talking to someone and getting the right support may help with finding strategies that help you or your child. Help your child to develop resilience by talking through issues and working together.

Children should:

- Be encouraged to talk about their feelings towards diabetes.
- Be encouraged to let an adult know if they receive unkind comments around diabetes.

DigiBete Structured Education

Record Sheet for patients aged 8-9 years

Name: .....

Instructions for use:
Use this sheet to log the level of knowledge and skill of parents or children (at the older age range, depending on when they were diagnosed)

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 (Yes/NA)	Partially Achieved (Yes/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					

DigiBete Structured Education

Record Sheet for patients aged 8-9 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
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.					
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.					
Exercise **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 7-10mmol/L. Do not exercise if ketones are above 1.5mmol/L.** **The child should know that:**					
Blood glucose levels should be checked before exercise and active play.					
Exercise and sports require more food and possibly less insulin.					

DigiBete Structured Education

Record Sheet for patients aged 8-9 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Technology					
Children can read out glucose numbers from glucose sensors and press buttons on insulin pumps, always with adult supervision.					
Children can identify appropriate cannula and sensor sites on rotation.					
Children can help with cannula and / or sensor insertion if they feel able.					
Insulin **Insulin administration is the parent's responsibility.**					
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. The child should know that they receive 2 different types of insulin everyday, if on injections.					
If using an insulin pump, the child can start to button-push under supervision.					

DigiBete Structured Education

Record Sheet for patients aged 8-9 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Insulin:					
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.					
The child should know that they may need a pen injection occasionally incase of pump failure.					
Glucose Monitoring					
The child should know that the glucose number relates to how much glucose is in the blood.					
The child should be able to perform their own blood glucose check with a finger prick and a glucose meter.					
The child should recognise sensor alarms and what the arrows mean (if applicable).					
The parents/carers should evaluate and act on these results.					
Children should know their own target for HbA1c value.					

DigiBete Structured Education

Record Sheet for patients aged 8-9 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Glucose Monitoring					
Parents / carers should keep records or know how to share glucose data with HCPs					
The parent/carer must keep records of the child's blood glucose readings and current insulin doses.					
Hypoglycaemia or HYPO (blood glucose level 3.9mmol/L or less) **The child should know:**					
Their own symptoms of low blood glucose level and know how much glucose (or other appropriate treatment) they need to correct the situation.					
They have to tell an adult how they feel straight away.					
Their blood glucose must be checked to confirm that they are hypoglycaemic, sometimes with a finger prick.					
They have to take glucose tablets or a sugary drink.					
They should also have a snack if they are not due to eat a meal or snack or if they are about to exercise.					

DigiBete Structured Education

Record Sheet for patients aged 8-9 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
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 10mmol/L or more) **It is understood by parents/carers that they should keep records of the child's glucose levels, by sharing glucose data with HCP. This allows adjustments or insulin doses as required.**					
The child should know when the blood glucose level is reading too high and inform an adult.					
They should realise the importance of checking for ketones at this time.					
Illness					
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.**					
The child can now inject insulin by themselves, always under supervision.					
When the child is away from home, correctly instructed adults must be there to supervise at all times.					

DigiBete Structured Education

Record Sheet for patients aged 8-9 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Eating or Sleeping Away from Home					
Parents/carers must give guidance to these adults regarding suitable foods and drinks.					
As the child is becoming more socially independent (and may be moving out into different social situations), it is advisable that they have ID stating they have type 1 diabetes.					
The child should know that parents can monitor glucose values remotely, if they are using the appropriate technology.					
Emotional Wellbeing					
Children should understand that they (and their parents/carers) can get 'fed up' with diabetes at times, or have worries about diabetes.					
The child may experience inquisitive or unkind comments from peers in school.					
They should feel supported by a clinical psychologist attached to the team (if available).The child should feel able to speak to parents / carers or HCP in clinic if they feel sad about diabetes.					

DigiBete Structured Education

Record Sheet for patients aged 8-9 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Emotional Wellbeing					
The child should receive a psychological assessment each year.					

Record any other education provided or notes here:

NHS

Authorisation date: ..... Date of next revision .....

DigiBete

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 each patient's gradual achievement of the learning goals over that time.

DigiBete Structured Education

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).

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.

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.

Diabetes in General

Children may 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 their fault or anybody else's fault they have 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.
- 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.

Insulin

Changing settings in a pump is an adult's responsibility. Children of this age may contribute to this process, but it should be supervised by an adult for accuracy. Anyone caring for a child with diabetes should have appropriate training from parents or healthcare staff to allow safe administration of insulin using technology.

With supervision, children may help with the process by:

- Being able to administer insulin independently by injection or pump.
- Knowing the names of their insulin(s), but not yet adjust doses independently.
- Knowing when to give insulin and how to care for injection/infusion sites.
- Deciding a new site for the injection/cannula insertion.
- Preparing the equipment for a cannula change and learning to perform an infusion set change.
- Preparing the units on the injection device.
- Knowing how to store insulin correctly.

Exercise

If the child participates in sports, it is the parent's responsibility to supply extra food or adjust the insulin dose accordingly. Exercise is an important part of diabetes management

Individualised exercise plans should be discussed with the child based on circumstances.

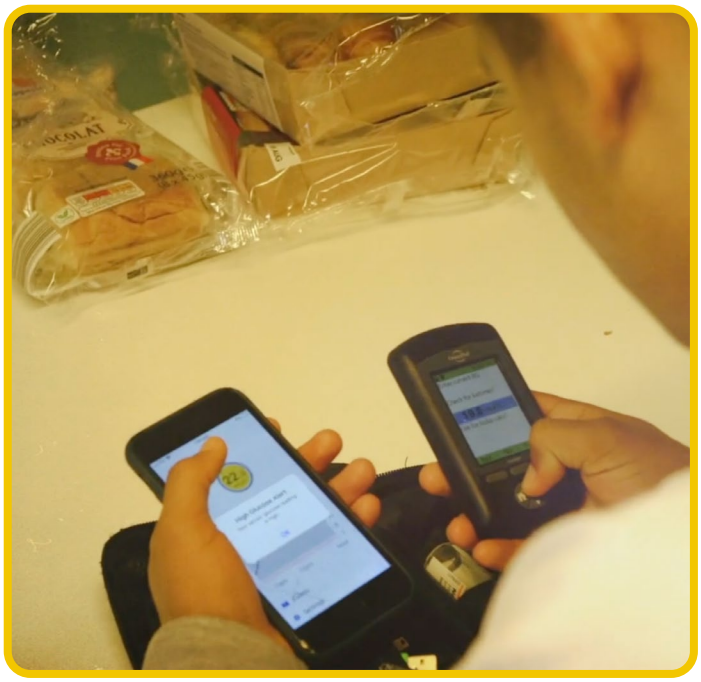
- Target glucose before exercise is 7-10mmol/L. Exercise should be postponed if ketones are 0.6mmol/L or above.
  Exercise should not be done if ketones are 1.5mmol/L or above.
- It is the parents responsibility to encourage active play and exercise, and to create opportunities for children to be active for at least 60 minutes each day.
- Wearing a continuous glucose sensor may help manage blood glucose levels during activity.
- NICE recommends additional carbohydrate intake if blood glucose is <7mmol/L prior to exercise.
- 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).
- If ketones are present, the child should not take part in physical activity and may need to contact their diabetes care team.

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.

Diabetes Technology

Children may be offered technology to help manage their Diabetes. This may include continuous glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to create a safer environment for the child and provide more information to the adults caring for them. Any adult caring for a child with diabetes should have appropriate and ongoing training and support from healthcare staff or a parent, to ensure they feel confident in operating or using the technology.



Glucose Monitoring

A glucose monitoring system with alarms may be offered as an alternative to traditional blood glucose checking. Regular blood glucose checks throughout a 24h period (including overnight) should be done by the child and adults if there is no access to a glucose sensor. 6-10 BG checks per day is optimal without a sensor. Parents should respond promptly to alarms at all times of day or night.

Glucose values should be double checked with a finger prick blood sample if symptoms do not match a sensor reading, or when hypoglycaemia or hyperglycaemia is suggested on the monitor.

Children should be able to:

- Recognise glucose values which are below, in and above target.
- Regularly scan glucose sensor or check real time glucose sensor with their own device.
- Enter glucose values from sensors/ monitors into pumps or bolus advisor apps (if appropriate).
- Know that different fingers are used for checking blood glucose values.
- Listen for an alarm and tell an adult if they hear one.
- Recognise some factors which will have an effect on glucose (food, exercise, insulin).
- Participate in conversations about HbA1c, and learn about what their target level is.

Low Blood Glucose (Hypoglycaemia*)

Children should:

- Know when their blood glucose level should be checked 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.
- Know to re-check blood glucose 15 minutes later and take more glucose if blood glucose has not recovered sufficiently.
- 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.
- Understand that they cannot always rely on warning signs and symptoms and must check their blood glucose if possible.

Families should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency. Some childcare facilities may store glucagon on site at a family's request.

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 check and also check for the level of blood ketones.
- Know that if their blood glucose level is too high or that blood ketones are present they must inform an adult immediately.
- Children on insulin pumps may develop high glucose levels and ketones within 4 hours if the pump has failed or cannula dislodged.
- Despite wearing a pump, high glucose levels and ketones may require a pen injection to provide effective treatment.

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.

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.
- Adjust insulin doses promptly. During illness children may need significantly more insulin. Occasionally with diarrhoea and vomiting illness they may need less insulin.
- Never stop insulin during illness.
- Revisit this advice with the child and their parents/ carers at least annually.

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.
- If wearing a sensor parents may be able to see and monitor glucose levels remotely on another device.

Future Health and Routine Care

- It should be emphasised to children that the risk of complications in the eyes, kidneys, nervous system and circulatory system can be reduced with effective diabetes management.
- This is to be discussed in the context of the NICE target of HbA1c <48 mmol/mol (6.5%).
- 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.

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.
- Parents should facilitate a meeting with school to determine access to phones/technology as medical devices if required for diabetes management.

Emotional Wellbeing

Caring for a child with diabetes can bring significant challenges for adults. Lack of sleep can also affect parent's ability to care for someone with diabetes. Clinical psychology support is available for parents, recognising these challenges and the importance of family wellbeing. Local support groups or other families who may have had similar lived experience, who understand the circumstances may be able to offer practical help and support.

Children moving to secondary school may be anxious about their diabetes in the context of meeting new people.

- Siblings may feel jealous of the necessary increased attention given to the child with diabetes.
- Involve siblings in diabetes care and discussion.
- Avoid speaking negatively about diabetes in front of children.
- Clinical psychologists or play workers may be able to help with distraction techniques for distressing procedures.

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 without diabetes.
- 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.
- 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.
- 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.

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.
ISPAD suggests a Time in Range (TIR) of 4-10mmol/L and fasting target range of 4-8mmol/L.
ISPAD suggests 3.9mmol/L as the value to initiate hypo treatment.

DigiBete Structured Education

Goals for 10-11 year olds

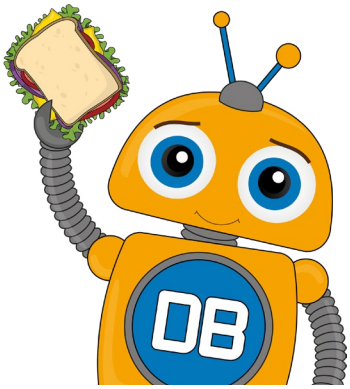
GUIDE FOR YOUNG PEOPLE AND PARENTS

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 advised 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

Exercise is an important part of diabetes management

- It is the parents responsibility to encourage active play and exercise, and to create opportunities for children to be active for at least 60 minutes each day.
- Wearing a continuous glucose sensor may help manage blood glucose levels during activity.
- You should know that blood glucose levels should be checked before exercise.
- You should know which readings mean you need to check for ketones and which readings mean you need to eat more carbohydrate before exercising.
- Your target blood glucose pre-exercise
- is 7-9mmol/L. Do not exercise if ketones are above 0.6mmol/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.

Diabetes Technology

You may be offered technology to help manage your diabetes. This may include continuous glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to create a safer environment for you and provide more information to the adults caring for you.

Any adult caring for a child with diabetes should have appropriate and ongoing training and support from healthcare staff or a parent, to ensure they feel confident in operating or using the technology.

Operating technology should be a shared responsibility between parents and children You should be involved in using your technology with the supervision of an adult.

You should look after your technology to the best of your ability; devices should be added to home insurance in case of accidental damage.

Insulin

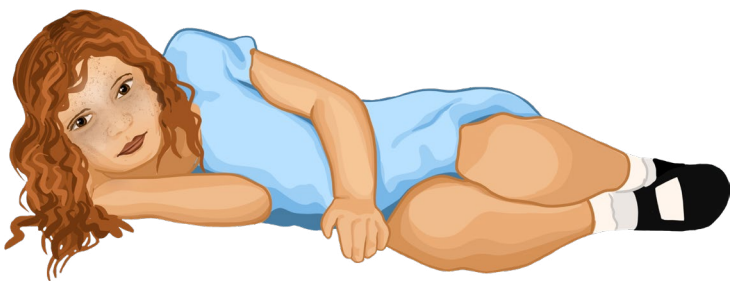
You should know:

- 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.
- Changing settings in a pump is an adult's responsibility. You may contribute to this process, but it should be supervised by an adult for accuracy. Anyone caring for a child with diabetes should have appropriate training from parents or healthcare staff to allow safe administration of insulin using technology.

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.
- Checking 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.
- Parents should adjust insulin doses promptly. During illness you may need significantly more insulin. Occasionally with a diarrhoea or vomiting illness you may need less insulin.
- Never stop insulin.



Hyperglycaemia or HYPER = High Blood Glucose Level (10mmol/L or more)

You should:

- Be able to explain the possible reasons for high blood glucose levels.
- Recognise the signs of high blood glucose level.
- Know when your blood glucose level is reading too high.
- Know that you should monitor your blood glucose levels and check your blood for ketones if it is above 14mmol/L.
- Know that you must tell an adult immediately if your blood glucose level is too high or if ketones are present in your blood.
- If you use an insulin pump, you may develop high glucose levels and ketones within 4 hours if the pump has failed or cannula dislodged.
- Despite wearing a pump, high glucose levels and ketones may require a pen injection to provide effective treatment.

Hypoglycaemia or HYPO = Low Blood Glucose Level (3.9mmol/L or less)

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.

Your parents should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency.

Glucose Monitoring

A glucose monitoring system with alarms may be offered as an alternative to traditional blood glucose checking. Regular blood glucose checks throughout a 24h period (including overnight) should be done by both you and adults if there is no access to a glucose sensor. 6-10 BG checks per day is optimal if there is no glucose sensor. Parents should respond promptly to alarms at all times of day or night.

Glucose values should be double checked with a finger prick blood sample if symptoms do not match a sensor reading, or when hypoglycaemia or hyperglycaemia is suggested on the monitor.

You should be able to:

- Recognise glucose values which are below, in and above target.
- Regularly scan glucose sensor or check real time glucose sensor with your own device.
- Enter glucose values from sensors/monitors into pumps or bolus advisor apps (if required).
- Know that different fingers are used for checking blood glucose values.
- Listen for an alarm and tell an adult if you hear one.
- Recognise some factors which will have an effect on glucose (food, exercise, insulin).
- Participate in conversations about HbA1c, and learn about what your target level is.

Future Health and Routine Care

- You should start to understand why having glucose levels in target is very important for your future health.
- Be aware that active glucose management 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 HbA1c levels and long-term complications, and be involved in setting your own HbA1c target with your diabetes team and parents.
- Blood is taken every year at your annual review to check for any early signs of long-term complications or other conditions linked to diabetes.

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.
- If you wear a sensor parents may be able to see and monitor glucose levels remotely on another device.

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.
- Parents should facilitate a meeting with school to determine access to phones/technology as medical devices if required for diabetes management.
- Parents should discuss with the diabetes team what support you may need and how to best provide training and support to new school staff.

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

- Caring for someone with diabetes can bring significant challenges. Lack of sleep can also affect someone's ability to care for diabetes. Clinical psychology support is available for you as a family. Local support groups or other families who may have had similar lived experience, who understand the circumstances may be able to offer practical help and support.
- 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.
- Your siblings may feel jealous of the necessary increased attention given to you.
- Involve siblings in diabetes care and discussion.

DigiBete Structured Education

Record Sheet for patients aged 10-11 years Name: .....

Instructions for use:
Use this sheet to log the level of knowledge and skill of parents or children (at the older age range, depending on when they were diagnosed)

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 (Yes/NA)	Partially Achieved (Yes/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:**					
Know the number of meals they need at school and after school, and when food should be eaten.					
Know that sweets / chocolate should be limited within a healthy balanced diet and may be less frequent than they would choose.					
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.					

DigiBete Structured Education

Record Sheet for patients aged 10-11 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Food					
Start to learn how to count carbohydrates with the help of their parents/carers.					
Exercise **Children should:**					
Know that their target blood glucose pre-exercise is 7-10mmol/L. Do not exercise if ketones are above 1.5mmol/L.					
Understand how insulin, food and exercise are related.					
Know that 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.					

DigiBete Structured Education

Record Sheet for patients aged 10-11 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/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.					
Diabetes Technology **Children should:**					
Know how to operate any wearable tech for managing diabetes, with supervision from an adult.					

DigiBete Structured Education

Record Sheet for patients aged 10-11 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Diabetes Technology **Children should:**					
Know how regularly this needs to be changed to remain effective.					
Know where on their body these devices can be worn.					
Start to insert any devices independently or with assistance.					
Glucose Monitoring **Children should:**					
Know that the glucose number relates to how much glucose is in the blood.					
Know why it is important to check regularly and when to check throughout the day.					
Know what glucose level they are aiming to achieve.					
Be able to perform their own blood glucose check with a finger prick and glucose meter.					
Recognise sensor alarms, and what the arrows mean (if applicable).					
Respond to these alarms, or inform and adult to respond to these alarms.					

DigiBete Structured Education

Record Sheet for patients aged 10-11 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Glucose Monitoring **Children should:**					
Know their own target Hba1c value.					
Parents / careres should keep records or know how to share glucose data with HCPs.					
Hypoglycaemia or HYPO (blood glucose 3.9mmol/L or less) **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 glucose level must be rechecked 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 should check their glucose levels regularly.					

DigiBete Structured Education

Record Sheet for patients aged 10-11 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Hypoglycaemia or HYPO (blood glucose 3.9mmol/L or less) **Children should:**					
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 10mmol/L or more) **Children should:**					
Be able to explain the possible reasons for high blood glucose levels.					
Recognise the signs of high blood glucose.					
Know when their glucose level is too high. Know that they must check their blood glucose level and check their blood for ketones.					
Know at what glucose level blood ketones should be checked					
If on an insulin pump:					
Know that a high glucose level might be due to pump failure.					
Know a pen injection may be needed to correct high glucose levels and/or ketones.					
Know that they must inform an adult immediately if their blood glucose level is too high or if ketones are present in their blood.					

DigiBete Structured Education

Record Sheet for patients aged 10-11 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/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 checking 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 level of blood ketones are acceptable. What the results of the tests mean (or begin to understand).					
Future Health and Routine Care					
The child should start to understand why active glucose management is important.					
They should understand the need for glucose levels in target to help take care of themselves both now and in the future.					
They should start to understand the relationship between HbA1c and protection against longer term health problems, and agree an individual target.					

DigiBete Structured Education

Record Sheet for patients aged 10-11 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Future Health and Routine Care					
They should know that annual blood checks are to monitor the effects of having diabetes					
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.					
Moving to Secondary School					
The child will be living through a time of change as he or she moves from primary to secondary school.					
The child should discuss how to manage changes in the timetable of their school day with their diabetes team.					
The child should be provided with help to develop independence skills such as using public transport and coping with going to the school cafeteria.					

DigiBete Structured Education

Record Sheet for patients aged 10-11 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Emotional Wellbeing **Children should understand that:**					
They can get 'fed up' with diabetes at times, or have worries about their diabetes, and that this is quite normal.					
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.					
At least once a year, they will be asked questions about their emotional wellbeing to check whether they need any extra support.					
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.					
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:

NHS

Authorisation date:..... Date of next revision .....

DigiBete

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 each patient's gradual achievement of the learning goals over that time.

DigiBete Structured Education

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.

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.

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.

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.
- Young people should be told about the effect of growth on glucose levels, and that insulin doses may increase significantly during this time.

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.
- Be familiar with different forms of food sweeteners if used, and be able to recognise names of suitable brands.
- Be able to join in social activities involving food with peers.
- Learn the skill of counting carbohydrates independently using labels, visual resources and apps.
- Be encouraged to maintain a regular meal pattern, spreading carbohydrates throughout the day and not missing meals.
- Should know that frequent consumption of less healthy foods or snacks will have a significant impact on body weight and glucose levels.
- 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. If ketones are present, they should not take part in physical activity and may need to contact their diabetes care team. Exercise is an important part of diabetes management.

Individualised exercise plans should be discussed with the young person based on circumstances.

- Target glucose before exercise is 7-10mmol/L.
  Exercise should be postponed if ketones are 0.6mmol/L or above.
  Exercise should not be done if ketones are 1.5mmol/L or above.

Young people should:

- Know that they should be active for at least 60 minutes per day and find ways of achieving this, even if not enjoying active hobbies.
- Glucose sensors may help a young person manage glucose levels more effectively during activity.
- 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 <7mmol/L, as recommended by NICE.
- Be discussing the importance of checking glucose before, during and after exercise with their parents/carers and healthcare team.
- Be aware of the need for therapeutic exemption in some sports when competing at a regional or national level, and advise accordingly.

Diabetes Technology

Parents/carers should continue to supervise diabetes care.

Technology may help young people to manage their diabetes more effectively, improving their wellbeing and health. This may include glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to allow the young person to manage their diabetes more easily by providing information allowing regular insulin changes during this rapid growth period.

Any young person with diabetes should have appropriate and ongoing training and support from healthcare staff to ensure they feel confident in operating or using the technology effectively. Parents should still support the young person in setting up and operating their technology.

- Young people should look after their technology to the best of their ability; devices should be added to home insurance in case of accidental damage or loss.

Glucose Monitoring

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 responsible for regular scanning of glucose sensors, or reviewing data on continuous glucose monitors.
- Know that 6-10 blood glucose checks per day is optimal without a sensor.
- Understand the significance of arrows on glucose monitors.
- Enter glucose readings from meters or monitors into pumps or apps for proactive insulin dosing
- Review their own data with a parent and be involved in discussions about potential insulin changes.

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, share the responsibility for adjusting insulin doses based on their 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 with correction doses.
- Have a greater understanding of the relationship between food, exercise and insulin.
- Understand that the timing of insulin doses before meals can have a significant impact on glucose levels.

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.
- Continue to eat and drink, even if they don't feel like it.
- Never stop insulin during illness.
- Revisit this advice with the young person and their parents/carers at least annually.

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 checking for blood ketones.
- Hormones released during puberty cause insulin resistance. Insulin doses will increase frequently during this growth period to help prevent high glucose levels.
- Young people on insulin pumps may develop high glucose levels and ketones within 4 hours if the pump has failed or cannula dislodged.
- Despite wearing a pump, high glucose levels and ketones may require a pen injection to provide effective treatment.

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 when they occur.
- How to check 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 or access video resources. Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency. Some educational facilities may store glucagon on site at a family's request.

Future Health and Routine Care

- Young people should recognise the direct relationship between blood glucose management and long-term complications of diabetes, in order to understand the importance of good diabetes care.
- This is to be discussed in the context of the NICE target of HbA1c <48 mmol/mol (6.5%)
- Commencement of annual retinopathy screening is recommended.
- Young people should know why blood and urine are taken every year at annual review; to check for any early signs of long-term complications or other conditions linked to diabetes.

Alcohol

Young people should receive practical advice about the special rules that apply when drinking alcohol. Drinking alcohol should be discouraged at this age, however drinking safely is important.

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.
- That there is an increased risk of hypoglycaemia after alcohol consumption, including hypoglycaemia while sleeping, especially after exercise.
- Parents/carers should be counselled about keeping their young people safe and be aware that young people may experiment when out with friends.

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.

Menstruation

- Girls need to be aware that around the time of a period blood glucose levels can change with the increase in hormones. Many girls find that 3-5 days before a period starts glucose levels may rise and return to normal a few days in. This may be the opposite for some girls.

Girls should:

- Learn how their monthly cycle impacts on blood glucose levels and recognise any patterns.
- Learn to adjust insulin doses appropriately when using injections or pump.
- Understand the importance of responding to changes in glucose levels and adjusting insulin doses promptly.
- Understand for some girls there is a similar pattern each month and for some each month is different - both are normal.
- Be able to contact and discuss with HCP if support is needed.

Smoking or Vaping

- Young people should be discouraged from starting to smoke or vape.
- The effect of smoking on their diabetes and cardiovascular health should be discussed.

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

Eating or Sleeping Away From Home

- Young people should now be able to manage their diabetes independently when away from parents for a short period of time.
- 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.
- The use of apps or websites should be encouraged to help with carb counting when eating out.
- Parents may have the capacity to follow continuous glucose readings remotely.

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. Young people from 13 years old could be invited into clinic appointments alone for a few minutes before being joined by a parent.

Emotional Wellbeing

Caring for a young person with diabetes can bring significant challenges for young people and the adults that care for them.

This can be a time of increased family conflict with diabetes care often adding to this conflict. Young people may experience low mood or anxiety which may impact on caring for their diabetes. Clinical psychology support is available for both young people and parents, recognising the challenges of living with diabetes and the importance of emotional wellbeing. Local support groups or other families who may have had similar lived experiences, who understand the circumstances may be able to offer practical help and support.

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

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.
- 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.
- 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.

* The diabetes care team should have agreed target blood glucose levels for individuals and definitions of hypoglycaemia and hyperglycaemia.
ISPAD suggests a Time in Range (TIR) of 4-10mmol/L and fasting target range of 4-8mmol/L.
ISPAD suggests 3.9mmol/L as the value to initiate hypo treatment.

DigiBete Structured Education

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. You should be able to explain, in your own words, what is type 1 diabetes and the action of insulin.

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 forms of food sweeteners if used and be able to recognise names of suitable brands.
- You should know that a frequent intake of less healthy foods or snacks will have a significant impact on body weight and glucose levels.
- You should be able to join in and eat with your friends.

Exercise

You should understand that:

- Blood glucose levels should be checked before exercise. You should know which readings mean that you need to check for ketones and which readings mean you need to eat more carbohydrate before exercising.
- Your target blood glucose level pre-exercise is 7-10mmol/L.
- If your blood glucose level is less than 7mmol/L, you should take additional carbohydrate before exercising.
- You should not exercise if blood ketones are above 1.5mmol/L.
- Daily exercise and activity is good for your mental and physical health, for feeling well and for your diabetes management.
- Glucose sensors may help you manage glucose levels more effectively during activity.
- 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 checking glucose 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 insulin in competitive sports at regional or national level.

Diabetes Technology

Technology may help you to manage your diabetes more effectively, improving your wellbeing and health. This may include glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to allow you to manage your diabetes more easily by providing information allowing regular insulin changes during this rapid growth period.

You and parent(s) should have appropriate and ongoing training and support from healthcare staff to ensure you feel confident in operating or using the technology effectively. Parents should still support you in setting up and operating the technology.

- You should look after your technology to the best of your ability; devices should be added to home insurance in case of accidental damage or loss.

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.
- understand that the timing of your insulin dose before meals can have a significant impact on your glucose levels.

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. Know of alternative strategies for managing challenging meals.

Glucose Monitoring

Glucose monitoring should continue to be a shared responsibility between parents and children.

- 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 improve your blood glucose levels.
- Be responsible for regular scanning of glucose sensors or reviewing data on continuous glucose monitors.
- Understand the significance of arrows on glucose monitors.
- 6-10 BG checks per day is optimal if you do not wear a sensor.
- Enter glucose readings from meters or monitors into pumps or apps for proactive insulin dosing
- Review your own data with a parent and be involved in discussions about potential insulin changes.

Hypoglycaemia or HYPO = Low Blood Glucose Level (3.9mmol/L or less)

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.

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

Parents should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency. Some educational facilities may store glucagon on site at a family's request.

Hyperglycaemia or HYPER = High Blood Glucose Level (10mmol/L or more)

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 correct high blood glucose when it occurs.
- The importance of checking for blood ketones.
- Hormones released during puberty cause insulin resistance. Insulin doses will increase frequently during this growth period to help prevent high glucose levels.
- You may develop high glucose levels and ketones within 4 hours if your insulin pump has failed or cannula dislodged.
- Despite wearing a pump, high glucose levels and ketones may require a pen injection to provide effective treatment.

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.
- You need to eat and drink, even if you don't feel like it.
- Never stop insulin during illness.

Menstruation

Around the time of a period blood glucose levels can change with the increase in hormones. Many girls find that 3-5 days before a period starts glucose levels may rise and then return to normal after a few days. This may be the opposite for some girls.

Girls should:

- Learn how your monthly cycle impacts on blood glucose levels and recognise any patterns.
- Learn to adjust insulin doses appropriately when using injections or pump.
- Understand the importance of responding to changes in glucose levels and adjusting insulin doses promptly.
- Understand for some girls there is a similar pattern each month and for some each month is different- both are normal.
- Be able to contact and discuss with HCP if support is needed.

Being Away from Home

- You should now be able to manage your diabetes independently when away from parents for a short period of time. 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.
- Use apps or websites to help with carb counting when eating out.
- Parents may be able to follow continuous glucose readings remotely to help keep you safe.

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.

Alcohol

Drinking alcohol is definitely not encouraged at this age, however drinking safely is important.

- 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.

Future Health and Routine care

- You should understand that good glucose management is very important for your future health with diabetes.
- You should get your eyes checked every year to make sure there is no damage.
- You should start to understand the relationship between your HbA1c and risk of future complications, and agree your individualised target with your diabetes team and your parents or carers.
- Understand the importance of attending clinic 4 times a year for routine care.
- Regular contact with the diabetes team during times of rapid growth will help you maintain optimal blood glucose levels and help reduce the risk of long-term complications.
- Know why blood and urine are taken every year at annual review; to check for any early signs of long-term complications or other conditions linked to diabetes.

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.
- You may be invited into your appointment alone for a few minutes, before being joined by a parent.

Smoking or vaping

Smoking, vaping or taking drugs can affect your diabetes.

- 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.

Emotional Wellbeing

Caring for diabetes can bring significant challenges for young people and their parents. This can be a time of increased family conflict with diabetes cares often adding to this conflict. You may experience low mood or anxiety which may impact on caring for your diabetes. Clinical psychology support is available for both you and parents, recognising the challenges in caring for diabetes and the importance of supporting family wellbeing. Meeting other young people with diabetes, in real life or online, may help share your experience.

- 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.

DigiBete Structured Education

Record Sheet for patients aged 12-13 years Name: .....

Instructions for use:
Use this sheet to log the level of knowledge and skill of parents or children (at the older age range, depending on when they were diagnosed).

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 (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Diabetes Knowledge **Young people should:**					
Be able to explain what type 1 diabetes is and how insulin works					
Have a basic understanding of the digestive system and the pancreas.					
Food **Young people should:**					
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).					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Food **Young people should:**					
Be familiar with different forms of food sweeteners if used and be able to recognise names of suitable brands.					
Be able to join in and eat with their friends.					
Exercise **Young people should understand that:**					
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 glucose pre-exercise is 7-10mmol/L. They should not exercise if ketones are above 1.5mmol/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.					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Exercise **Young people should understand that:**					
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.					
Diabetes Technology **Young people should:**					
Know how to operate any wearable tech for managing diabetes.					
Know how regularly this needs to be changed to remain effective.					
Know where on the body these devices can be worn.					
Be able to insert any devices independently or with minimal assistance.					
Look after this expensive equipment to the best of their ability.					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Insulin **It is understood by all that parents/carers should still continue to supervise the young person's diabetes care. The young person should:**					
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.					
Young people who use an insulin pump should:					
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.					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Glucose Monitoring **Young people should:**					
Know the causes and symptoms of high and low glucose levels.					
Be able to interpret and act on their glucose levels.					
Know what glucose level they are aiming to achieve.					
Be able to perform their own blood glucose check with a finger prick and glucose meter if necessary.					
Recognise sensor alarms and what the arrows mean (if applicable).					
Respond to these alarms or inform an adult to respond to these alarms.					
Know their own target for HbA1c value.					
Take part in discussions about interpreting glucose data.					
Be shown their blood glucose data and /or pump readings, and be part of any discussions about what they mean.					
Hypoglycaemia or HYPO (blood glucose level 3.9mmol/L or less) **Young people should know:**					
The causes of low blood glucose levels					
How to avoid low blood glucose levels.					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Hypoglycaemia or HYPO (blood glucose level 3.9mmol/L or less) **Young people should know:**					
The symptoms of low blood glucose levels.					
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.					
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.					
Hyperglycaemia or HYPER (blood glucose 10mmol/L or more) **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.					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Hyperglycaemia or HYPER (blood glucose 10mmol/L or more) **Young people should know:**					
That puberty and growing hormones can cause raised glucose levels.					
Insulin pump failure / occlusion can cause very high glucose levels within 4 hours.					
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 what level of blood ketones are acceptable.					
Menstruation **Girls should:**					
Know that their monthly cycle will impact their glucose levels and short term insulin adjustments will probably be needed.					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Future Health and Routine care **Young people should:**					
Start to understand why active glucose management is important.					
Understand the need for glucose levels in target to help take care of themselves both now and in the future.					
Start to understand the relationship between HbA1c and protection against longer term health problems and agree an individual target.					
Know that annual blood and urine checks are to monitor the effects of having diabetes.					
Start attending eye checks (retinal screening) to check for damage.					
Eating or Sleeping Away From Home					
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.					
Teachers and sports coaches should be trained in diabetes management for residential trips.					
If another adult is supervising, such as a sports coach, the parent/carer should also inform them about the young person's diabetes.					
The young person should carry some form of identification with them, which states that they have diabetes and require insulin.					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Eating or Sleeping Away From Home					
Use apps or websites to help with carb counting when eating away from home.					
Alcohol **Young people should:**					
Know that drinking alcohol at such a young age has safety risks.					
Be given practical advice on the special rules that apply when drinking alcohol.					
Know how alcoholic drinks affect blood glucose levels.					
Know that there is an increased risk of hypoglycaemia after alcohol consumption, including while sleeping and particularly after exercise.					
Know what precautions to take when drinking alcohol.					
Remember to eat extra food to reduce their chances of developing hypoglycaemia.					
Smoking and Vaping					
The young person should know that vaping is not a safe alternative to smoking.					
The young person is aware of the effects that smoking could have on their diabetes and long-term health.					
If they have started smoking, they should know how to get help to stop smoking.					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Transition to adult services					
You may be invited into the clinic appointment without parents for a few minutes, as part of the transition process to prepare for transferring to the young adult clinic in the future.					
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.					
Emotional Wellbeing **Young people should understand that:**					
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.					
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 their diabetes on their life, they will be offered the chance to talk to the clinical psychologist attached to the team (if available).					

DigiBete Structured Education

Record Sheet for patients aged 12-13 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Emotional Wellbeing **Young people should understand that:**					
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.					
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:

NHS

Authorisation date: ..... Date of next revision .....

DigiBete

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 each patient's gradual achievement of the learning goals over that time.

DigiBete Structured Education

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, in order to commence diabetes education at the right level.

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.

Diabetes in General

Young people should understand the pancreas has other functions apart from insulin production. These other functions are not impaired. Young people should understand the effect of insulin on the body.

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.

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.
- Understand that some types of carbohydrate (low glycaemic index) will have beneficial effects on blood glucose.
- Be familiar with different forms of food sweeteners if used, and be able to recognise names of suitable brands
- Be able to take part in activities involving food with their friends.
- Be encouraged to maintain a regular meal pattern, spreading carbohydrates throughout the day and not missing meals.
- Know that frequent consumption of less healthy foods or snacks will have a significant impact on body weight and glucose levels.

Diabetes Technology

- Technology may help young people to manage their diabetes more effectively, improving their wellbeing and health. This may include glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to allow the young person to manage their diabetes more easily by providing information allowing regular insulin changes during this rapid growth period.
- Any young person with diabetes should have appropriate and ongoing training and support from healthcare staff to ensure they feel confident in operating or using the technology effectively. Parents should still support the young person in setting up and programming their technology.
- Young people should look after their technology to the best of their ability; devices should be added to home insurance in case of accidental damage or loss.

Exercise

Young people should be encouraged to monitor blood glucose levels (and ketone levels, if necessary) before exercise. Using glucose sensors or CGM may help to facilitate this more easily before, during and after.

All young people should be encouraged to be active for at least 60 minutes per day and find ways of achieving this, even if not enjoying active hobbies.This is essential for cardiovascular health, insulin resistance and weight management. Daily exercise is an important part of diabetes management.

Individualised exercise plans should be discussed with the young person based on circumstances.

- Target glucose before exercise is 7-10mmol/L. Exercise should be postponed if ketones are 0.6mmol/L or above. Exercise should not be done if ketones are 1.5mmol/L or above

Young people should:

- Know how to reduce any problems that can occur during exercise or sports.
- Be learning through experience and the results of glucose monitoring how sports affect their blood glucose levels and know to discuss management strategies with their team.
- Be learning to check 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.
- 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 <7mmol/L prior to exercise.
- Staff should be aware of the need for therapeutic exemption in certain sports when competing at a regional or national level and advise accordingly.

Glucose Monitoring

Blood glucose should be checked 6-10 times per day if not wearing glucose monitoring technology. Young people are responsible for measuring and interpreting their glucose levels. They should be able to explain the implications of glucose readings outside the target range.

Young people should:

- Be responsible for regular scanning of glucose sensors or reviewing data on CGM.
- Understand the significance of arrows on glucose monitors and be able to use this information to manipulate diabetes care proactively.
- Enter glucose readings from meters or monitors into pumps (if required) or apps for proactive insulin dosing.
- Review their own data with a parent and be involved in discussions about potential insulin changes.
- Understand their targets for Time in Range and average glucose when reviewing data.

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 checked for the presence of ketones.
- Understand the causes and symptoms of high blood glucose levels as well as the principles of treatment.
- Be aware that hormones released during puberty cause insulin resistance.
- Know that insulin doses will increase frequently during this period of growth. Regular contact inbetween clinic is essential to help prevent high glucose levels.
- Understand that young people on insulin pumps may develop high glucose levels and ketones within 4 hours if the pump has failed or the cannula becomes dislodged.
- Realise that despite wearing a pump, high glucose levels and ketones may require a pen injection to provide effective treatment.
- Know that ketoacidosis can be life threatening.

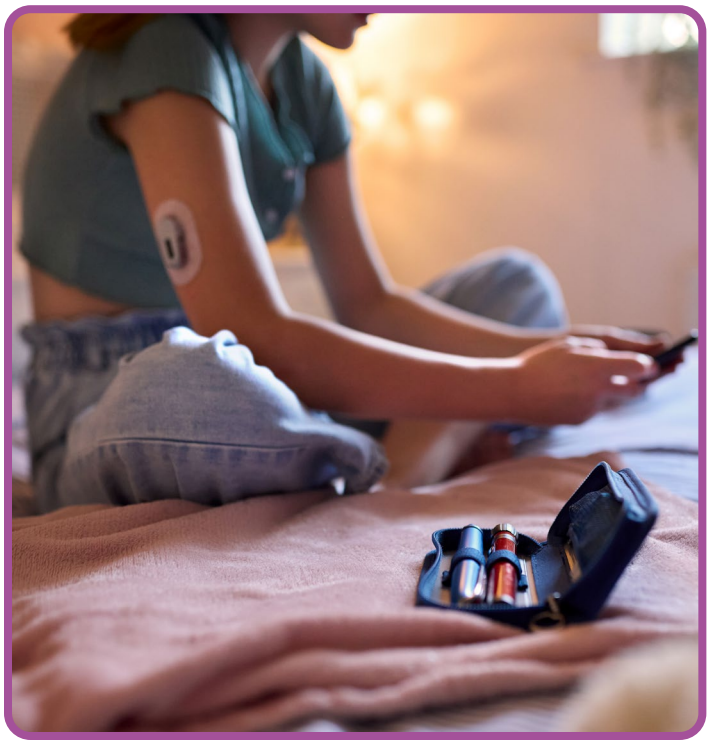
Insulin

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 before meals can have a significant impact on their glucose levels.
- 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 entering the carbohydrate values of their food into the pump.
- 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.



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.
- Know how much hypo treatment is appropriate for age, size and method of diabetes management, to prevent over or undertreatment.
- Know that when using a HCL system hypo treatment required may be significantly less.

Families should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly; expired glucagon may not work effectively in an emergency.

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.
- Know that they must continue to eat and drink, even if they don't feel like it.
- Learn how to calculate how much extra insulin they require.
- Never stop insulin during illness.
- Be encouraged to take up annual public health vaccines.

Health Care Professionals should revisit this advice with the young person and their parents/ carers at least annually.

Future Health and Routine Care

Young people should:

- Understand the relationship between blood glucose and long-term complications in order to understand why blood glucose management is so important.
- Discuss this in the context of the NICE target of HbA1c <48 mmol/mol (6.5%).
- Be aware of the need to attend all routine check-ups in order to detect long-term complications of diabetes at an early stage or other conditions linked to diabetes. These checks include HbA1c, blood pressure monitoring, urine-testing for microalbuminuria, the level of sensation in their feet, blood investigations and regular eye examinations.
- 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.
- Be aware that they are invited to attend clinic 4 times a year routinely, this will include an annual review.
- Have a key diabetes contact.
- Understand that regular contact with the diabetes team will help them maintain optimal blood glucose levels and help reduce the risk of long-term complications.

Eating or Sleeping Away From Home

- Young people should now be able to manage their diabetes independently.
- As a precaution, teachers and supervising 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.
- The use of apps or websites should be encouraged to help with carb counting when eating out.
- Parents may have the capacity to follow continuous glucose readings remotely.

Smoking or vaping

Young people should:

- Be discouraged from starting to smoke or vape.
- Be able to discuss the effect of smoking on their diabetes.
- If they have started smoking or vaping 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 and mental health.
- Offer referral to local addiction services as appropriate.

Alcohol

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

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

They need to know:

- That they should eat food when they are drinking.
- 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.
- That it is important to eat long-acting carbohydrate- containing foods and check their blood glucose level before going to sleep. Low glucose alarms on sensor devices should be set.
- 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.

Sexual health 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 HbA1c target of 48 mmol/mol (6.5%) is recommended and pregnancy should be actively advised against if the HbA1c is above 86 mmol/mol (10%).[1]
- Be aware that pregnancy involves a need to check blood glucose more often, as well as the need for more frequent visits to an antenatal diabetes clinic.
- If a young person becomes pregnant by accident they should know to contact their diabetes team as soon as possible so they are able to refer to a specialist service.
- Anyone undertaking gender reassignment hormone therapy will experience changes to blood glucose. Sharing this sensitive information with the diabetes team will enable them to help.

Menstruation

Girls need to be aware that around the time of a period blood glucose levels can change with the increase in hormones. Many girls find that 3-5 days before a period starts glucose levels may rise and then go back to normal a few days in. This may be the opposite for some girls.

Girls should:

- Learn how their monthly cycle impacts on blood glucose levels and recognise any patterns
- Learn to adjust insulin doses appropriately when using injections or pump
- Understand the importance of responding to changes in BG levels and adjusting insulin doses promptly
- Understand for some girls there is a similar pattern each month and for some each month is different- both are normal
- Be able to contact and discuss with HCP if support is needed

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.
- Be given guidance on managing diabetes during exams and understand that they are entitled to a letter to support blood glucose monitoring or eating during an exam.

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.

Young people should be invited into their appointment alone for a few minutes, before being joined by a parent.

Emotional Wellbeing

Caring for diabetes can bring significant challenges for young people and adults, who may both describe symptoms of 'burnout'.

This can be a time of increased family conflict with diabetes cares often adding to this conflict. Young people may experience low mood or anxiety which may impact on caring for their diabetes. Clinical psychology support is available for both young people and parents, recognising the challenges of caring for diabetes and the importance of emotional wellbeing. Local support groups or other families who may have had similar lived experience, who understand the circumstances may be able to offer practical help and support.

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.
- 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.
- 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.

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.
ISPAD suggests a Time in Range (TIR) of 4-10mmol/L and fasting target range of 4-8mmol/L.
ISPAD suggests 3.9mmol/L as the value to initiate hypo treatment.
[1] National Institute for Health and Care Excellence (NICE). Diabetes in Pregnancy: Management from Preconception to the Postnatal Period (NG 3).

DigiBete Structured Education

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 DigiBete website or app (www.digibete.org).

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.
- Understand that some types of carbohydrate (low glycaemic index) will have beneficial effects on blood glucose levels.
- Regularly include some slow-acting (low glycaemic index) carbohydrates as part of meals.
- Understand the information on food labels.
- Be familiar with different forms of food sweeteners if used and be able to recognise names of suitable brands.
- 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.
- Maintain a regular meal pattern, spreading carbohydrates throughout the day and not missing meals.
- Be aware that frequent consumption of less healthy foods or snacks may have a significant impact on body weight and glucose levels.

Exercise

- You should know that blood glucose levels should be checked before exercise.
- You should know that your target blood glucose before sport is 7mmol/L. Do not exercise if ketones are above 0.6mmol/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 know that daily activity, including exercise, is essential for a healthy heart, bone strength and weight management.
- You should be active for at least 60 minutes per day and find ways of achieving this, even if not enjoying active hobbies.
- You should know that activity and exercise can have a positive impact on how well you feel and your diabetes management.
- 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 glucose checking, how taking part in sport affects your blood glucose levels and how blood glucose can affect your performance. Glucose sensors may help in managing activity more effectively and discreetly.
- You should be made aware of any special rules about the use of your insulin as medication in competitive sports at regional or national level.

Diabetes Technology

- Technology may help you to manage your diabetes more effectively, improving your wellbeing and health. This may include glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to allow you to manage your diabetes more easily by providing information allowing regular insulin adjustment during this rapid growth period.
- You should have appropriate and ongoing training and support from healthcare staff to ensure you feel confident in operating or using the technology effectively.
- Parents should still support you in setting up and programming the technology.
- You should look after the technology to the best of your ability; devices should be added to home insurance in case of accidental damage or loss.

Glucose Monitoring

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.

You should:

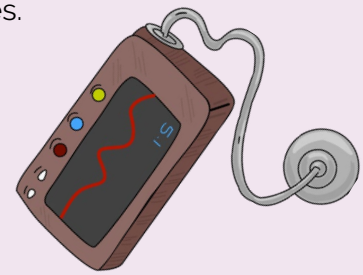
- Check your glucose regularly (6-10 times per day) if not wearing glucose monitoring technology.
- Be able to insert your glucose monitoring sensor yourself.
- Be responsible for regular scanning of glucose sensors or reviewing data on CGM.
- Understand the significance of arrows on glucose monitors.
- Enter glucose readings from meters or monitors into pumps or apps for proactive insulin dosing.
- Review your own data with a parent and be involved in discussions about potential insulin adjustments.
- Be able to upload or share your data with your clinic remotely.
- You should understand the importance of glucose readings and Time In Range and be able to explain the implications of being outside this.

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 understand that the timing of your insulin dose before meals can have a significant impact on your glucose levels.
- You should be able to examine, care for and rotate your injection/infusion sites.

If you use an insulin pump you should:

- Feel confident entering your carbohydrate values of food eaten 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.



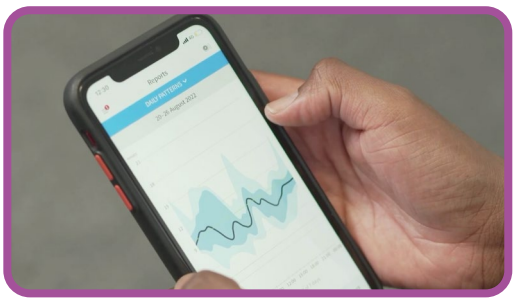
Hypoglycaemia or HYPO = Low Blood Glucose Level (3.9mmol/L or less) You should:

- Know how much hypo treatment is appropriate for your age, size and method of diabetes management to prevent over or under treatment.
- 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.

Parents should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly.

Hyperglycaemia or HYPER = High Blood Glucose Level (10mmol/L or more) You should:

- Know the causes and symptoms of high blood glucose levels and how to avoid them.
- Know that hormones released during puberty cause insulin resistance. Insulin doses will increase frequently during this growth period to help prevent high glucose levels.
- Be able to treat high glucose levels successfully by yourself.
- Know when to check for ketones.
- know that when using an insulin pump high glucose levels and ketones may develop within 4 hours if the pump has failed or cannula becomes dislodged.
- Know that despite wearing an insulin pump, high glucose levels and ketones may require a pen injection to provide prompt and effective treatment
- Know that ketoacidosis can be life threatening.



Future Health and Routine care

Young people with type 1 diabetes are invited to attend clinic 4 times a year routinely, this will include an annual review.

- You should have a key diabetes contact.
- You should understand that regular contact with the diabetes team will help you maintain optimal blood glucose levels and help reduce the risk of long-term complications.
- You should understand why good blood glucose management is vital in preventing long-term complications.
- You should understand why blood and urine are taken every year at annual review; to check for any early signs of long-term complications or other conditions linked to diabetes.

  These include:
  - Your individualised HbA1c 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.
- How to contact your nurse in between routine clinic appointments when needed.

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 glucose levels regularly. This may include blood glucose readings with a finger prick sample.
- Check your blood to see if ketones are present, even if your blood glucose is not out of range.
- Report the presence of ketones of 0.6mmol/L or above 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.
- Never stop insulin during illness.
- Know that additional insulin is often needed during illness, and this may be a significant increase.
- It is advisable to take up annual public health vaccines.

Menstruation

Girls need to be aware that around the time of a period blood glucose levels can change with the increase in hormones. Many girls find that 3-5 days before a period starts Bg levels may rise and then go back to normal a few days in. This may be the opposite for some girls.

Girls should:

- Learn how your monthly cycle impacts on blood glucose levels and recognise any patterns.
- Learn to adjust insulin doses appropriately when using injections or pump.
- Understand the importance of responding to changes in BG levels and adjusting insulin doses promptly.
- Understand for some girls there is a similar pattern each month and for some each month is different - both are normal.
- Be able to contact and discuss with HCP if support is needed.

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.
- Use apps or websites to help with carb counting when eating out
- Your parents may have the capacity to follow continuous glucose readings remotely.

Smoking and vaping

- You should be made aware of the effects that smoking and vaping could have on your diabetes and long-term health.
- If you have started smoking or vaping 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 mental health and diabetes health, and where you can get advice and support locally.

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.

Sexual Health 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.
- If you become pregnant by accident, tell your diabetes team as soon as possible so they are able to refer you to a specialist service. Delaying this could harm you and your baby.
- Anyone undertaking gender reassignment hormone therapy will experience changes to blood glucose. Sharing this sensitive information with your diabetes team will enable them to help

You should know how to ensure the safest possible pregnancy:

- Excellent blood glucose levels before attempting to get pregnant.
- Review your medications and add folic acid supplements.
- Excellent blood glucose management throughout pregnancy.
- Frequent visits to a specialist diabetes clinic.
- Frequent glucose monitoring, probably with a sensor.

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 check 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).
- You should wear/carry some ID stating you have T1 diabetes.

Because of these risks, you must:

- 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.

Transition

- You should be able to describe the transition process by which your diabetes care will be transferred from the children's 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.
- You should be invited into your appointment alone for a few minutes, before being joined by a parent.

Emotional Wellbeing

Caring for diabetes can bring significant challenges for young people and adults, who may both describe symptoms of 'burnout'. This can be a time of increased family conflict with diabetes care often adding to this conflict. You may experience low mood or anxiety which may impact on caring for your diabetes. Clinical psychology support is available for both young people and parents, recognising the challenges of caring for diabetes and the importance of family wellbeing. Meeting other young people with diabetes, in real life or online, may help share your experience.

- 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 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.

DigiBete Structured Education

Record Sheet for patients aged 14-15 years Name: .....

Instructions for use:
Use this sheet to log the level of knowledge and skill of parents or young people (at the older age range, depending on when they were diagnosed).

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 (Yes/NA)	Partially Achieved (Yes/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.**					
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.					
If the young person is uncertain about any aspect of their diabetes, they can ask a member of the diabetes team for advice. Alternatively, you can find information on the DigiBete website or app (www.digibete.org)					
Food **By now, young people should:**					
Know which foods are best to eat for good health and regularly include some slow-acting (low glycaemic index) carbohydrates in their meals.					
Understand that some types of carbohydrate (low glycaemic index) will have beneficial effects on blood glucose.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Food **By now, young people should:**					
Maintain a regular meal pattern, spreading carbohydrates throughout the day and not missing meals.					
Be aware that frequent consumption of less healthy foods or snacks will have a significant impact on body weight and glucose levels.					
Be familiar with different forms of food sweeteners if used, and be able to recognise names of suitable brands.					
Be able to take part in activities involving food with their friends.					
Be able to count the carbohydrate content of foods using suitable resources (including weighing food, books, apps and websites if required).					
Exercise **Young people should:**					
Know that blood glucose levels should be checked before exercise.					
Know that their target blood glucose before sport is 7-10mmol/L, and that they should not exercise if ketones are above 1.5mmol/L.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Exercise **Young people should:**					
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.					
Know that daily activity, including exercise, is essential for a healthy heart, bone strength and weight management.					
Know that activity and exercise can have a positive impact on their mental health and mood.					
Know how to prevent problems that can happen with their blood glucose levels during exercise or sport.					
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.					
Be made aware of any special rules about the use of their medication in competitive sports at regional or national level.					
Diabetes Technology **Young people should:**					
Know how to operate any wearable tech for managing diabetes.					
Know how regularly this needs to be changed to remain effective.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Diabetes Technology **Young people should:**					
Be able to make changes to settings if required.					
When wearing sensors know the significance of the arrows and use to proactively inform treatment decisions.					
Know where on their body these devices can be worn.					
Be able to insert any devices independently or with minimal assistance.					
Look after this expensive equipment to the best of their ability.					
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.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Insulin **The young person should:**					
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 entering the carbohydrate values 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.					
Glucose Monitoring **Young people should:**					
Know the symptoms and causes of high and low blood glucose levels.					
Be able to review, interpret and act on their glucose levels between clinic appointments.					
Know what glucose level they are aiming to achieve.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Glucose Monitoring **Young people should:**					
Be able to perform their own blood glucose check with a finger pricker and glucose meter if necessary.					
Recognise sensor alarms, and what the arrows mean (if applicable).					
Respond to these alarms and take appropriate action.					
Know their own target for HbA1c value.					
Be able to upload or share data with clinic remotely.					
Take part in discussions about interpreting glucose data.					
Hypoglycaemia or HYPO (blood glucose 3.9mmol/L or less) **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 is restored.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Hypoglycaemia or HYPO (blood glucose 3.9mmol/L or less) **Young people should:**					
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 10mmol/L or more) **Young people should:**					
Know the causes and symptoms of high blood glucose levels and precautions to avoid it.					
Know the importance of checking for blood ketones in case of hyperglycaemia.					
Understand the results of the ketone test and know the appropriate action to take.					
Be able to act on high glucose levels successfully by themselves.					
Review their glucose data between clinic appointments to adjust insulin doses as required.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Hyperglycaemia or HYPER (blood glucose 10mmol/L or more) **Young people should:**					
Know that puberty and growing hormones can cause raised glucose levels.					
Insulin pump failure / occlusion can cause very high glucose levels within 4 hours.					
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.					
Never stop taking insulin when ill.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Illness **Young people should know to do the following in the event of illness:**					
Participate in public health vaccine programmes.					
Menstruation **Girls should:**					
Know that their monthly cycle will impact their glucose levels and short term insulin adjustments will probably be needed.					
Future Health and Routine Care **Young people should:**					
Understand why active glucose management is important to prevent long term health problems.					
Understand the need for glucose levels in target to help take care of themselves both now and in the future.					
Start to understand the relationship between HbA1c and protection against longer term health problems and agree an individual target.					
Know that annual blood pressure, blood and urine checks are to monitor the effects of having diabetes.					
Attending eye checks (retinal screening) to check for damage.					
Eating or Sleeping Away From Home					
The young person should now be able to manage their diabetes independently.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Eating or Sleeping Away From Home					
As a safety measure, teachers and other adults should be kept informed of the young person's diabetes care.					
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:**					
They should eat food when they are drinking.					
Certain alcoholic drinks contain carbohydrate, and to understand the effect on that these will have on blood glucose.					
There is an increased risk of hypoglycaemia after alcohol consumption, including while sleeping.					
Before going to sleep, it is important to eat long-acting carbohydrate foods and test their blood glucose level.					
They run great risks if they drink too much.					
They may overlook the symptoms of hypoglycaemia.					
The liver will not release its sugar stores in the event of a severe hypo.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Because of these risks, they must know to:					
Eat extra food when drinking alcohol.					
Consider taking less insulin if necessary.					
Tell their friends about the relationship between drinking alcohol and blood glucose levels to ensure that they do not mistake hypoglycaemia for drunkenness.					
Have a reliable plan for waking up the morning after drinking.					
Smoking and Vaping					
Young person should know that vaping is not a safe alternative to smoking.					
The young person should understand the effects that smoking could have on their diabetes and long-term health.					
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.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Sexual Health and Pregnancy **Young people should:**					
Know the importance of practising safe sex and how to access contraception, including emergency contraception.					
Understand that barrier contraception should be used to protect against sexually transmitted infections (STIs).					
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.					
Accidental pregnancies should be reported to the diabetes team as soon as possible for referral to a specialist service.					
Transition to adult services					
You should be invited into your appointment alone for a few minutes, before being joined by a parent.					
The young person should be able to describe their transition process and work with the diabetes team in setting their own goals.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/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.					

DigiBete Structured Education

Record Sheet for patients aged 14-15 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Emotional Wellbeing **Young people should understand that**:					
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.					
Other mental health problems can have an impact on diabetes management.					

Record any other education provided or notes here:

NHS

Authorisation date: ..... Date of next revision .....

DigiBete

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 each patient's gradual achievement of the learning goals over that time.

DigiBete Structured Education

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. This will form the basis of where diabetes education should commence and to identify any additional learning needs.

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 to maintain good health.

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 young person should be motivated to seek further knowledge and experience, as well as additional background information about diabetes. The young person assumes increasing responsibility for their diabetes management and interactions with healthcare professionals. The aim of diabetes education is to enhance self-efficiacy and empower the young person to self-manage their diabetes care in preparation for transfer to adult services.

Insulin

Young people should:

- Learn to be fully independent in matching 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.
- Understand that the timing of their insulin dose before meals can have a significant impact on their glucose levels.

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.

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.
- Be competent in counting carbohydrates using books, apps or websites to help.
- Understand that excess amounts of fat or protein will have adverse effects on blood glucose.
- Be encouraged to maintain a regular meal pattern, spreading carbohydrates throughout the day and not missing meals.
- Should know that frequent consumption of less healthy foods or snacks will have a significant impact on body weight and glucose levels.

Exercise

Individualised exercise plans should be discussed with the young person based on circumstances.

- Target glucose before exercise is 7-10mmol/L. Exercise should be postponed if ketones are 0.6mmol/L or above. Exercise should not be done if ketones are 1.5mmol/L or above.
- Young people should recognise that regular daily activity, including exercise, is essential for cardiovascular health, weight and glucose management, even for those not interested in sports.
- Young people should be able to apply all relevant exercise precautions, including checking ketone levels if pre-exercise blood glucose levels are >14mmol/L and avoiding physical activity if ketones are present. This applies whether they compete in sports events or follow a daily exercise routine such as running or gym sessions.
- They should know that NICE recommends additional carbohydrate intake if blood glucose is <7 mmol/L prior to exercise.
- 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 high level and advise accordingly.

Diabetes Technology

Technology may help the young person to manage their diabetes more effectively improving their wellbeing and health. This may include glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to allow the young person to manage their diabetes more easily by providing more information allowing them to fine-tune their diabetes management.

Any young person with diabetes should have appropriate and ongoing training and support from healthcare staff to ensure they feel confident in operating or using the technology effectively.

- Young people should look after their technology to the best of their ability; devices should be added to home insurance in case of accidental damage or loss.

Glucose Monitoring

Young people are responsible for measuring and interpreting their blood glucose levels. Blood glucose should be checked a minimum of 6-10 times per day if not wearing glucose monitoring technology.

They should be able to:

- Be responsible for regular scanning of glucose sensors, or reviewing data on CGM.
- Understand the significance of arrows on glucose monitors and be able to use this information to manipulate diabetes care proactively.
- Enter glucose readings from meters or monitors into pumps (if required) or apps for proactive insulin dosing.
- Review their own data with the diabetes team and understand the targets for Time in Range and average glucose.
- Young people may still appreciate the support of a parent/carer around discussions about potential insulin changes.

Illness

Young people should:

- Be able to take appropriate precautions independently when they are ill. This includes checking for blood ketones even if their blood glucose is not out of range.
- 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.
- Be encouraged to take up annual public health vaccines.
- Never stop insulin during illness.

Healthcare Proffessionals should revisit this advice with the young person at least annually.

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 young person's emergency kit, and he or she should be able to instruct others in their use.
- Insulin doses may need to be reduced if the rapid growth phase of puberty has finished. Failure to do so may result in frequent hypoglycaemia.
- Know that when using a Hybrid Closed Loop system hypo treatment required may be significantly less.

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 checked for the presence of ketones.
- Understand the causes and symptoms of high blood glucose levels as well as the principles of treatment.
- Know that those using insulin pumps may develop high glucose levels and ketones within 4 hours if the pump has failed or the cannula becomes dislodged.
- Realise that despite wearing a pump, high glucose levels and ketones may require a pen injection to provide effective treatment.
- Know that ketoacidosis can be life threatening.

Menstruation

Women need to be aware that around the time of a period blood glucose levels can change with the increase in hormones. Many women find that 3-5 days before a period starts glucose levels may rise and then go back to normal a few days in. This may be the opposite for some women.

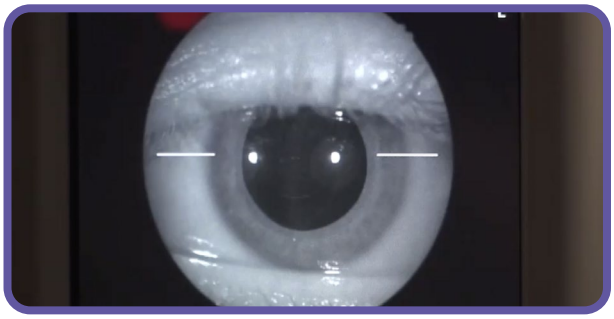
Women should:

- Learn how their monthly cycle impacts on blood glucose levels and recognise any patterns.
- Learn to adjust insulin doses appropriately when using injections or pump.
- Understand the importance of responding to changes in BG levels and adjusting insulin doses promptly.
- Understand for some women there is a similar pattern each month and for some each month is different- both are normal.
- Be able to contact and discuss with HCP if support is needed.

Future Health and Routine Care

Young people with type 1 diabetes are invited to attend clinic 4 times a year routinely, this will include an annual review.

- Young people should have a key diabetes contact.
- The young person should understand that regular contact with the diabetes team will help them maintain optimal blood glucose levels and help reduce the risk of long term complications.
- Young people should know how to contact their HCP in between routine clinic appointments when needed.
- Young people should know that in adult services, routine diabetes care may be less frequent but all people with diabetes should continue to access a diabetes care review at least once annually to monitor their health.



Alcohol

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

They need to know that:

- They should eat when they are drinking.
- 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 check their blood glucose level before going to sleep. Low glucose alarms on sensors should be on.
- People with diabetes are placed at greater risk of harm 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, or the next day.
- The liver will not release its glucose stores in the event of severe hypoglycaemia.
- Young people should wear/carry some ID stating they have type1 diabetes.

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 and vaping

- Young people should be discouraged from taking up smoking and vaping. The effects on their diabetes health should be discussed.
- If they have started smoking or vaping they should receive advice about where they can 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 and/or mental health with the young person. Offer referral to local addiction services as appropriate.

Sexual Health and Pregnancy

Young people should be encouraged to share their diagnosis with new significant partners.

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.
- In circumstances of accidental pregnancy, patients should be encouraged to inform the diabetes staff immediately for referral on to appropriate services.
- 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 levels before and throughout pregnancy.
- Be made aware that an HbA1c target of 48 mmol/mol (6.5%) is recommended and pregnancy should be actively advised against if the HbA1c is above 86 mmol/ mol (10%).[1]
- Be aware that pregnancy involves the need to check blood glucose more often, and for more frequent visits to a specialist 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.
- Anyone undertaking gender reassignment hormone therapy will experience changes to blood glucose. Sharing this sensitive information with the diabetes team will enable them to help.

Social Factors

Young people should know:

- How to manage diabetes during exams and understand that they are entitled to a letter to support glucose monitoring 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, glucose sensors, pump supplies etc.
- That they should start to become independent in managing their prescriptions from the GP or pharmacy.
- 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, tattooing and cosmetic procedures.

Travel

Young people should:

- Be able to travel independently, including trips abroad or to events such as festivals.
- Involve the diabetes team in preparations for independent travel, to ensure a safe 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.

Transition Arrangements

Transition is a critical time in a young person's life. Effective transition between paediatric and adult diabetes services has a major impact on long-term outcomes. By helping empower young people to feel confident about managing their condition by giving them the knowledge and skills, transition should be a less scary and happier process. Use of a structured transition tool such as Ready Steady Go has the potential to improve outcomes for young people into adult life.

Young people should be invited into their appointment alone for a few minutes, before being joined by a parent, or may attend independently. Diabetes staff should contact young people directly when over 18, rather than a parent.

Transition will be occurring during this phase. Local transition arrangements should be discussed with a clear pathway for the young person to follow, and expectations of the adult service explained, so they feel prepared for transfer.

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.

Emotional Wellbeing

Young people will most likely have learned that living with diabetes can be unpredictable and feeling fed up, stressed or burnt out about caring for diabetes is common. Young people may experience low mood or anxiety which may impact on caring for their diabetes. Getting the right support and talking to someone can help to find strategies that work for an individual. Clinical psychology support is available for young people, recognising the challenges of caring for diabetes and the importance of emotional wellbeing, or signposted to other mental health support outside the diabetes team.

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.
- 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.
- 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.

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.
ISPAD suggests a Time in Range (TIR) of 4-10mmol/L and fasting target range of 4-8mmol/L.
ISPAD suggests 3.9mmol/L as the value to initiate hypo treatment.
[1] National Institute for Health and Care Excellence (NICE). Diabetes in Pregnancy: Management from Preconception to the Postnatal Period (NG 3).

DigiBete Structured Education

Goals for 16-18 year olds

GUIDE FOR YOUNG PERSON

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.
- You should be encouraged to maintain a regular meal pattern, spreading carbohydrate throughout the day and not missing meals.
- You should know that frequent consumption of less healthy foods or snacks will have a significant impact on body weight and glucose levels.

Exercise

- You should know that 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 7mmol/L. Do not exercise if blood ketones are above 0.6mmol/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 running or gym sessions.
- 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.

Diabetes Technology

Operating and caring for diabetes technology is your responsibility.

Technology may help you to manage your diabetes more effectively, improving your wellbeing and health. This may include glucose sensors, insulin pumps or smart insulin pens. These devices may be used separately or together to allow you to manage diabetes more easily by providing more information, allowing you to fine-tune your diabetes management.

You should have appropriate and ongoing training and support from healthcare staff to ensure you feel confident in operating or using the technology effectively.

- You should look after your diabetes equipment to the best of your ability; devices should be added to home insurance in case of accidental damage or loss.

Glucose Monitoring

Blood glucose should be checked a minimum of 6-10 times per day if not wearing glucose monitoring technology

You should be able to:

- Be responsible for regular scanning of glucose sensors or reviewing data on CGM.
- Understand the significance of arrows on glucose monitors and be able to use this information to manipulate diabetes care proactively.
- Enter glucose readings from meters or monitors into pumps(if required) or apps for proactive insulin dosing.
- Review your own data with the diabetes team. You may still appreciate the support of a parent/ carer around discussions about potential insulin changes.
- Understand that glucose levels are a tool to assist you with your diabetes management, not just for clinic staff.

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.
- Understand that the timing of your insulin dose before meals can have a significant impact on your glucose levels.
- 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.

Illness

You should:

- Be able to take appropriate precautions when you are ill, including more frequent monitoring of blood glucose levels and checking 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.
- Take up annual public health vaccines.
- Never stop insulin during illness.

Hyperglycaemia or HYPER = High Blood Glucose Level (10mmol/L or more)

You should:

- Know the causes and symptoms of high blood glucose levels and precautions to avoid them.
- Know that your blood must be checked for ketones.
- Understand the results of the ketone test and know the appropriate action to take.
- Know that ketoacidosis can be life threatening.
- Be able to treat high blood glucose levels successfully by yourself.
- Review your glucose data to adjust your insulin doses if needed.
- If you wear an insulin pump, you may develop high glucose levels and ketones within 4 hours if the pump has failed or the cannula becomes dislodged.
- Despite wearing a pump, high glucose levels and ketones may require a pen injection to provide effective treatment.

Hypoglycaemia or HYPO = Low Blood Glucose Level (3.9mmol/L or less)

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.
- Know that insulin doses may need to be reduced if the rapid growth phase of puberty has finished. Failure to do so may result in frequent hypoglycaemia.
- Know that when using a Hybrid closed loop system, hypo treatment required may be significantly less.

You should have an opportunity to revise how to use glucagon annually or access video resources. Expiration dates of stored glucagon should be checked regularly.

Future Health and Routine care:

You are invited to attend clinic 4 times a year routinely, this will include an annual review.

- You should know about the different follow-up examinations that are necessary, including:
  - Your individualised HbA1c 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.
- Have a key diabetes contact, such as a nurse.
- Understand that regular contact with the diabetes team will help you maintain optimal blood glucose levels and help reduce the risk of long-term complications.
- Know how to contact your nurse in between routine clinic appointments when needed.
- Know that in adult services routine diabetes care may be less frequent but all people with diabetes should continue to access a diabetes care review at least once annually to monitor their health.

Menstruation

Girls need to be aware that around the time of a period blood glucose levels can change with the increase in hormones. Many girls find that 3-5 days before a period starts glucose levels may rise and then go back to normal a few days in. This may be the opposite for some girls.

Girls should:

- Learn how their monthly cycle impacts on blood glucose levels and recognise any patterns.
- Learn to adjust insulin doses appropriately when using injections or pump.
- Understand the importance of responding to changes in BG levels and adjusting insulin doses promptly.
- Understand for some girls there is a similar pattern each month and for some each month is different- both are normal.
- Be able to contact and discuss with HCP if support is needed.

Travel

- You should be able to travel independently, not only locally but also abroad.
- involve the diabetes team in preparations for independent travel, to ensure a safe 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.

Smoking and vaping

- You should be made aware of the effects that smoking and vaping could have on your diabetes and long-term health.
- If you have started smoking or vaping 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, mental health and diabetes management, and where you can get advice and support locally to help you discontinue their use.

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 check 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. This could also happen the next day.
- The liver will not release its glucose stores in the event of a severe hypoglycaemic episode.
- You should wear/carry some ID stating you have type 1 diabetes.

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.

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, tattooing and cosmetic procedures.
- Have an understanding of patient confidentiality and the opportunity to contact your diabetes team members directly if you wish.

Sexual Health and Pregnancy

You should share your diagnosis of T1 diabetes with new significant partners.

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.
- In circumstances of accidental pregnancy, women should be encouraged to inform the diabetes staff immediately for referral on to appropriate services.
- **Know how to ensure the safest possible pregnancies:**
  - Achieve excellent blood glucose levels before attempting to get pregnant.
  - The need for medications to be reviewed and for folic acid supplements.
  - Achieve excellent blood glucose levels throughout pregnancy.
  - Frequent visits to a specialist diabetes clinic are needed.
  - More frequent glucose monitoring is required
- Anyone undertaking gender reassignment hormone therapy will experience changes to blood glucose. Sharing this sensitive information with the diabetes team will enable them to help.

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 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.You should know that living with diabetes can be unpredictable and feeling fed up, stressed or burnt out about caring for diabetes can be common.
- You may experience low mood or anxiety which may impact on caring for diabetes.
- Getting the right support and talking to someone is essential to find strategies that work for you. Clinical psychology support is available for you, recognising the challenges you might face in caring for diabetes and the importance of your emotional wellbeing.
- You may be signposted to other mental health support outside the diabetes team.

Transition / Moving to Adult Services

- 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.

You should be clear about the move to adult services, and expectations of the adult service explained to you, so you feel prepared for transfer.

DigiBete Structured Education

Record Sheet for patients aged 16-18 years Name:.....

Instructions for use:
Use this sheet to log the level of knowledge and skill of young people.

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 (Yes/NA)	Partially Achieved (Yes/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:**					
Have an understanding of how good nutrition impacts physical and mental health, including vitamins, minerals and appropriate portion sizes.					
Know to maintain a regular meal pattern, spread carbohydrates throughout the day and not miss meals.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Food **Young people should:**					
Know that frequent consumption of less healthy foods or snacks will have a significant impact on body weight and glucose levels.					
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.					
Exercise **Young people should:**					
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.					
Know their target blood glucose before sport is 7-10mmol/L and that they should not exercise if ketones are above 1.5mmol/L.					
Understand that daily activity, including exercise, is essential for a healthy heart, bone strength and weight management, even if they don't like sports.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Exercise **Young people should:**					
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.					
Know that activity and exercise can have a positive impact on their emotional health.					
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:**					
Know the name(s) of the insulin(s) they use and how they work.					
Understand that the timing of insulin doses before meals can have a significant impact on glucose levels.					
Be almost fully independent in matching blood glucose readings, diet and exercise to appropriate doses of the different insulins they use.					
Have a greater understanding of the relationship between food, exercise and insulin.					
Be able to examine and care for their injection/ infusion sites and have an understanding of the need for zonal site rotation.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Insulin **If using an insulin pump, they should be able to:**					
Order supplies.					
Perform an infusion set change, programme the device and use advanced bolus features.					
Know how to connect with a continuous glucose monitor (CGM) (if applicable)					
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.					
Diabetes Technology **Young people should:**					
Know how to operate any wearable tech for managing diabetes.					
Know how regularly this needs to be changed to remain effective.					
Be able to make changes to settings if required.					
When wearing sensors know the significance of the arrows and use to proactively inform treatment decisions.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Diabetes Technology **Young people should:**					
Know where on their body these devices can be worn.					
Be able to insert any devices independently or with minimal assistance.					
Look after this expensive equipment to the best of their ability.					
Feel confident in operating all their diabetes tech.					
Understand the importance of regular data review to fine tune settings.					
Be able to fine tune settings independently or understand the importance of contacting HCP to discuss.					
Glucose Monitoring **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.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Glucose Monitoring **The young person must measure and interpret their blood glucose levels. They should be able to explain:**					
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 use glucose readings from sensor technology or blood checkse to actively manage their diabetes.					
Be able to share their data with the diabetes staff but to review it themselves between clinic appointments.					
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 3.9mmol/L or less) **Young people should:**					
Understand the importance of teaching their friends and schoolmates about diabetes precautions, especially the symptoms and treatment of hypoglycaemia.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Hypoglycaemia or HYPO (blood glucose 3.9mmol/L or less) **Young people should:**					
Know when and how to treat hypoglycaemia so that they can instruct potential helpers.					
Know the importance of checking their glucose levels after treatment to ensure that a normal 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.					
Hyperglycaemia or HYPER (blood glucose 10mmol/L or more) **Young people should:**					
Know the causes and symptoms of high blood glucose levels and precautions to avoid them.					
Know the importance of checking for blood ketones in case of hyperglycaemia.					
Understand the results of the ketone test and know the appropriate action to take.					
Be able to treat high blood glucose levels successfully by themselves.					
Review their data with parents /diabetes staff to monitor glucose levels between clinic appointments.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Illness					
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.					
They should know how to adjust insulin to accommodate a fever and how to handle episodes of nausea and vomiting.					
They must realise that it may be necessary to get help from the diabetes care team and have their contact numbers available.					
They should never stop taking insulin during illness.					
They should be aware of preventative medicine such as vaccines.					
Menstruation **Girls should:**					
Know how their own glucose responds to their monthly cycle.					
That insulin doses may need short term adjustments to manage this.					
Future Health and Routine Care					
The young person should know about the different follow-up examinations that are necessary, including:					
Their individualised HbA1c target and what it means.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Future Health and Routine Care **They should know about:**					
Blood pressure monitoring.					
Blood investigations.					
Urine testing for microalbuminuria.					
Checking sensation in the feet.					
Eye examinations.					
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.					
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:**					
They should eat when they are drinking.					
Different alcoholic drinks have different effects on blood glucose.					
They must eat foods containing long-acting carbohydrates and test their blood glucose level before going to sleep.					
They run significant risks if they drink too much.					
They may overlook the symptoms of hypoglycaemia and mistake them for the effects of alcohol.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Alcohol **Young people need to know that:**					
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 hypo (hypoglycaemic episode).					
Because of these risks, they must know to:					
Eat extra food when drinking and take less insulin if necessary.					
Have a reliable plan for waking up the morning after drinking.					
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.					
Wear or carry some ID that states that they have type 1 diabetes.					
Smoking and vaping					
The young person should understand the effects that smoking could have on their diabetes and long-term health.					
If they have started smoking, they should be made aware of how to get help to stop smoking.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Substance Misuse					
The young person should be told of the effects that recreational drugs and substance misuse could have on their mental health and glucose management and where advice and support to stop use can be accessed locally.					
Sexual Health and Pregnancy **Young people should:**					
Know the importance of practising safe sex and how to access contraception, including emergency contraception.					
Understand that barrier contraception should be used to protect against sexually transmitted infections.					
Be made aware that they can talk to any team member if they have any concerns about sexual dysfunction.					
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					
If young women become pregnant they will be referred to a specialist diabetes service, irrespective of age, for best health outcomes for mother and baby.					
Understand that having type1 diabetes does not prevent men fathering a child.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Travel **Young people should:**					
Be able to travel independently not only locally but also abroad.					
Be secure in their knowledge of the extra precautions necessary to maintain good blood glucose control while travelling.					
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.					
Know that it is advisable to carry some form of identification stating that they have been diagnosed with diabetes and require insulin.					
Know the importance of taking out travel insurance and the amount of cover they require.					
Know how to care for any diabetes tech when passing through airport security.					
Driving **Young people should:**					
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.					
Be advised about the process for applying for a licence including the declarations that will be required.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Transition to adult services **Young people should:**					
Be able to describe the transfer of their care and work with the diabetes team in setting their own goals.					
Start seeing members of the team on their own and feel confident in managing the consultation.					
Be able to discuss any issues around consent and patient confidentiality with their team.					
Start to meet members of their young adult diabetes team.					
Know at what age the transfer to adult services will occur.					
Social Factors **Young people should:**					
Know how to access their general practitioner (GP) and be informed about prescription rules with respect to diabetes care. Be involved in ordering insulin and equipment from the GP and how to order any insulin pump or sensor supplies if not from a GP.					
Start to order and collect their prescriptions themselves.					
Be aware that from the age of 18 years they will require a prescription exemption certificate from their GP.					
Be able to discuss strategies for the management of their diabetes during exams.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Social Factors **Young people should:**					
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.					
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 their team members directly if they wish.					
Feel confident about preparations for University (if applicable) and where diabetes care will be reviewed.					
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.					

DigiBete Structured Education

Record Sheet for patients aged 16-18 years

Educational Goal	Fully Achieved (Yes/NA)	Partially Achieved (Yes/NA)	Goals to work towards		Date & Signature
			Goal	Review date	
Emotional Wellbeing **Young people should understand that:**					
Talk to the clinical psychologist or youth work services attached to the team (if available) 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 for help from their parents or carers or their diabetes team if they feel that any aspect of their care is becoming overwhelming.					
Other mental health problems can have an impact on diabetes management.					

Record any other education provided or notes here:

NHS

Authorisation date: ..... Date of next revision .....

DigiBete