

## Nurses' Guideline

Changing Diabetes® in Children

Patient Education Materials

Type 1 diabetes in children aged 8-12



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These materials have been developed by Novo Nordisk in consultation with diabetes practitioners from the clinics in the Changing Diabetes® in Children programme, Roche Diagnostics and with the advice of the International Society for Pediatric and Adolescent Diabetes (ISPAD).

The information provided in both the educational material and as detailed in this guide is not a substitute for the advice of a health care professional - consult your general practitioner for advice on your treatment.

These materials have been developed specifically for the Changing Diabetes® in Children (CDiC) programme. They are offered "as is" and Novo Nordisk A/S and Roche Diagnostics Deutschland GmbH make no representations or warranties, expressed or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose or non-infringement as to the completeness, accuracy, timeliness, availability, functionality and compliance with applicable laws.

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# Introduction

For all people with type 1 diabetes it is essential to understand some facts about the disease and the treatment. The diabetes will not go away and in order to have a good quality of life, the patient needs to take on the responsibility for the day-to-day control of their condition.

As you well know, there is quite a lot to keep track of if the treatment of diabetes is to have a successful outcome. It is therefore critical that the patient – even if they are children and from families without many resources – understand the condition and know how to manage it. This is why patient education is so important.

The Changing Diabetes® in Children programme has developed a set of patient education materials specifically for use with children and families in low resource settings. The materials have been developed to support healthcare professionals to communicate vital information to previously and newly diagnosed children with type 1 diabetes and their families. The materials build on a set of recurring characters and settings. These have been specifically created to engage the children in talking about the challenging subject of self-control of diabetes.

Ideally, the long-term result of using these materials is to empower children to accept personal responsibility for achieving a good life with diabetes. In the short term, however, the children need the basic information that will keep them alive when they go home and have to cope with their condition.

The CDiC patient education materials are prepared primarily with this short term need in focus. There is much more to be learned about diabetes and its treatment than what is presented in this education pack, but the content of these posters is what the child needs to know to survive and begin the process of empowerment.

The materials were developed in consultation with diabetes experts and practitioners and they will be continuously revised and improved.

If you have any suggestions for improving the existing materials, or ideas for new sections or wording that would help, please do not hesitate to contact us on [feedbackcdic@novonordisk.com](mailto:feedbackcdic@novonordisk.com), or send your suggestions to your local key opinion leader who will forward the information.

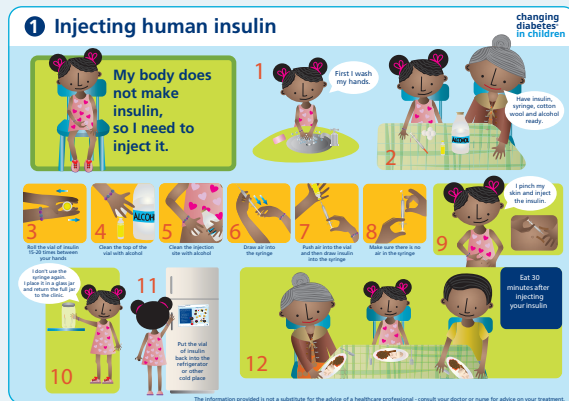


# The different materials and their use

The education pack contains three types of materials to support your communication with the patient.

## Dialogue posters

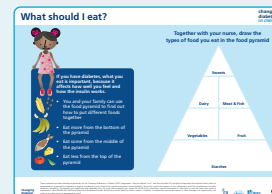
A set of 17 dialogue posters have been developed for use in a clinic setting to support dialogue between the healthcare professional and the child and child's family or guardian.



## Patient collectable cards

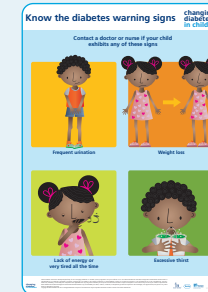
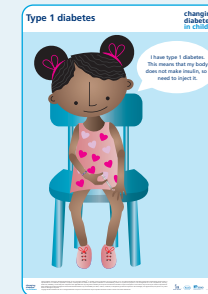
A set of hand-outs (Patient Collectable Cards) to reinforce messages from clinic visits and interaction with the healthcare professional.

On the back of each card there are key messages related to the card's subject and an activity/assignment for the child to work on, which reinforces the learning points from the dialogue poster.



## Wall posters

A set of wall posters to be displayed in clinics and public spaces. The posters are designed to raise awareness of diabetes and reinforce some of the important messages about living with diabetes.



# Using the dialogue posters and collectable cards

It is suggested that you use the materials together with the patient over a span of visits, concentrating on vital information at the first visit and repeating as well as adding more information at the subsequent visits. It is important not to overwhelm the patient or his/her family, and to repeat the most important messages at all opportunities.

Which information you give to the patient at each consultation has to be adjusted to the child's clinical status, age and cognitive ability. This is of course something that only you can determine, but below you will find a suggested plan for progression and introduction of the posters.

The dialogue posters and patient collectable cards explain concepts and processes, as they are established by healthcare professionals, for the treatment of type 1 diabetes in children living in a developing country.

For each poster there are additional details or concerns that can, and sometimes should, be explained as part of the dialogue between the child/family and the nurse/doctor. This guide suggests additional ideas and subjects that can be added to facilitate a fuller dialogue.

It is preferable that at least (where and when possible) a member of the child's family or the child's caregiver is also present at the visits as it is important that they also understand the issues discussed in the posters.

## 1<sup>st</sup> visit

- **Poster 1:** Injecting human insulin
- **Poster 2:** Why I need insulin
- **Poster 3:** How much insulin should I take?
- **Poster 4:** Low blood sugar (hypoglycaemia) and how to recognise it
- **Poster 5:** Why do I get low blood sugar (hypoglycaemia)?
- **Poster 6:** How to treat low blood sugar (hypoglycaemia)

## 2<sup>nd</sup> visit

- **Poster 7:** Some of the different types of insulin
- **Poster 8:** How often should I inject insulin?
- **Poster 9:** Where should I inject insulin?
- **Poster 10:** What should I eat?

## 3<sup>rd</sup> visit

- **Poster 11:** Measuring my blood sugar
- **Poster 12:** How to use my glucometer

## 4<sup>th</sup> visit

- **Poster 13:** High blood sugar (hyperglycaemia) and how to recognise it
- **Poster 14:** Why do I get high blood sugar (hyperglycaemia)?
- **Poster 15:** How to treat high blood sugar (hyperglycaemia)

## 5<sup>th</sup> visit

- **Poster 16:** Taking care of my feet
- **Poster 17:** Living with diabetes

# Posters suggested for 1<sup>st</sup> visit

During the child's first visit to the clinic, use posters 1 to 6 to help establish with the child and his/her caregiver a basic understanding of diabetes, insulin, and hypoglycaemia. It is important that they understand the information provided.



**1 Injecting human insulin** changing diabetes in children

My body does not make insulin, so I need to inject it.

1 First I wash my hands.

2 I use alcohol to clean the skin and let it dry.

3 I pinch the skin and clean the needle.

4 I insert the needle into the skin.

5 I push the plunger down slowly.

6 I pull the plunger up slowly.

7 I pull the needle out slowly.

8 I clean the skin with alcohol.

9 I push the plunger down slowly.

10 I pull the plunger up slowly.

11 I push the plunger down slowly.

12 I pull the needle out slowly.

Get 30 minutes after stopping your insulin.

The information provided is not a substitute for the advice of a healthcare professional. Consult your doctor or nurse for advice on your treatment.

**2 Why I need insulin** changing diabetes in children

We all need energy to grow and be strong.

The food we eat is broken down into glucose.

Glucose enters the blood so the cells in your body can use it as energy.

Insulin allows the glucose to get into your cells so your glucose can enter the cells and be used.

If you don't have enough insulin, the glucose can't enter the cells and you get sick.

The information provided is not a substitute for the advice of a healthcare professional. Consult your doctor or nurse for advice on your treatment.

**3 How much insulin should I take?** changing diabetes in children

I must adjust the insulin amounts to what I do and what I eat.

Your doctor or nurse will help you find out how much insulin you should inject each time.

Adjust the dose of insulin according to your activities and how you feel.

If I eat less, I need less insulin.

If I eat more, I need more insulin.

If I have more energy, I need more insulin.

If I have less energy, I need less insulin.

Talk to your doctor or nurse about which insulin you need to adjust and by how much.

The information provided is not a substitute for the advice of a healthcare professional. Consult your doctor or nurse for advice on your treatment.

**4 Low blood sugar (hypoglycaemia) and how to recognise it** changing diabetes in children

If my blood sugar gets very low I can get hypoglycaemia. Most people call it low blood sugar or hypos.

Shaking

Sweating

Ruby lips

Difficulty talking

Blurred vision

Headache

Feeling hungry

Feeling nervous

Feeling tired

Feeling dizzy

Sometimes low blood sugar can get very serious and you can lose consciousness or have convulsions.

The information provided is not a substitute for the advice of a healthcare professional. Consult your doctor or nurse for advice on your treatment.

**5 Why do I get low blood sugar (hypoglycaemia)?** changing diabetes in children

When you have diabetes and take insulin your blood sugar level can get very low, this is called hypoglycaemia.

You can get low blood sugar when:

You take too much insulin.

You don't eat what you need to eat.

You don't eat enough.

You exercise more than you usually do.

You have taken your insulin too long ago.

The information provided is not a substitute for the advice of a healthcare professional. Consult your doctor or nurse for advice on your treatment.

**6 How to treat low blood sugar (hypoglycaemia)** changing diabetes in children

If your blood sugar is low:

- 1 Eat or drink something sweet.
- 2 Wait 15 minutes and check your blood sugar again.
- 3 If your blood sugar is still low, eat or drink more sweet things.

Severe low blood sugar:

If your blood sugar is very low you can get very sick and you can lose consciousness.

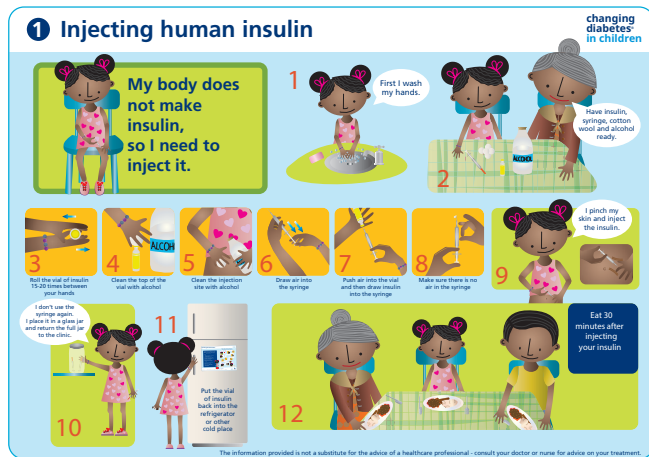
Get help from someone else.

It's important that you are taken to a clinic!

The information provided is not a substitute for the advice of a healthcare professional. Consult your doctor or nurse for advice on your treatment.

# Poster 1: Injecting human insulin

Knowing how to inject insulin is a primary skill to acquire for a child living with diabetes. This poster shows the step-by-step method for injection. In addition, the poster provides the opportunity for you to address some of the key issues associated with being diagnosed with diabetes.



## Key messages for the child:

- Your body cannot make insulin and therefore you need to inject it.
- Injecting insulin is necessary for you to be healthy and will become part of your daily routine for the rest of your life.
- You need to inject your insulin at certain times of the day and in relation to when you take your meals.

- There are a few easy steps to follow for injecting your insulin - learn them - they are shown on this poster and on the handout you will receive.
- You need to use a syringe (and needle) to inject your insulin. Do not use the syringe more than once. Remember to throw the syringe away in a safe place (for example a jar with a lid) to ensure that you or another person do not get hurt on the sharp needle.
- Your insulin is a very important part of your wellbeing. Insulin needs to be stored correctly. Keep your insulin in a cool place like a refrigerator (not the freezer). If you do not have a refrigerator at home there are other ways to store your insulin. I will show you how.

## Key messages for the child's family/caregiver

- Your son/daughter has type 1 diabetes which means that their body does not make insulin. Insulin is important for your child to stay healthy.
- Your child will need to inject insulin 2 to 4 times each and every day for the rest of his/her life.

- Your child will need your help to learn what to do and when to do it. It will become easier with time.
- We are here to help you. If you are unsure please contact us and we will guide you.
- Your child can have a good and normal life if he/she follows the treatment guidelines.

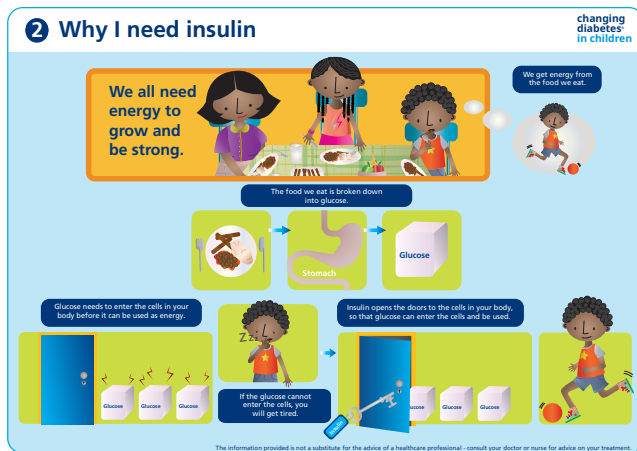
## Additional messages to be considered:

- Insulin and food work together. Insulin helps the body use the food - without insulin the body will not be able to use the food and without food the insulin can be dangerous. It is important that the child eats 30 minutes after taking insulin.
- Insulin must never be frozen or left in the sun. It is important that the insulin is kept in a cool and safe place.
- Pricking your skin with a needle does hurt and can be scary but it is the only way to take insulin. Insulin is important for the child's health and the injections cannot be avoided.

# Poster 2: Why I need insulin

This dialogue poster is intended as an aid to talking about how insulin works in the body, and to make the child understand why he/she needs insulin.

The poster shows a highly simplified presentation of a very complex process. The poster aims to ensure that insulin is understood by the child and the family/caregiver as being natural and necessary for the body to work. That insulin is a friend, even if the thought of injecting it every day may be overwhelming.

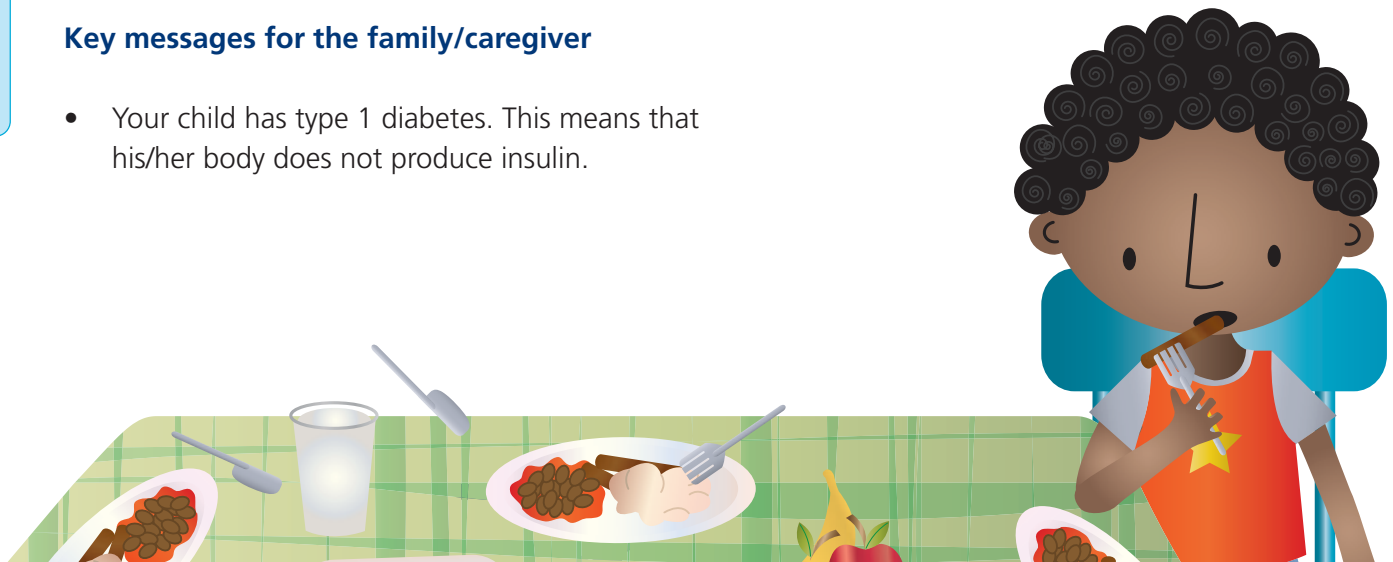


## Key messages for the child:

- You need energy to grow and be strong. You get the energy your body needs from the food you eat - it is changed into energy by your body and stored in the cells of your body.
- Insulin is the key that helps your body unlock cells to store energy. Without insulin your body cannot use the food you eat properly and store the energy you need - this means that you will be tired and have no energy.
- Your body cannot make its own insulin, but it is possible to inject insulin so that your body can open the cells and store energy.
- You will always need to inject insulin. Type 1 diabetes is not an illness that will go away. But by injecting insulin and following the advice we give you, your body can function normally and you can grow to be strong and healthy.
- Insulin is very important for the body. It helps the body use the food we eat and store energy. This is important to help your child grow and be healthy.
- Without insulin your child will get very sick. This is why it is important for your child to inject insulin.
- Type 1 diabetes cannot be cured. Insulin is not a medicine that can be stopped when your child is feeling better. Your child will need to inject insulin a few times each day for the rest of his/her life.
- Many children worldwide have type 1 diabetes and with proper treatment they can have a normal and healthy life.

## Key messages for the family/caregiver

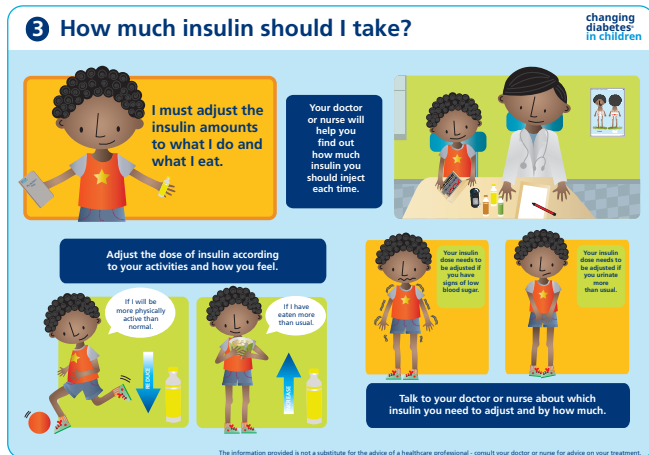
- Your child has type 1 diabetes. This means that his/her body does not produce insulin.





# Poster 3: How much insulin should I take?

This poster is intended to help the nurse and child talk about how the amount of insulin he/she injects must match the amount of food and the level of physical activity.



## Key messages for the child:

- You must inject the right amount of insulin. I will show you how much insulin you must take. Your insulin is measured in units, on your syringe you can see the units.
- Sometimes you will need to adjust the amount of insulin you take. At first this will be difficult to work out, but you will learn and get much better at it with time.
- If you are going to be more physically active

than usual (e.g. you are planning to play a soccer game with your friends) you should take less insulin than your usual dose. [Nurse to specify dose]

- If you will be eating more than usual (e.g. you are going to a party where you will eat cake and sweets) you might need to take more insulin than your usual dose. [Nurse to specify dose]
- You must never adjust your insulin dose (up or down) by more than 2 units at a time.

## Key messages for the family/caregiver:

- Your child will need to manage the amount of insulin he/she takes depending on how physically active he/she is, and food intake. This will take time to learn, and your help is important.
- You should always observe your child for signs of low/high blood sugar (see posters 4 and 13). Detecting low- or high blood sugar early is important. The quicker you take action the better for the health of your child.
- If adjusting the dose of insulin does not achieve the desired blood sugar levels and your child

still shows signs of low- or high-blood sugar you should contact me (doctor or nurse) to discuss how to adjust the insulin levels.

- Later you and your child will learn to use a glucometer to measure blood sugar levels this will help you judge how much insulin is needed.

## Additional messages to be considered

Some children are probably not capable of keeping track of these things, and as such the conversation should stress the importance of someone more mature being involved in the decision to adjust the dose.

The reality of some of the children in the CDiC programme is that they sometimes have no food to eat or eat less than they need. Please also address this issue and suggest solutions based on your experience.

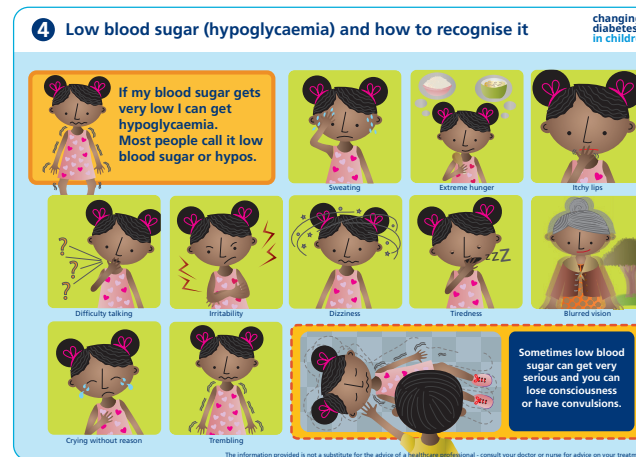
# Poster 4: Low blood sugar (hypoglycaemia) and how to recognise it

Learning to recognise low blood sugar is one of the most critical lessons a child with diabetes can learn. Particularly when the child is not living close to a diabetes clinic.

Poster 4 uses the term low blood sugar rather than hypoglycaemia, because it is easier to understand. At a later stage the child should learn the proper term, but at the very beginning, it is important to explain diabetes using simple terms and concepts.

For many children in the CDiC programme, the risk of dying from an unrecognised hypoglycaemic episode is relatively high, as many live long distances from a clinic.

For this reason it is critical that the children and their family/caregivers understand the symptoms of hypoglycaemia (low blood sugar). It is suggested that quite a lot of time is devoted to the signs and symptoms of a hypoglycaemic episode, and that the messages are repeated at each visit. Also, stress that if they are in any doubt, they should use the glucometer.



## Key messages for the child:

- Low-blood sugar can get very serious if left untreated. It is important that you learn to recognise the signs of low blood sugar and take action quickly.
- The quicker you identify low blood sugar the sooner you can treat it and begin to feel better
- If you think you have low blood sugar:
  - do not ignore it
  - tell someone that you have low-blood sugar
  - if possible, measure your blood sugar with your glucometer to confirm. If not possible, do as explained in poster 6.

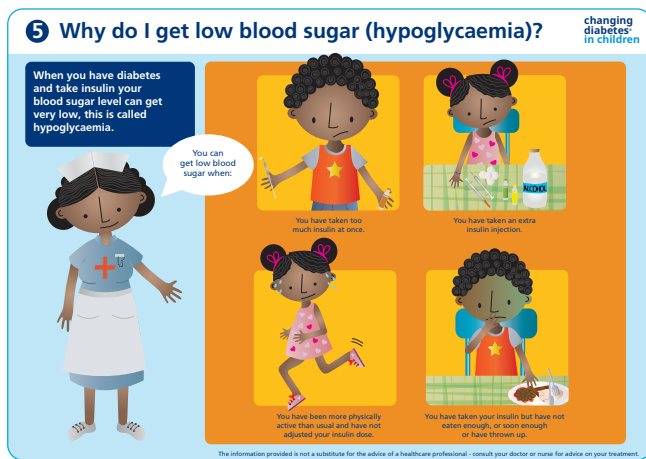
## Key messages for the family/caregiver:

- If your child's blood sugar is low this can quickly develop into a serious situation which will require medical attention. You can avoid this by acting quickly.
- You must learn to identify signs of low blood sugar in your child and teach other family members and people that your child spends time with to recognise these signs and how to take action. Refer to poster 6 for instructions on how to treat low blood sugar and what to do.

# Poster 5: Why do I get low blood sugar (hypoglycaemia)?

Poster 5 explains the relationship between insulin, blood sugar levels, food and physical activity that causes the child to experience low blood sugar.

The main purpose of this poster is to establish an understanding of how these factors affect each other.



## Key messages for the child:

- Your blood sugar levels are affected by things like physical activity, food and insulin.
- Low blood sugar happens when the level of sugar in your blood drops too low to give your body energy.
- Too much insulin at once, or an extra injection

of insulin, can cause your blood sugar level to drop and give you low blood sugar

- Physical activity lowers the amount of insulin your body needs to keep the blood sugar levels steady. This means that higher levels of physical activity than normal without adjusting your insulin dose can cause your blood sugar level to drop.
- The balance between food and insulin is the key to good diabetes control, and if you have more or less of the one, you must adjust the other accordingly.

## Key messages for the family/caregiver:

- Low blood sugar is common in children with type 1 diabetes. It occurs when the level of sugar in the blood drops too low to give the body energy.
- The balance between food and insulin is key to good diabetes control.
- Your child can get low blood sugar if he/she receives too high a dose of insulin or an extra dose of insulin.
- Your child can get low blood sugar if he/she has

been very physically active without adjusting the dose of insulin.

- Your child can get low blood sugar if he/she skips a meal or has eaten less than normal.
- You need to support your child in managing his/her blood sugar levels and be ready to take action if you suspect that he/she has low blood sugar.

## Additional messages:

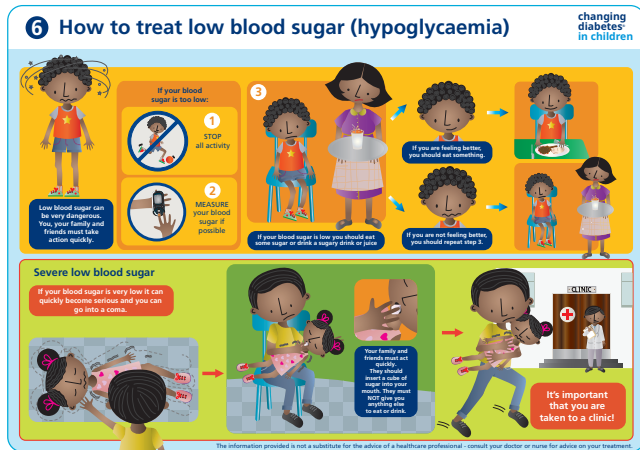
### Low blood sugar during the night

A child may experience low blood sugar levels during the night. This can often be identified by the child having nightmares or waking up tired or with a headache.

It is important for the child to check his/her blood sugar levels in the morning. It is also important that the child eats a morning meal before starting the day.

# Poster 6: How to treat low blood sugar (hypoglycaemia)

Poster 6 aims to empower the child and family/caregiver to take action when they recognise low blood sugar.



## Key messages for the child:

- Low blood sugar is common in children with type 1 diabetes, so you should always be ready to act.
- If you think you have low blood sugar you should:
  - Remain calm
  - Stop all physical activity
  - If possible, confirm that you have low blood sugar by testing your blood sugar level with the glucometer. If not possible, follow the instructions on poster 6.

- If your blood sugar is low you should have something sugary to drink. Examples of sugary drinks are: fruit juice, softdrink, milk or water with sugar dissolved in it.
- Wait a while to see if you start feeling better.
- If you are feeling better eat some food.
- If you are not feeling better you should have another sugary drink.
- Remember to test your blood sugar level with your glucometer to see if it is still low or if it is normal again.

- Always carry a sugar cube or a hard candy with you in-case you get low blood sugar while you are away from home. Remember this sugar is only for emergency and not for sharing with your friends or eating unless you need it.
- If you cannot get your blood sugar to rise and continue to feel poorly you should ask someone to contact your nurse or doctor

## Key messages for the family/guardian:

- Low blood sugar is common in children with type 1 diabetes. If your child shows signs of low blood sugar you should act quickly to avoid the situation from developing to severe low blood sugar which can sometimes be fatal.

- If your child shows signs of severe low blood sugar (unconsciousness, shaking etc.) you should not give him/her anything to eat or drink but instead put a sugar cube or a hard candy in his/her mouth and then proceed to the nearest clinic as quickly as possible. Do not hesitate - the situation will not improve with time.
- When you get to the clinic, inform the doctor or nurse that your child has type 1 diabetes and is experiencing severe low blood sugar

## Treatment with glucagon

The poster does not mention treatment with glucagon. This is because glucagon is not available in all countries and few children have access to this medication at home.

If your clinic does make glucagon available, you must make sure that the family/guardian understands the difference between insulin and glucagon and also understands how to administer it.

# Posters suggested for 2<sup>nd</sup> visit

First, review posters 1 to 6 discussed previously at the first visit. This will give the child and his/her family or caregiver an opportunity to ask any questions that they may have since you last saw them.

Then introduce posters 7,8,9 and 10. These four posters focus on insulin, injecting insulin and how different types and quantities of food affect blood glucose levels.



**7 Some of the different types of insulin** changing diabetes in children

Short Acting Insulin: **FAST**  
Short acting - 30 minutes  
Short acting - up to 8 hours

NPH Insulin: **SLOW**  
Slow acting - 2 hours  
Long acting - up to 24 hours

Mixed Insulin: **FAST & SLOW**  
Quick acting - 30 minutes  
Long acting - up to 24 hours

You can use a combination of Short Acting Insulin and NPH Insulin OR Mixed Insulin

The insulin types depicted here aren't representative of all the types of insulin available.

**8 How often should I inject insulin?** changing diabetes in children

How often I need to inject insulin depends on which insulin I use.

The doctor or nurse will help you work out how often you need to take insulin.

**9 Where should I inject my insulin?** changing diabetes in children

On the front of my body there are three places I can inject my insulin: the top of my thighs, my upper arms and my abdomen.

On the back of my body there is one place where I can inject my insulin: the top outer area of my buttocks.

Ensure that each injection is about 2 finger widths from the one done before.

Avoid injecting too closely to your belly button.

Remember to rotate injection sites.

Front Back

**10 What should I eat?** changing diabetes in children

Work with my name to make my own food pyramid.

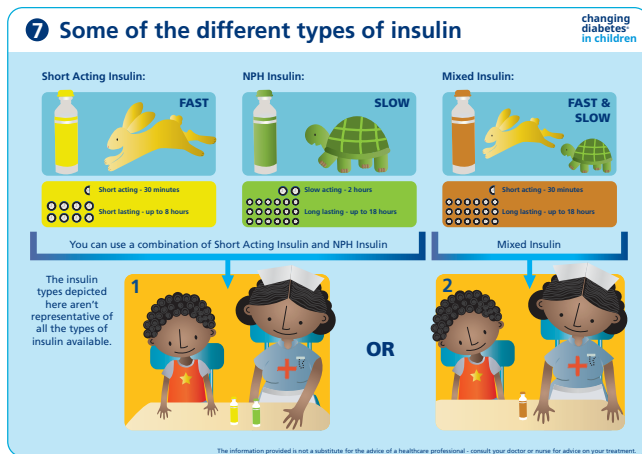
Remember to rotate injection sites.

Remember to rotate injection sites.

Remember to rotate injection sites.

# Poster 7: Some of the different types of insulin

Poster 7 shows the 3 different types of insulin available for treatment in the CDIC programme. Use poster 7, together with poster 8, to explain when and how much insulin the child should inject per day.



## Key messages for the child:

- There are different types of insulin, and you need to learn which type of insulin and how much of each type to take at different times of day.
- Some insulins work fast but last a short time, while others take longer to work but last longer.

- We will help you understand which insulin to use when and how much to take. You should be careful to follow the instructions we give you.

## Key messages for the family/guardian:

- There are different types of insulin. Both you and your child need to learn which one to use when and what dose your child should take.
- We will help you understand the differences between the different insulins your child receives. You need to learn these differences and ensure that your child takes the correct insulin at the correct time.
- Your child should always eat a meal half an hour after injecting insulin otherwise he/she is at risk of developing low blood sugar.
- If you ever are in doubt, contact the clinic and we will advise you.

## Additional messages:

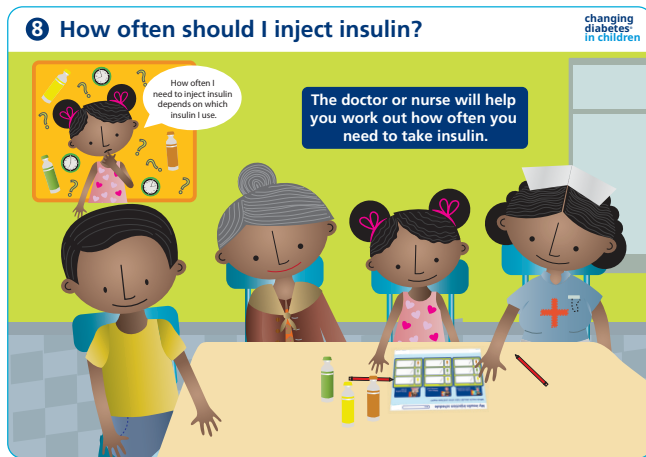
You may also want to consider the following messages:

- Insulin must be stored correctly to remain effective. Store it in a cool place like a refrigerator or according to the instructions you get from the clinic.
- You must never substitute one insulin type with another without consulting your doctor/nurse first
- You must not share your insulin with others, the amount of insulin you receive from the clinic is exactly what you need before your next visit.

# Poster 8: How often should I inject insulin?

The child's individual treatment regimen, a crucial part of the conversation between nurse and child, should be discussed with reference to poster 8.

Use this poster together with collectable card 8, which is part of the handouts to be given to the child and his/her caregiver at the 1<sup>st</sup> visit.



## Key messages for the child:

- You need to inject insulin 2 to 4 times a day, typically in the morning when you wake-up, in the early evening before your evening meal and before you go to sleep.
- The card we will give you shows you when you must inject insulin, which insulin you must inject and how many units you must inject.

- With time, you will learn your insulin injection schedule and it will become easier.
- Half an hour after injecting insulin in the morning you **MUST** eat breakfast.
- Half an hour after injecting insulin in the evening you **MUST** eat your evening meal.
- Do not delay eating or you may get low-blood sugar.

## Key messages for the family/guardian:

- Your child needs to inject insulin 2 to 4 times a day. It is important that he/she follows the insulin injection schedule we give you.
- Keep the schedule in a place where it can easily be seen and serve as a reminder.
- Remember that insulin works together with food, so it is important that your child eats half an hour after having taken his/her insulin injection.

## Back of patient collectable card 8

The back of the patient collectible card 8 is a template, which the doctor and/or nurse and child (and family/caregiver) should complete together. When completed, the card will show the child's treatment plan, which type of insulin and the dose to inject at different times of day. Some fields will be left unused. You should cross out these fields.

**My insulin injection schedule** Name: \_\_\_\_\_ Date: \_\_\_\_\_ changing diabetes in children

Which insulin should I take, when and how much?

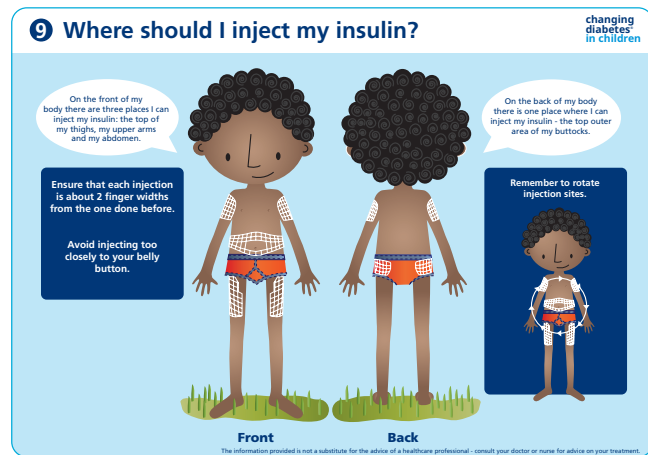
In the morning, before breakfast		Before the evening meal		Before going to bed	
Insulin type:	How much:	Insulin type:	How much:	Insulin type:	How much:
	<input type="text"/>		<input type="text"/>		<input type="text"/>
	<input type="text"/>		<input type="text"/>		<input type="text"/>
	<input type="text"/>		<input type="text"/>		<input type="text"/>

changing diabetes in children

# Poster 9: Where should I inject insulin

An essential message at this visit is where on the body to inject insulin. This poster marks the injections sites clearly, but a number of points still need to be made in the conversation with the child and his/her family/caregiver.

## Key messages for the child:



- It is important to know where and how to inject your insulin.
- There are 3 places on the front of your body where you can inject insulin, these are:
  - the top of your thighs
  - your upper arms
  - your abdomen (around your stomach)

- There is one place on the back of your body where you can inject insulin, the top-outer area of your buttocks.
- You should avoid injecting insulin too close to your belly button (navel) as this is a very sensitive area.
- You must not inject insulin in exactly the same spot 2 times in a row. It is important to switch between the different injection sites.
- The inside of the arms and thighs are NOT recommended for injections.

## Key messages for the family/guardian:

- Many children are scared of needles and injections. You need to work with your child for him/her to understand that the injections are necessary for him/her to be healthy.
- You should help your child establish a routine for injecting him/herself.
- Encourage and work with your child to keep the injection sites clean and help the child remember to rotate injection sites.

## Additional messages:

- Remember to wash your hands before preparing to inject
- Remember to clean the injection site
- Remember to dispose of the syringe and needle in a safe place. This is to avoid you or another person accidentally getting hurt by the needle.
- Remember to put your insulin back in a safe cool place until your next injection





# Poster 10: What should I eat?

The relationship between food and insulin is very important for managing diabetes. Poster 10 is intended as an aid to talking about what the child should eat.

Besides discussing food groups it is very important to discuss quantities – particularly of starches, which are often the food group most widely available.

It is also recommended that you discuss how different food groups affect the blood sugar and the need for insulin.

Many children have little influence over their diet and the timing of their main meals, which is decided mostly by their mothers or caregivers and depending on what is available.

For that reason it is very important that not only the child, but also the person responsible for the meals, learns about the relationship between food and insulin.



## Key messages for the child:

- What you eat is important, as it affects your blood sugar level.
- Some foods are better at keeping your blood sugar level normal while others can give you high blood sugar.
- You should avoid too many sweets and things like cake and it is important to plan your insulin dose based on what you will be eating.
- Remember to always drink a lot of water.

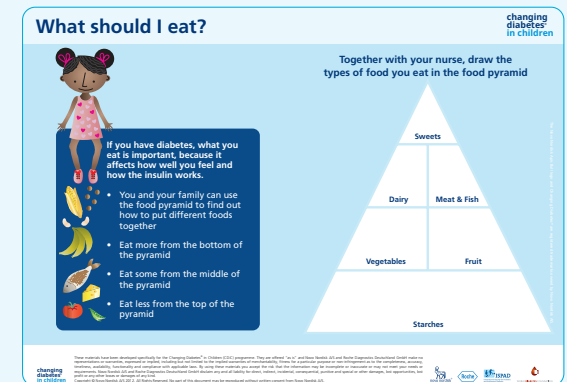
## Key messages for the family/guardian:

- What your child eats will affect his/her blood sugar level.

- We will work with you and your child to help you understand how the different food types affect blood sugar and your child’s need for insulin.

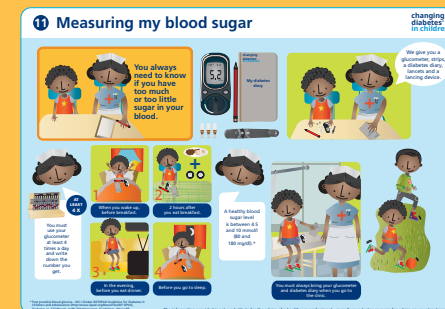
## Patient collectable card 10

Poster 10 should be used along with collectable card 10. On the one side of the card there is an empty food pyramid. Fill this out together with the child. By doing this, you will be able to talk about the foods available to the child at home.



# Posters suggested for 3<sup>rd</sup> visit

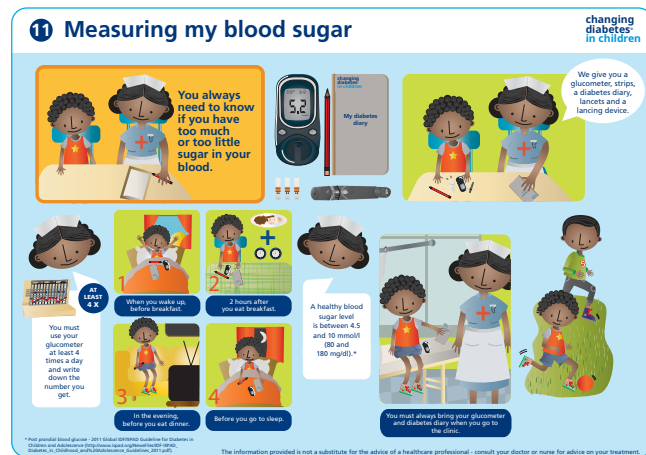
Posters 11 and 12 are about monitoring blood glucose levels. Recap any information from the previous two visits to the clinic to make sure that the child and caregiver clearly understand everything you have already talked about.



# Poster 11: Measuring my blood sugar

This poster asks the child to measure and write down his/her blood glucose reading in his/her diabetes diary at least four times a day. We recognise that there may be other practices, but at least four times is the recommendation.

It is also important that the child understands why it is necessary to write down the numbers and to bring the book to the clinic. Not understanding why they have to do this is one of the most commonly heard explanations for why patients don't use their books.



## Key message for the child:

- You must use the blood glucose meter as your nurse tells you to – including when you are not sure if your blood sugar is too low or too high.

- You must write down in your diabetes diary the result the glucometer shows. You must do this each time you take a reading.
- Writing down the numbers will help your doctor and nurse see how well your treatment is working and decide if it needs to be changed.
- You must always remember to take your diabetes diary and your glucometer with you when you go to the clinic.

## Key messages for the family/guardian:

- In addition to injecting insulin each day your child also needs to measure his/her blood sugar level with the glucometer provided.
- The result/number the glucometer gives must be written down in the diabetes diary.
- Using the glucometer will at first seem complicated for your child, so it is important that you support him/her in doing so.
- The glucometer is not a toy that your child should play with, it is a highly sensitive piece of equipment and therefore it should be kept clean, dry and in a safe place.

- Your child must take the glucometer and the diabetes diary with him/her to each and every consultation at the clinic.
- The nurse will demonstrate how the glucometer must be used.

## Additional messages:

Longer term, the child should use the blood glucose monitoring tools – glucometer and book – to understand and even predict the relationship between insulin, food intake and activity. Use the “3-day profile” sheet from Roche.



# Poster 12: How to use my glucometer

Poster 12 provides basic instructions on how to use the glucometer. It is suggested that you demonstrate the use of the glucometer for the child and family/guardian.



## Key messages for the child:

Besides the step-by-step instructions in this poster, a number of additional points can be made, when explaining how to use the glucometer:

- Always wash your hands before using the glucometer or drawing blood from your finger. If you do not wash your hands the glucometer can give you an incorrect number.
- The index finger is not always the best finger to use, because the small hole made by the lancet will heal slower, as this finger is used a lot.

- Do not use the same spot twice in a row to draw blood - let the last hole heal before using the same spot again.
- The side of the fingertips sometimes heal more quickly so it might be best to draw blood there.
- Never try to use a strip more than once. It only works once.
- Look after your glucometer, do not lend it out to your friends or family it is an important tool for helping you manage your diabetes.

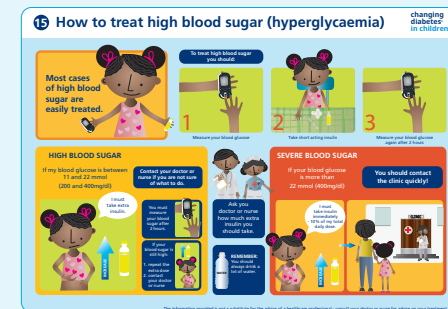
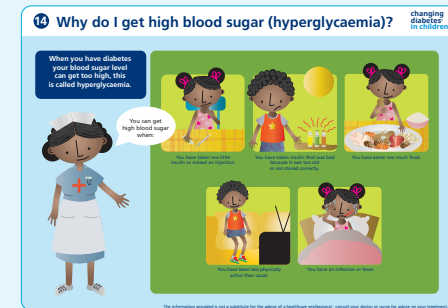
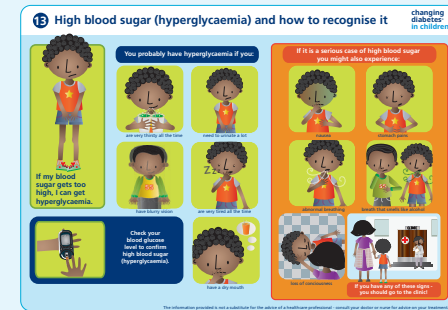
## Key messages for the family/guardian:

- Using the glucometer is easy once you learn how. It is important that both you and your child understand how to use the glucometer.
- The number the glucometer shows after a drop of blood is put on the inserted strip is your child's blood sugar level. The glucometer can show if your child has high, normal or low blood sugar.
- Ensure that your child washes his/her hands before using the glucometer. This is important as dirt or other residue on the finger could give a false glucometer reading.



# Posters suggested for 4<sup>th</sup> visit

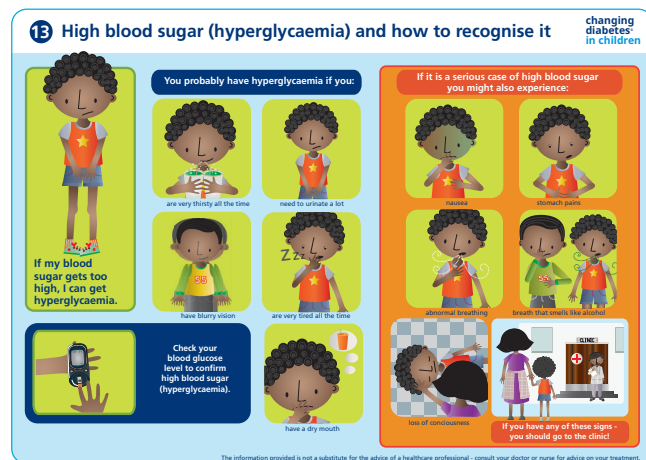
At the first visit you explained what hypoglycaemia is, how to recognise it, why it happens and how to treat it. You may find it useful to go over those posters again as a starting point for the discussion on hyperglycaemia covered in posters 13 to 15.



# Poster 13: High blood sugar (hyperglycaemia) and how to recognise it

Poster 13 explains the signs and symptoms of high blood sugar. We use the term high blood sugar rather than hyperglycaemia, because it is easier to understand. The child should learn the proper term, but at the very beginning, it is important to explain diabetes using simple and generally understandable terms.

When learning how to recognise hyperglycaemia it is suggested that it is also stressed how the symptoms differ from hypoglycaemia.



## Key messages for the child:

- High blood sugar can be a sign that your body does not have enough insulin to unlock the cells in your body and store energy.
- High blood sugar is different from low blood

sugar and you will experience different signs.

- Remember to confirm high blood sugar by using your glucometer.

## Key messages for the family/guardian:

- Your child can get high blood sugar. This is different from low blood sugar as it means that the sugar level in your child's blood is high and that there is not enough insulin in your child's system or the insulin is not working properly.

- You should learn the signs of high blood sugar and take action if you notice any of these signs in your child.
- Use the glucometer to confirm high blood sugar.
- Controlling your child's blood sugar is important. Repeated episodes of high blood sugar can have serious long term consequences (blindness, foot and leg amputations, kidney failure etc.).

- Ensuring that your child follows the treatment schedule and takes the correct amount of insulin at the right time will greatly reduce the risk of high blood sugar.

## Additional messages:

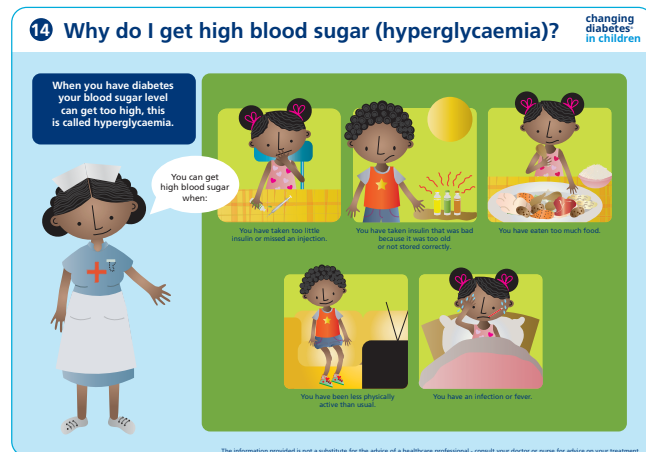
- It is important to store insulin correctly. If insulin is not stored correctly it can lose its potency/ability to work. This will result in the child having episodes of high blood sugar even though he/she is injecting the right amount of insulin.

# Poster 14: Why do I get high blood sugar (hyperglycaemia)?

Poster 14 is intended to aid the same kind of conversation as for Poster 5 on the relationship between insulin, blood sugar levels, food and physical activity – this time focusing on what causes the child to experience high blood sugar episodes.

The basic explanation for high blood sugar is that if the level of insulin in the body gets too low, too few cell doors are unlocked and too much blood sugar is left in the blood.

The purpose of this poster is to establish an understanding of how these factors depend on each other and how they can lead to too high blood sugar:



## Key messages for the child:

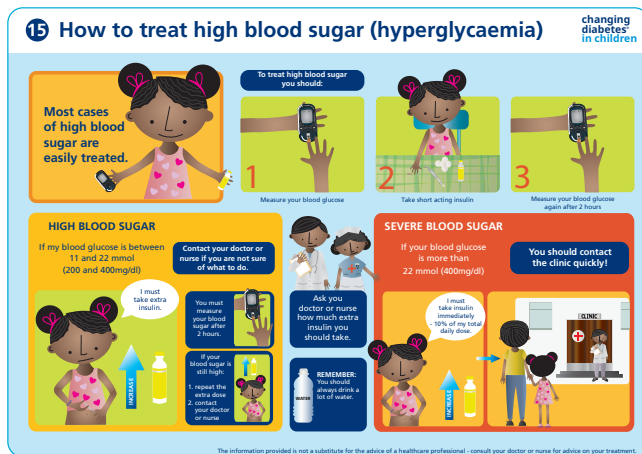
- You can get high blood sugar for different reasons. These include: forgetting to take your insulin injection, taking too little insulin or taking insulin which is too old or has not been stored correctly.
- It is important to remember to take your insulin every day at the correct time, exactly as your doctor/nurse has prescribed.
- It is important for you to store your insulin correctly. Do not leave it standing in the sun, do not keep your insulin in your pocket when you are running around or playing.
- Do not use old insulin. If your insulin gets too old, take it back to the clinic and get a new vial.
- Eating more than usual can effect your blood glucose level - remember to increase your insulin dose if you will be going to a party or if you know that you will be eating more than usual or eating sugary foods.
- Physical activity lowers the amount of insulin that your body needs to keep blood sugar levels normal. But if you have high blood sugar levels, physical activity is not recommended.

## Key messages for the family/guardian:

- It is important that your child's insulin is stored correctly
- Your child must not use insulin that has passed its expiry date. Ask the clinic to check the insulin if you are in doubt.

# Poster 15: How to treat high blood sugar (hyperglycaemia)

This poster provides information on how to treat high blood sugar. The poster offers messages for what to do in the case of high blood sugar and severe high blood sugar. It is important for both the child and the family to understand that most cases of high blood sugar can be easily treated at home if action is taken quickly.



## Key messages for the child:

- If you think your blood sugar is high, check this by measuring your blood sugar with your glucometer.
- You can reduce your blood sugar if it is high by increasing your usual dose or by taking an extra dose. Your nurse will explain how much you need to increase your dose by.

- Remember to measure your blood sugar again 2 hours after you have taken an extra dose of insulin.
- If you cannot get your blood glucose level down to a normal level you should contact your doctor or nurse for advice.
- If your blood glucose is very high (over 22 mmol/400mg/dl) you should inject 10% of your daily dose and contact the clinic for advice.
- If you have high blood sugar, drink a lot of water this will help your body get rid of the extra sugar that it cannot store.

## Key messages for the family/guardian:

- Always try to confirm high blood sugar by measuring your child's blood sugar with the glucometer.
- Give your child lots of water to drink (do not give your child sugary drinks like juice or soft drinks)
- If you cannot bring your child's blood sugar down to an acceptable level then, contact the clinic.

## Additional messages:

### High blood sugar

It is important to advise the child and family members on what to do if blood glucose readings are between 200 and 400mg/dl (11 and 22 mmol/l). You need to advise them to increase their dose or take an extra dose of short acting insulin.

### Severe blood sugar

It is very important that both the child and family/caregiver understand that if a blood sugar reading is above 22 mmol/400 mg, they need to act quickly.

### Ketoacidosis

Make sure that the child and the family/caregivers understand that doing nothing about high blood sugar is dangerous. If you think the family is ready, you can explain ketoacidosis.



# Posters suggested for 5<sup>th</sup> visit

It is recommended that posters 16 and 17 are reviewed with the child and his/her caregivers at the time of the child's fifth visit to the clinic. Even if the subjects of these two posters are less critical to immediate survival than the earlier posters, it is preferable that (where and when possible) the child's caregiver or one member of the family is also present for this visit.



# Poster 16: Taking care of my feet

The reality of diabetes is that foot complications and subsequent amputations are common. It is not recommended to frighten the child with horror stories of this but it is essential that the child understands the importance of taking care of his/her feet.

Poster 16 explains basic foot care. Some of the steps in the poster may not be possible or relevant for the children at your clinic. But your insight into the life of a given child will help you decide how relevant this subject may be. However, with more than one million amputations every year due to diabetes (globally) foot care is a key subject for people living with diabetes.



## Key messages for the child:

- It is important for you to take care of your feet. Not doing so can lead to complications.
- You should follow the steps in poster 16 for taking care of your feet and ask your nurse to help you check your feet when you visit the clinic.
- It is important for you to keep your feet protected by wearing sandals or shoes.
- It is also important for you to be active. Being active helps your body stay healthy and fit by ensuring that blood and oxygen are circulated to all parts of your body, including your feet.

## Key messages for the family/guardian:

- All people with diabetes need to take care of their feet. Not doing so can lead to serious complications.
- You need to help your child learn to take care of his/her feet

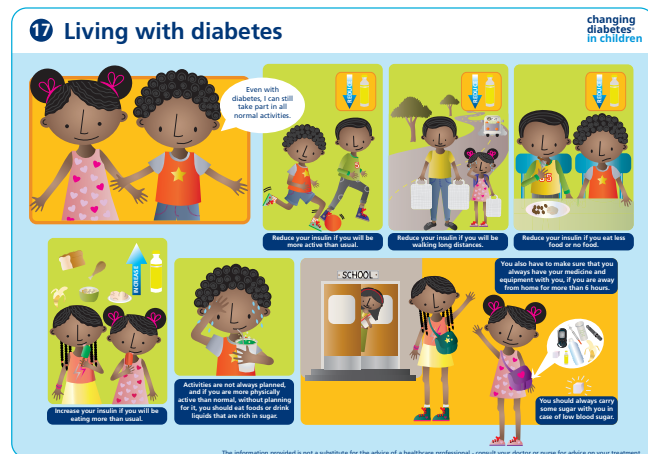


# Poster 17: Living with diabetes

The purpose of poster 17 is to reinforce some critical messages from previous posters and advise the child on how to deal with diabetes on a daily basis.

This poster is also a good opportunity for assuring the child that diabetes does not disable or deprive him/her of the chance of a good life. If he/she adheres to the diabetes treatment and follows the advice of their healthcare professional he/she can still play, go to school, help at home, enjoy sports, spend time with friends, get an education, get a job etc.

Also take the opportunity to find out what concerns and fears the child has in relation to living with diabetes so that you can discuss these with him/her and address these concerns.



If you have good, local examples of people with diabetes living a good life, please use them to create a sense of community for the child. At the same time, the child and family must understand that this positive future can only happen if they themselves take responsibility.

## Key messages for the child

- Always consider and adjust your insulin dose to your day's programme (in line with the messages from poster 8)
- Always make sure you bring your medicines and equipment with you if you are away from home for more than six hours. Also, always have some water and some sugar with you.
- You can participate in all normal activities as long as you follow the treatment advice of your doctor and nurse.

## Key messages for the family/guardian:

- Your child can have a normal and good life as long as he/she follows the treatment advice received from the doctor and nurse. It is important that you support him/her in following the doctor's and nurse's advice.

- Your child can participate in all normal activities as long as his/her blood sugar level is kept under control.

## Additional messages:

This poster can also aid conversations about how to talk to other children, teachers, the family members and the community about living with diabetes.

It is important to empower the child to explain type 1 diabetes to other people in a positive way.

You may want to encourage the child to use the hand-out collectable cards to explain diabetes to his/her family, friends and peers.

# treating diabetes in children is different from treating diabetes in adults





# changing diabetes<sup>®</sup> in children

## About the programme

Changing Diabetes<sup>®</sup> in Children (CDiC) is a programme designed to improve access to diabetes care for children with type 1 diabetes living in low resource settings. The programme will run for five years from 2009-2014 with the aim to have 10,000 children enrolled and receiving care and insulin by 2015.

The programme is being rolled out in the following countries:

- Bangladesh
- Cameroon
- Democratic Republic of Congo
- Ethiopia
- Guinea-Conakry
- India
- Kenya
- Tanzania
- Uganda

## How we work

Several factors have been identified as contributing to the high morbidity and mortality in children with type 1 diabetes. These include lack of: insulin and other diabetes supplies, equipment for monitoring of treatment, appropriate protocols and patient/parents education. There is also a poor understanding of the specificity of diabetes in children among healthcare providers.

Changing Diabetes<sup>®</sup> in Children, which supports the fourth UN Millennium Development Goal focusing on reducing child mortality, creates diabetes treatment hubs with a series of satellite centres and specially trained healthcare personnel in connection with existing hospitals and clinics. It aims to ensure access to diagnosis, patient education and treatment – including free insulin. We also work to assist in compiling a national registry in each country to facilitate proper outcome monitoring.

The programme builds on an approach, which Novo Nordisk first applied to a project in Tanzania in 2006. In this project, children with type 1 diabetes were referred to a Novo Nordisk funded diabetes children's clinic for specialised care, which has led to dramatically decreased mortality. Emergency admissions also dropped.

## What motivates us

Since 2011, Novo Nordisk has been committed to improving access to care and essential medicines for people living in the least developed countries. This programme is a further realisation of that commitment.

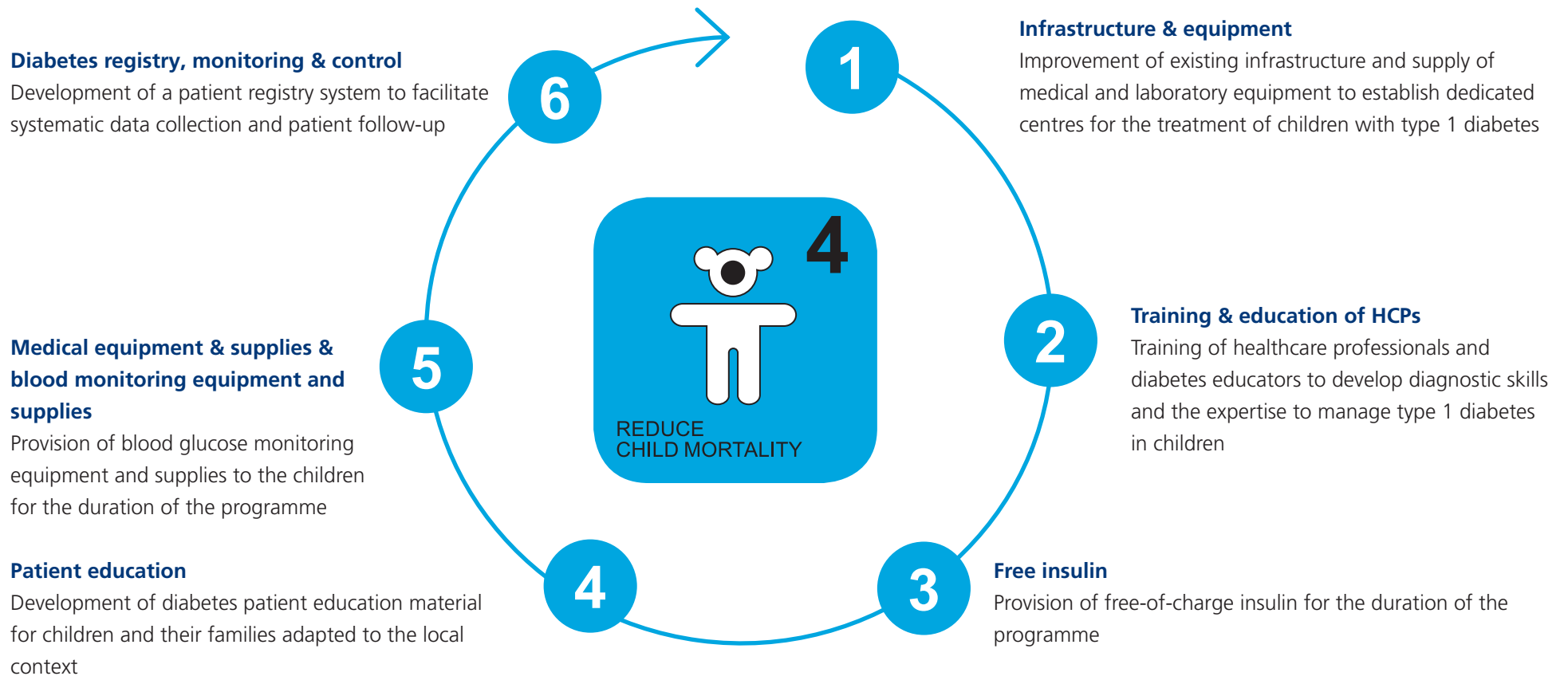
Children with diabetes have a high mortality rate in poor countries. The life expectancy for a child with newly diagnosed type 1 diabetes in much of Sub-Saharan Africa is typically less than one year and there is significant variability in prognosis, presumably due to insufficient training of healthcare providers and the availability and accessibility of insulin and other diabetes supplies.

The available evidence suggests that many children with type 1 diabetes die even before they have been diagnosed because of the lack of diagnostic facilities, as symptoms of diabetes in children resemble symptoms of common acute medical conditions encountered in many least developed countries (LDCs).

## Six components

The CDiC programme supports the establishment and reinforcement of care for children with type 1 diabetes in developing countries through six mutually reinforcing components as detailed in the graphic below. In addition, the CDiC aims to

build experience and share insights on developing healthcare interventions specific to minority populations such as children with diabetes in low resource settings.



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