Diabetes Workbook
Level 2
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This section will give an overview of diabetes and why it is important as a social care worker or a health care assistant to have a basic knowledge of diabetes and explore treatment options of self-care.

Diabetes is a growing health crisis and we need to see a reduction in the number of people dying prematurely, it is necessary to have a workforce with sufficient capacity and skills to deliver effective diabetes care. Increasingly diabetes care will need to be delivered in the community aimed at supporting people in their homes to maintain independence for as long as possible or HCA’s will need to have an awareness of diabetes when working with individuals who may have other health care needs. It is recognised that many people require health and social care support because of the effects of long-term conditions. Different services will need to work together to promote self-care, preventative care and early intervention, minimising the need for hospital and residential care or when admitted in to hospital receive the appropriate care.

There are currently 2.8 million people with diabetes in the UK with an additional 750,000 remaining undiagnosed. This figure has increased from 1.4 million in 1996 and is expected to continue increasing so that by 2025 it is estimated that over 4 million people will have diabetes. This alarming rise is due in part to our ageing population and rising levels of obesity. Increasing age and levels of obesity are the main causes of type 2 diabetes. Currently 85 – 90 per cent of the diabetes population have type 2 diabetes.

Diabetes is associated with serious complications including heart disease, stroke, blindness, kidney disease, nerve damage and amputations leading to disability and premature mortality. Currently 75 per cent of people with type 2 diabetes will die from cardiovascular disease. Effective diabetes management has been shown to reduce the risk of developing these complications. However when diabetes is not well managed or diagnosis is delayed, the treatment of these complications bears a substantial financial burden to the NHS as well as having a devastating effect on the lives of people with diabetes. It is estimated that diabetes costs the NHS approximately 10 per cent of its total budget with the vast majority of this cost being spent on the treatment of complications. At the time of diagnosis, half of people with type 2 diabetes already show signs of having complications.
Pre Training Quiz

1. Name the types of diabetes

2. From the list below what are the common signs of diabetes
   - Thirst
   - Tiredness
   - Blood shot eyes
   - Repeated injections

3. From the list below highlight the dietary guidelines for people with diabetes
   - Eat at least 5 portions of fruit and Vegetables daily
   - Eat Special Diabetic foods
   - A diet which is high in fibre content
   - No alcohol
   - A diet low in saturated fats
   - Low salt

4. What is an HbA1C?
   - A blood test which tells how good a person’s diabetes control is
   - A finger prick test
   - No idea
   - A test for diabetes

5. How often should people with diabetes have their eyes digitally photographed- retinal screening?
   - Every 6 months
   - Every year
   - Every 2 years
   - Every 5 years

6. What does the term hypoglycaemia mean to you?
   - High blood sugar
   - Low blood sugar
   - Normal blood sugar

7. How would you treat a person who is having a hypoglycaemic episode?
1. Introduction

Diabetes is a condition where the amount of glucose in the blood is too high. This is because the pancreas does not produce insulin in the right amounts to allow glucose to enter the body’s cells – or the insulin that is produced does not work properly, this is known as insulin resistance.

Insulin is the hormone produced by the pancreas that allows glucose to enter the body’s cells, where it is used as fuel for energy. It is vital for life.

Glucose comes mainly from digesting carbohydrate in food and is also produced by the liver. Carbohydrate is a macro nutrient and can be found in many foods and drinks. These include starchy foods such as bread, potatoes, rice and pasta. Cereals, fruit some dairy products, sugar and other sweet food all contain carbohydrate as well.

If you have diabetes, your body cannot make proper use of this glucose so it builds up in the blood and isn’t able to be used as fuel.

Type 1

Type 1 diabetes develops when the insulin-producing cells in the body have been destroyed and the body is unable to produce any insulin.

Insulin is the key that unlocks the door to the body’s cells. Once the door is unlocked glucose can enter the cells where it is used as fuel. In type 1 diabetes the body stops producing any insulin so there is no key to unlock the door and the glucose builds up in the blood.

There are several theories’ why these insulin-producing cells have been destroyed but the most likely cause is the body having an abnormal reaction to the cells. This may be triggered by a virus or other infection. Type 1 diabetes can develop at any age but usually appears before the age of 40, and especially in childhood.

Type 1 diabetes accounts for between 5 and 15 per cent of all people with diabetes and is treated by daily insulin injections, a healthy diet and regular physical activity.
Type 2

In type 2 diabetes the body can still make some insulin, but not enough, or when the insulin that is produced does not work properly (known as insulin resistance).

Insulin acts as a key unlocking the cells, so if there is not enough insulin, or it is not working properly, the cells are only partially opened (or not at all) and glucose levels build up in the blood.

Type 2 diabetes commonly appears in people over the age of 40, though in South Asian and black people, who are at greater risk, it often appears from the age of 25. It is also increasingly becoming more common in children, adolescents and young people of all ethnicities.

Type 2 diabetes accounts for the largest proportion of all people with diabetes (85-90%) and is treated with a healthy diet and increased physical activity. In addition to this a combination of treatment with medication and/or insulin is often required.

What symptoms would you expect to see in someone who may have diabetes?

In type 1 diabetes the signs and symptoms develop quickly typically over a few weeks. The symptoms are usually obvious and easy to spot, but are quickly relieved once the diabetes is treated and under control.

In type 2 diabetes the signs and symptoms may not be so obvious, symptoms are often confused with other conditions and can be missed as the condition develops slowly over a period of years and may only be picked up in a routine medical check up. Symptoms can be relieved once diabetes is treated and under control.
2. Type 2 Diabetes

Understand Risk factors for developing type 2 diabetes

Some of the risks factors associated with type 2 diabetes are out of the persons control while others, can be addressed to reduce the risk of developing diabetes. The risk factors beyond control are:

• being white and over 40 years old
• being black, Asian or from a minority ethnic group and over 25 years old

Think about other factors that might cause type 2 diabetes:

Often people with type 2 diabetes will need medications and/or injections to achieve normal blood glucose levels, people need to be aware that diabetes is a progressive condition but can be managed. The more risk factors that people have the more risk they have of getting diabetes!

Things that do not cause diabetes

• Eating sweets and sugar does not cause diabetes, but eating a lot of sugary and fatty foods can lead to being overweight (a risk factor for diabetes).
• You cannot catch diabetes, like a cold.
• Stress does not cause diabetes, although it may make the symptoms worse in people who already have the condition.
• An accident or an illness will not cause diabetes but may reveal diabetes if it is already there.
Eating sweets and sugar does not cause diabetes, but eating a lot of sugary and fatty foods can lead to being overweight (a risk factor for diabetes).

Describe the advice you might give a person to delay the development of type 2 diabetes:

Long term health consequences of developing type 2 diabetes

Having diabetes can mean that the person goes onto develop a range of other conditions:

Outline the long term health consequences of developing type 2 diabetes
3. Nutrition

Nutrition is key to managing diabetes, diet must be given special consideration regardless of the type of diabetes and any other factors including medication, other health issues etc.

The following are 10 fundamental principles that need to be given consideration to healthy eating:

- Eat three meals a day
- At each meal include starchy carbohydrate foods
- Cut down on the fat you eat, particularly saturated fats
- Eat more fruit and vegetables
- Include more beans and lentils
- Aim for at least two portions of oily fish a week
- Limit sugar and sugary foods
- Reduce salt to 6g or less a day
- Drink alcohol in moderation only
- Don’t use diabetic foods or drinks

These healthy eating principles are guidelines for the general population and are designed to help prevent long term health issues such as heart disease. For some people especially the elderly it may not be necessary to follow all of these principles, for example reducing the fat in their diet.

Diet is the fundamental principle of diabetes management. It is essential that regular meals are taken that contain carbohydrate. The amount of carbohydrate in a meal will directly affect the level of glucose in the blood after a meal. The more carbohydrate eaten the higher the level of glucose will be. This rise can be limited by eating more complex or starchy carbohydrates. Sugary foods will cause the glucose level to rise very quickly.

List what foods you ate yesterday and identify the starchy and sugary carbohydrates
4. Exercise, Medication & Support

Exercise

Being active is good for everyone but is especially important for people with diabetes. Physical activity, combined with healthy eating and any insulin or diabetes medication, will help to keep the diabetes in control and prevent long-term diabetes complications.

Every form of physical activity counts. The recommended minimum amount of activity for:

- adults is 30 minutes of moderately strenuous exercise on at least five days of the week (that’s only 2.5 hours out of a 168 hour week)
- children is one hour a day.

Activity can be spread out through the day into bite-size chunks, and should be in addition to the normal daily activities.

Describe how you might adapt exercise advice for residents in a care environment?
Medications

All medications should be considered an addition to the lifestyle and dietary changes. All people with diabetes need an individualised medication programme to match:

- Type of diabetes
- The length of time they have had the condition
- Age and other health problems
- Lifestyle and ability to self manage

Many people with type 2 diabetes take tablets to lower their blood glucose levels. Tablets can be either to make the body produce more insulin or they are to make the insulin already produced more effective. They are not the same as insulin. Insulin cannot be taken in tablet form because it would be broken down in the stomach before it could work. Insulin is a hormone made by an organ in our bodies called the pancreas. The pancreas lies just behind the stomach. The function of insulin is to help our bodies use glucose for energy. For all people with type 1 diabetes and for some people with type 2 diabetes, insulin is essential to keep blood glucose levels under control.

What kind of questions might an individual with diabetes ask about their medication?

Importance of self care in diabetes

It is very important that people with diabetes are encouraged and supported to manage their own diabetes. In order to do this people need to have education about their condition and be supported to make decisions based on this knowledge and education. In some areas structured group education is offered to people with diabetes on diagnosis and on an ongoing basis. Some people prefer not to attend groups and so have their education on an individual basis.
List ways in which the individual person might take control of their diabetes:

Support from other people

People can also find it helpful to get support from others as this can help someone to be able to self manage their diabetes. Some ideas for getting support from others are:

- Talk about feelings with family and friends as they may also be concerned and wish to help.
- Involve family and friends in the learning and understanding of diabetes, as they may be able to help and support on a daily basis.
- When there is an appointment with the healthcare team, ask someone to go along, especially if they provide practical care, such as helping with medication or meals.
- Get to know other people with diabetes. Sharing ideas, experiences and feelings with others, who also have or live with diabetes, can be reassuring and useful. Diabetes UK has voluntary groups that can offer support or there is the opportunity to take part in a support weekend or log on to a discussion forum on the internet.

Tests used to monitor diabetes

Monitoring health when you have diabetes is crucial to preventing some of the complications associated with diabetes. Regular tests to monitor diabetes are:

- blood glucose
- blood pressure
- blood fat levels
- condition of the feet
- Getting eyes screened for retinopathy.
Glucose

Knowing the level of blood glucose for the individual with diabetes is useful for when trying to control diabetes. It can help to maintain day-to-day control, detect hypoglycaemia, assess control during any illness, and helps to provide information that can be used in the prevention of long term complications.

Give examples of tests used to monitor diabetes to include:

Annual tests

daily

Describe how a person with diabetes in your care gains access to each Annual review test.
5. Hypoglycaemia

Hypoglycaemia

Hypoglycaemia, or hypo, is the medical term for low blood glucose levels – that is a blood glucose level of less than 4 mmol/l. At this level there is not enough energy for the body’s needs. Hypos can happen when a person is treated with insulin or some of the tablets for diabetes. People with type 2 diabetes who are not treated with insulin or tablets that stimulate insulin production are not likely to have hypos.

What could cause a hypo? (list 4)

- Too much medication
- Too much exercise
- Too little food
- Missing meals

Sometimes the cause is not obvious.

List some warning signs when individuals with diabetes blood glucose level starts to go low
Immediate treatment

It is important to treat a hypo the moment the symptoms are noticed. Failure to treat quickly will lead to the blood glucose levels continuing to drop and may lead to unconsciousness and fitting.

Immediately treat with a 10-20g of a short-acting carbohydrate such as:

- a glass of Lucozade or non-diet drink
- three or more glucose tablets
- five sweets, eg jelly babies
- a glass of fruit juice

If the hypo is more severe and the person is unable to swallow it is very important not to give them anything by mouth:

- If the person is unconscious, Glucagon can be injected if the health care provider has been trained to use it. Otherwise you should call an ambulance immediately.

Follow-on treatment

Once the blood glucose has risen with quick acting carbohydrate it is possible that it may drop again.

To prevent this it is necessary to give 10 – 20g of a longer-acting carbohydrate such as:

- a sandwich
- fruit
- a small bowl of cereal
- biscuits and milk
- the next meal if due.
6. Hyperglycaemia

Hyperglycaemia, Diabetes Ketoacidosis (DKA) / Hyperglycaemic Hyperosmolar State (HHS)

Hyperglycaemia is the term for high blood glucose levels.

Think About Box

What symptoms do you think a person who has persistently high blood glucose levels may have?

In the long term persistently high blood glucose levels can lead to the complications of diabetes as described in section 3. People with diabetes can become accustomed to high levels of blood glucose and so may not always have symptoms. This does not mean that the levels should remain high and so regular monitoring and medication reviews are necessary to achieve acceptable levels of control in all people.

People with type 1 diabetes can develop Diabetic ketoacidosis if their levels remain too high or they stop taking their insulin.

Why does this happen?

This happens because without insulin glucose cannot enter the cells where it can be used as energy. The body begins to use stores of fat as an alternative source of energy, and this in turn produces an acidic by-product known as ketones.

People with type 2 diabetes can develop very high blood glucose levels. They are very unlikely to produce ketones and so are not likely to develop DKA. However if their levels are allowed to run very high they may develop Hyperglycaemic Hyperosmolar State. The is where they become very unwell and very dehydrated. The chances of dying from this condition are very high. It is important to report to the health care professional in charge or to the persons GP if the levels are persistently high and the persons is becoming unwell.
7. Links with other conditions

Know the links between diabetes and other conditions

During intercurrent (intercurrent—may be another health condition that is not related to diabetes e.g. flu, diarrhoea, and vomiting) illness, a person’s blood glucose levels are likely to rise regardless of whether they are able to eat their usual amount of food. It is important that during an intercurrent illness, the usual medications are given and not withheld if not eating. It is also important to increase the amount of blood glucose monitoring that is done. This will allow the health care provider to establish whether it is necessary to call the GP or diabetes service or further advice and/or treatment.

Outline how treatment for diabetes may be required to be changed during intercurrent illness.

This will allow the health care provider to establish whether it is necessary to call the GP.
Dementia

Dementia is a term that is used to describe a collection of symptoms including memory loss, problems with reasoning and communication skills, and a reduction in a person’s abilities and skills in carrying out daily activities such as washing, dressing, cooking and caring for self.

Memory loss - this can be one of the first symptoms that people notice. The observations people report include - noticing their loved ones forgetting things that have happened earlier in the day, getting confused about messages and who people are, getting lost whilst out and about, repeating themselves, and appearing not to be paying attention or following conversations.

Problems with communication

Some people experience problems with expressing themselves, talking and understanding things. They get confused about words and might use the wrong words for common things and mix words up. Reading and understanding written text can become problematic.

Dementia is a progressive condition, which means the symptoms will gradually get worse. This progression will vary from person to person and each person will experience dementia in a different way.

Using the learning so far describe the effect that diabetes may have on a person with dementia
**Depression**

**What is depression?**

Depression can take different forms and affect people in different ways – it is 5 times more likely in people with long term conditions such as diabetes and dementia and heart disease. Depression can include the following:

- feeling tired or having little energy
- crying all or some of the time
- lack of concentration
- not being able to sleep or over-sleeping
- avoiding people
- little interest or pleasure in doing things
- finding it hard to function at work
- loss of appetite or eating too much
- physical aches and pains
- feelings of despair and hopelessness.

Depressive feelings can affect anyone. The rate of depression is higher in people with diabetes. Depression is a serious condition which should not be ignored and can be treated. Without help, depression can last for a long time but how long it lasts varies.

Explain why having both diabetes and depression will put a person at greater risk of diabetes complications?
Pregnancy

Pregnancy in a woman who has diabetes has to be carefully planned and managed. If the blood glucose control is not good before or during the pregnancy the baby can become very big and have congenital abnormalities. It is very important that an unplanned pregnancy is avoided so it is important to ensure if a person is not planning to become pregnant that they are taking adequate contraception.

Prior to pregnancy a person should aim to have an HbA1c of 42 to 48 mmol/mol and be taking Folic acid prescribed by their doctor to reduce the risks of abnormalities.

A woman with type 2 diabetes may also be taking tablets to control their cholesterol and blood pressure. These medications can harm the baby and so need to be stopped before pregnancy. Any person planning to have a baby must be referred to a specialist team so that full preparation can take place.

Discuss the challenges faced by a women with learning difficulties who may want a baby