Diabetes and your heart
About this booklet

People with diabetes are at greater risk of developing coronary heart disease than those who do not have diabetes. The risks are different for men and for women.

- Men with diabetes are two to three times more likely to develop coronary heart disease than men without diabetes.
- Women with diabetes are four to five times more likely to develop coronary heart disease than women without diabetes.

However, in partnership with your diabetes care team, there is much you can do to prevent coronary heart disease from developing – or to reduce its effects.

We have written this booklet for people who have diabetes and for their families and friends. It aims to give you basic information about coronary heart disease. It tells you:

- what coronary heart disease is, and how to recognise the symptoms
- what diabetes is, and why people with diabetes are more likely to get coronary heart disease
- what you can do to reduce your risk of developing coronary heart disease
- what medicines and treatments you might be given to help prevent or treat coronary heart disease
- what doctors can do to maximise your recovery if you have a heart attack
- what routine checks you should have, and
- what to do if you think someone is having a heart attack.

This booklet is not a substitute for the advice your diabetes care team may give you based on their knowledge of your condition.
What is coronary heart disease?

The heart is a muscle that works continuously, and which needs a constant supply of blood. It gets this through the small arteries on the surface of the heart, called the coronary arteries. In people with coronary heart disease these arteries become narrowed by the gradual build-up of a fatty substance called atheroma. This reduces the blood supply to the heart muscle and can lead to a condition called angina. Angina is most often felt as a chest pain and is usually triggered after physical activity or exertion, or by emotional stress.

Who is at risk of coronary heart disease?

Coronary heart disease is the biggest single cause of death in the UK. One in four men and one in five women die from this disease. However, for people with diabetes the risk is much higher and the disease tends to start at an earlier age. The risk is generally higher for people living in the north of the country rather than the south, and in South Asian people.

The good news is that a healthy lifestyle and good treatment can reduce the risk substantially. There are several known risk factors for heart disease which you can do something about. A risk factor is something which increases someone’s risk of getting the disease. The major risk factors for coronary heart disease are:

- physical inactivity (lack of exercise)
- smoking
- high blood cholesterol
- high blood pressure
- obesity (being very overweight).

Sometimes a blood clot forms on the atheroma and either narrows the artery further, or completely blocks it. If the artery becomes completely blocked, part of the heart muscle will die and this is what is known as a heart attack. Cots that narrow a coronary artery will make the angina worse. This means that the pain will come on after less and less exertion, or even when you are resting. This condition is called unstable angina and can lead to a heart attack.
**What are the symptoms of coronary heart disease?**

The box below outlines the symptoms that people often get with a typical angina attack and a typical heart attack. However, the symptoms can vary, making diagnosis difficult. People with diabetes may be more likely to have unusual symptoms of a heart attack. For example, having no pain but a general feeling of being unwell or sweating can be a symptom of a heart attack, but in people with diabetes these symptoms can be confused with the symptoms of a hypoglycaemic episode, making it harder to diagnose a heart attack.

If someone is not clear as to whether symptoms might be due to hypoglycaemia or a heart attack then it would be useful to do a blood test for glucose. If the test gives a reading of less than 4 mmol/L, this means that hypoglycaemia is present and should be treated in the normal way by giving quick-acting glucose either via a drink or food. If the test gives a reading which is higher than 4 mmol/L, hypoglycaemia is not present and it may therefore be a heart attack in which case medical advice should be sought or an ambulance called for.

<table>
<thead>
<tr>
<th>Symptoms of angina</th>
<th>Symptoms of a heart attack</th>
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<tbody>
<tr>
<td>Heaviness or tightness in the centre of the chest, which may spread to the arms, neck, jaw, back or stomach. Or it may affect just the neck, jaw, arm or stomach.</td>
<td>The type of discomfort or pain is similar to angina but is sometimes more severe. There may also be sweating, light-headedness, feeling sick, or shortness of breath.</td>
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<tr>
<td>Angina often happens when the person is doing a physical activity, or is under emotional stress.</td>
<td>A heart attack can happen at any time, including while the person is resting.</td>
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<tr>
<td>Symptoms usually go away within about 10 to 15 minutes.</td>
<td>If the symptoms last more than 15 minutes it is probably a heart attack.</td>
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<tr>
<td>Symptoms are relieved by resting, or by using a nitrate tablet or spray.</td>
<td>Symptoms are not completely relieved by resting or by using a nitrate tablet or spray.</td>
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</table>

Most chest pains do not have a serious cause – for example indigestion and aches in the muscles or bones of the chest. However, if you think that the chest pain could be a heart attack then phone **999** for an ambulance. If you phone your GP and your GP suspects you are having a heart attack, he or she may call for an ambulance before visiting you.
What is diabetes?

Diabetes occurs when the glucose level in the blood is too high.

Glucose is a sugar that the body makes mainly from the starches and sugars (carbohydrates) in our food. The blood carries glucose to all the cells in our body, where it is used to produce energy. But the cells cannot just take the glucose out of the blood on their own. To do this, they need a chemical called insulin. Insulin is made in the pancreas – a large gland that lies behind the stomach. Insulin is also carried in the blood. As the insulin lets the cells take glucose out of the blood, the amount of glucose left in the blood goes down.

There are two types of diabetes.
• People with Type 1 diabetes do not produce any insulin.
• People with Type 2 diabetes do not produce enough insulin, or their cells lose the ability to use the insulin.

In people with diabetes, the cells become starved of glucose because they cannot take it in from the blood. At the same time, because the glucose cannot get into the cells, the level of glucose in the blood goes up.

Who is at risk of developing diabetes?
About 1.4 million people in the UK have diabetes. Slightly more men than women have diabetes. The number of people with diabetes is increasing and is set to double by 2010.

Type 1 diabetes
The less common form of diabetes is called Type 1 diabetes. Only one out of every 10 people with diabetes has Type 1 diabetes. This type of diabetes usually develops in children and young adults, but it can happen at any age. Type 1 diabetes probably happens because the body's own immune system (the cells that fight infection) attacks the pancreas and destroys its ability to make insulin. The cause of this is probably viruses or food toxins, but no-one is really sure.

Type 2 diabetes
Most people with diabetes – about nine out of every 10 – have Type 2 diabetes. This condition tends to develop gradually after the age of 40.

It is a worrying trend that, in recent years, Type 2 diabetes is being diagnosed more and more in younger people, and even in children. It seems that this is largely due to the fact that children these days lead less active lifestyles.

Diabetes is also more common in people living in the most deprived parts of the country than in those living in more affluent areas. Some ethnic minority communities also have more diabetes, particularly South Asian and Black Afro-Caribbean people.

Both genetic and environmental factors contribute to the development of diabetes. However the development of Type 2 diabetes is more likely if some or all of the following risk factors are also present:

• physical inactivity
• being overweight
• family history of Type 2 diabetes
• previous diabetes in pregnancy (gestational diabetes).

The risk of developing Type 2 diabetes can be significantly reduced by lifestyle changes which increase physical activity and reduce body weight.