

**Guidance on  
the use of  
drugs for early  
thrombolysis in  
the treatment  
of acute  
myocardial  
infarction**

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## What is NICE Guidance?

The National Institute for Clinical Excellence (NICE) is part of the NHS. It produces guidance for both the NHS and patients on the use of medicines, medical equipment, diagnostic tests and clinical and surgical procedures and under what circumstances they should be used.

To produce this guidance, NICE looks at how well the medicine, equipment or procedure works and also how well it works in relation to how much it costs. This process is called an appraisal. The appraisal process involves the manufacturer of the medicine or equipment for which guidance is being produced and the organisations that represent the healthcare professionals, patients and carers who will be affected by the guidance. Each appraisal takes about 12 months to complete.

NICE was asked to look at the available evidence on the early treatment of heart attacks with drugs that aim to restore the flow of blood to the heart muscle, and provide guidance that would help the NHS in England and Wales decide when they should be used.

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## What is acute myocardial infarction?

An acute myocardial infarction is a heart attack. A heart attack happens when a blood clot blocks one of the large blood vessels that carry oxygen-rich blood to the heart (known as the coronary arteries). The blockage stops blood reaching part of the heart muscle and the part of the heart affected is so seriously starved of oxygen that it becomes permanently damaged.

A blood clot that forms inside a blood vessel is called a thrombus. In the coronary arteries the blood clot usually forms where the artery is already narrowed by a build-up of fatty substances on its inside wall.

Around 240,000 people experience a heart attack in England and Wales each year. The symptoms develop very quickly and the highest risk of death is within the first hour of experiencing symptoms.

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## What is early thrombolysis?

A thrombolytic drug is one that breaks down the blood clot so that the blood flow to the heart muscle can be restored and further damage can be prevented. The sooner the blood flow can be restored, the better the chances of limiting the

damage to the heart. 'Early thrombolysis' means giving a thrombolytic drug as soon as possible after the heart attack starts.

The usual symptom of a heart attack is a persistent crushing pain in the chest which doesn't disappear with rest. A test called an electrocardiogram, which measures the activity of the heart, is used to confirm that someone has had a heart attack and needs treatment with a thrombolytic drug.

Thrombolytic drugs are given by injection into a vein (called intravenous injection) or by infusion into a vein (called intravenous infusion). ('Intravenous infusion' – often called a 'drip' – means that the liquid drug is slowly delivered to the body through a tube inserted into a vein.)

Thrombolytic drugs are routinely given in hospital as soon as possible after it has been confirmed that a patient has had a heart attack. Increasingly, thrombolytic drugs are being given by ambulance paramedics before the patient reaches hospital.

Four thrombolytic drugs are currently available in the UK: alteplase, reteplase, streptokinase and tenecteplase. Alteplase and streptokinase are given by intravenous infusion. Reteplase and tenecteplase are given by intravenous injection.

With thrombolytic drugs there is a risk of bleeding problems, and particularly of bleeding in the brain causing a stroke. People treated with streptokinase develop substances in their blood called antibodies that can prevent streptokinase working if they are treated with it again.

This guidance from NICE makes recommendations about which thrombolytic drugs should be used for patients who have had a heart attack.

For treatment with thrombolytic drugs in hospital, NICE recommends that doctors should take the following factors into account when deciding which thrombolytic drug (alteplase, reteplase, streptokinase or tenecteplase) to use for an individual patient.

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What has NICE recommended ?

- The benefits and risks, such as stroke, that the thrombolytic drugs are likely to have for the individual patient.
- It is normal practice in the UK that patients who have been treated with streptokinase before should not be treated with it again.
- How the hospital arrangements are set up to ensure that thrombolysis is given as soon as possible after the patient has been admitted.

NICE has also made recommendations about which drugs to use where emergency care arrangements for people having a heart attack include giving thrombolytic drugs before the patient reaches hospital – for example, this might be the set up for communities a long way from a hospital with emergency facilities. Because of the difficulties of setting up an intravenous infusion of a thrombolytic drug somewhere other than in hospital, NICE recommends that in these circumstances a thrombolytic

drug given by intravenous injection (reteplase or tenecteplase) should be used.

In a non-emergency situation you may wish to discuss the guidance in this leaflet with your doctor if you have heart problems, have had a heart attack in the past, or think you are at risk of having a heart attack.

Yes. The guidance will be reviewed in August 2005.

The NICE website ([www.nice.org.uk](http://www.nice.org.uk)) has further information on NICE and the full guidance on the use of early thrombolysis that has been issued to the NHS. The guidance can also be requested from the NHS Response Line by phoning 0870 1555 455 and quoting reference N0170.

If you have access to the Internet, you can find more information about heart attack, including information about treatment with thrombolytic drugs, on the NHS Direct website ([www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk)). You can also phone NHS Direct on 08 45 46 47.

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What should I do next?

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Will NICE review its Guidance?

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Further Information

This leaflet is also available in Welsh, (Ref no. N0173).

**Mae'r daflen hon hefyd ar gael yn Gymraeg (rhif cyfeirnod N0173).**

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