

**Update**

The advice on the use of myocardial perfusion scintigraphy has changed. You can find the most recent advice at [www.nice.org.uk/guidance/CG95/PublicInfo](http://www.nice.org.uk/guidance/CG95/PublicInfo) and [www.nice.org.uk/guidance/CG126/PublicInfo](http://www.nice.org.uk/guidance/CG126/PublicInfo)

# Myocardial perfusion scintigraphy for the diagnosis and management of angina and myocardial infarction

Understanding NICE guidance – information for people with angina and myocardial infarction (coronary artery disease), their families and carers, and the public

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**Myocardial perfusion scintigraphy for the diagnosis and management of angina and myocardial infarction**  
**Understanding NICE guidance – information for people with angina and myocardial infarction (coronary artery disease), their families and carers, and the public**

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**To order copies**

Copies of this booklet can be ordered from the NHS Response Line; telephone 0870 1555 455 and quote reference number N0373. A version in Welsh and English is also available, reference number N0374. Mae fersiwn yn Gymraeg ac yn Saesneg ar gael hefyd, rhif cyfeirnod N0374. The NICE technology appraisal on which this information is based, *Myocardial perfusion scintigraphy for the diagnosis and management of angina and myocardial infarction*, is available from the NICE website ([www.nice.org.uk/TA073guidance](http://www.nice.org.uk/TA073guidance)). A short version of the guidance (a 'quick reference guide') is also available on the website ([www.nice.org.uk/TA073quickrefguide](http://www.nice.org.uk/TA073quickrefguide)) and from the NHS Response Line, reference number N0372.

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## What is NICE guidance?

The National Institute for Clinical Excellence (NICE) is part of the NHS. It produces guidance (recommendations) on the use of medicines, medical equipment, diagnostic tests and clinical and surgical procedures within the NHS in England and Wales.

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.

NICE was asked to look at the available evidence on the use of myocardial perfusion scintigraphy for the diagnosis and management of coronary artery disease (specifically, angina and myocardial infarction). NICE was asked to provide guidance that will help the NHS in England and Wales decide when myocardial perfusion scintigraphy should be used.

## What is coronary artery disease?

The heart is a muscle that needs a constant supply of oxygen and nutrients to keep working. These are carried in the blood, and the vessels that carry blood to the heart muscle are called coronary arteries.

Coronary artery disease (also called coronary heart disease) happens when a fatty substance builds up in the walls of the arteries, making the space inside narrower. There are several coronary arteries, and any of them can be affected. Often, two or more arteries are narrowed in this way.

The narrowing of the arteries may mean that they are not supplying enough blood to deliver all the oxygen the heart muscle needs. This is a particular problem when the person is taking exercise, when the heart needs to work harder.

The most common symptom of coronary artery disease is angina, which is pain or a feeling of tightness in the chest, which can often spread to the back, shoulders and arms. An attack of angina is usually brought on by physical activity. In severe cases, a narrowed artery becomes blocked, and this causes a heart attack (which is also known as a 'myocardial infarction'). In a heart attack, blood cannot reach part of the heart muscle, and the part that's affected dies.

## What is myocardial perfusion scintigraphy?

Myocardial perfusion scintigraphy allows doctors to see how well blood is reaching the heart muscle through the coronary arteries. NICE looked at myocardial perfusion scintigraphy that uses a type of imaging known as single-photon-emission computed tomography (which is shortened to SPECT).

Myocardial perfusion scintigraphy involves injecting a small amount of a radioactive substance (known as a tracer) into a blood vessel through a small tube. A special camera, known as a gamma camera, is moved around the person for 10 to 20 minutes. The gamma camera picks up the radioactive trace and produces pictures that the doctor can use to see how well blood is reaching the heart.

This is done both when the person is resting and when their heart is beating faster. The person may be asked to increase their heart rate by exercising (for example, by walking or jogging on a treadmill), but more often the doctor gives them some medicine that makes their heart behave as though they had been exercising.

Another test that can be used to help diagnose coronary artery disease is stress electrocardiography (which is shortened to stress ECG). Stress ECG involves walking on a treadmill while the heart's activity is monitored.

## What has NICE recommended on myocardial perfusion scintigraphy?

During the appraisal, NICE's Appraisal Committee read and heard evidence from:

- high-quality studies of myocardial perfusion scintigraphy
- doctors with specialist knowledge of coronary artery disease and its treatment
- individuals with specialist knowledge of the issues affecting people with coronary artery disease
- organisations representing the views of people who will be affected by the guidance (because they have, or care for someone with, the condition or because they work in the NHS and are involved in providing care for people with the condition)
- the manufacturers of the products used in myocardial perfusion scintigraphy.

The evidence is summarised in the full guidance (see page 10 for details). More information about the studies is provided in the assessment report for this appraisal (see page 10 for details).

NICE has made the following recommendations about the use of myocardial perfusion scintigraphy to diagnose and manage coronary artery disease within the NHS in England and Wales.

### ***If your doctor thinks you may have coronary artery disease***

NICE recommends that myocardial perfusion scintigraphy using SPECT should be the first test used for people where stress ECG may not give accurate or clear results. This can be the case for women, for people who have certain unusual patterns in the electrical activity of their heart (these patterns are detected by ECG), people with diabetes or people for whom exercise is difficult or impossible.

NICE also recommends that myocardial perfusion scintigraphy using SPECT should be used in the diagnosis of people who are less likely to have coronary artery disease and who are at lower risk of having heart problems (such as a heart attack) in the future. The likelihood of a person having coronary artery disease can be assessed by considering a number of factors, including their



age, sex, ethnic background and family history as well as the results of their physical examination and blood tests or tests on the heart like ECG.

### ***If you are known to have coronary artery disease***

NICE recommends that myocardial perfusion scintigraphy using SPECT should be used as an investigation in people who still have symptoms following a heart attack or despite having had treatment to improve the flow of blood to the heart.

### **What should I do next?**

If you or someone you care for has coronary artery disease, you should discuss this guidance with your doctor.

### **Will NICE review its guidance?**

Yes. The guidance will be reviewed in November 2006.

## Further information

The NICE website ([www.nice.org.uk](http://www.nice.org.uk)) has further information about NICE and the full guidance on myocardial perfusion scintigraphy for the diagnosis and management of angina and myocardial infarction that has been issued to the NHS. The assessment report, which contains details of the studies that were looked at, is also available from the NICE website. A short version of the guidance (a 'quick reference guide') is available on the website and from the NHS Response Line (reference number N0372).

If you have access to the Internet, you can find more information about coronary artery disease on the NHS Direct website ([www.nhsdirect.nhs.uk](http://www.nhsdirect.nhs.uk)) – look on the website for the term 'coronary heart disease'. You can also phone NHS Direct on 0845 46 47.





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