

Routine tests carried out before a planned surgical operation

Understanding NICE guidance –
information for people who are going
to have a planned operation, their carers,
and the public

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Clinical Excellence

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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 N0232). A version in English and Welsh is also available, reference number N0233. Mae fersiwn yn Gymraeg ac yn Saesneg ar gael hefyd, rhif cyfeirnod N0233. The NICE clinical guideline on which this information is based, *Preoperative tests. The use of routine preoperative tests for elective surgery*, is available from the NICE website (www.nice.org.uk). Copies can also be obtained from the NHS Response Line, reference number N0231.

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About this information

This information describes the guidance that the National Institute for Clinical Excellence (called NICE for short) has issued to the NHS on tests that people often have before a planned (or 'elective') operation. These tests are called preoperative tests or preoperative investigations. Not everyone has all of these tests. Some people may have none, and some may need other tests not included in the NICE guidance.

This information is based on *Preoperative tests: the use of routine preoperative tests for elective surgery*, a clinical guideline produced by NICE for doctors, nurses and other healthcare professionals working in the NHS in England and Wales. This booklet has been written mainly for people who are going to have a planned operation. It may also be useful for family members or other carers and for anyone with an interest in healthcare in general.

Clinical guidelines

Clinical guidelines are about improving the care and treatment provided by the health service. The recommendations in NICE guidelines are prepared by groups of health professionals, patient representatives with

experience or knowledge of the condition being discussed, and scientists. The groups look at the evidence available on the best way of treating or managing a condition and make recommendations based on this evidence.

There is more about NICE and the way that clinical guidelines are developed on the NICE website (www.nice.org.uk). You can download the booklet *The guideline development process – information for the public and the NHS* from the website, or you can order a copy by phoning 0870 1555 455 and quoting reference number N0038.

What the recommendations cover

NICE clinical guidelines can look at different areas of diagnosis, treatment, care, self-help or a combination of these, depending on the topic.

The recommendations in *Preoperative tests: the use of routine preoperative tests for elective surgery* cover tests that are often carried out when someone is due to have a planned (elective) surgical operation and that are carried out before the operation by doctors or nurses in hospitals, preoperative assessment clinics or, in some cases, in the GP's surgery or health centres.

The information in this booklet tells you about the NICE guideline on some of the tests people may need before a planned operation. It briefly explains the tests, but does not describe them in detail. The NICE guideline makes recommendations on the circumstances in which the tests should be done, not done, or considered – for example, whether a certain test is recommended may depend on the patient's age or how serious the planned operation is. (See 'If you want to read other versions of this guideline' (page 5) for details of the NICE guideline.)

If you want to find out more about tests you may have before a planned operation, ask your doctor or nurse at the hospital where you will be having the operation, contact NHS Direct (telephone 0845 46 47) or look at NHS Direct Online (www.nhsdirect.nhs.uk).

How guidelines are used in the NHS

In general, health professionals working in the NHS are expected to follow NICE's clinical guidelines. But there will be times when the recommendations will not be suitable for someone because of their specific medical condition, their general health, a person's wishes or a combination of these. If you think that the treatment or care you (or someone

you care for) receive does not match the treatment or care described in this booklet, you should discuss your concerns with the medical team in charge of your care at the hospital where you are having the operation.

If you want to read other versions of this guideline

The NICE guideline *Preoperative tests: the use of routine preoperative tests for elective surgery*, a guide for healthcare professionals, is available from the NICE website (www.nice.org.uk) or you can order a copy by phoning 0870 1555 455 and quoting reference number N0231. The full guideline, which contains the details of the guideline recommendations and how they were developed, is available from the NICE website (www.nice.org.uk).

Preoperative tests

Where preoperative tests are done

Often you will be asked to visit the hospital before your operation so that the medical team can assess your health. Usually this visit for a 'preoperative assessment' will be a week or so before your operation, but the timing can vary.

You might have some tests earlier at your GP's surgery or health centre.

At the preoperative assessment at the hospital you should be asked about your health in the past and your current health. You may be recommended to have some tests before the operation. Someone from the medical team in charge of your care should discuss these recommendations with you and ask for your agreement to carry out the tests.

Why preoperative tests are done

There are some tests that are often carried out before surgery, even for apparently healthy people, to find out about conditions that could affect the treatment someone needs. These tests are the ones covered by the NICE guideline. In addition there are more specific tests that may be carried out because of the particular operation, or because someone is known to have a particular health problem. The results of these preoperative tests are usually available within a few days, and must be available before the operation.

There are advantages and disadvantages to having preoperative tests. Advantages include:

- finding out whether you are well enough to have an anaesthetic and to have the planned operation, and assessing what risks may be involved
- helping to make sure that you are going to get the best possible treatment
- identifying medical problems that could be treated or stabilised before surgery or that could mean that you need special care to prevent or reduce the risk of having complications (things going wrong) when you have the operation
- identifying medical problems that may require your treatment to be changed to prevent or reduce the risk of complications.

The main disadvantage is that tests can sometimes indicate that you have a problem when in fact you do not. These false alarms may lead to an unnecessary delay, and further unnecessary tests, before surgery.

Some of the tests described below (pages 10–16) are only recommended for a few patients, and you may not be recommended to have any tests at all.

Information you should receive

The aim of the NICE recommendations is to help clinicians to decide which tests should be recommended to patients, and when tests are not necessary.

You should receive information about which tests are recommended, and the reasons for them (what each test is intended to find out).

The consultant responsible for your care should explain to you the advantages and disadvantages of having the test, the implications of a positive test result for your current care, and any wider implications if the test changes what is known about your state of health.

You will be asked to give your consent (agreement) for the tests and you have the right to refuse this consent. You can change your mind, and you should be helped to understand the implications if you decide not to have the test.

The results of these preoperative tests are usually available within a few days, and must be available before your operation. You should be told the results of the tests and what they mean for you.

The recommendations on preoperative testing

The number and type of preoperative tests you may be recommended to have depends on a number of things, including:

- your health – the doctor will look at factors such as your blood pressure, pulse rate, body mass index (a measure that expresses the relationship of your weight to your height), illnesses you have or have had, medicines you are taking, and any history of health problems in your family
- your age (the need for tests may increase as you get older)
- the type of surgery you are going to have (more tests may be needed if you are going to have major surgery).

These factors must be considered by the doctor or nurse before any decisions are made, with you, about the tests you need. The NICE guideline, *Preoperative tests: the use of routine preoperative tests for elective surgery*, contains 'look-up' tables to help your doctor consider these factors when discussing preoperative tests with you. The doctor may also want to discuss doing other tests, apart from the ones described below.

A brief summary of tests covered in the NICE guideline follows.

Full blood count

A 'full blood count' is a measure of the amount of haemoglobin (the pigment in the red blood cells that carries oxygen in the blood) and the numbers of different kinds of blood cells.

A sample of blood is taken and analysed in a laboratory. Someone who has low levels of haemoglobin in their blood will need additional care during surgery.

A full blood count is usually carried out only if there are medical reasons to do so, such as reasons to think that you might have 'anaemia' (meaning low levels of red cells in the blood – or 'thin' blood) or if you have kidney disease or cardiovascular disease (disease of the heart and blood vessels).

However, the more major the surgery, the more likely it is that a full blood count will be recommended.

Blood clotting tests

A blood sample may be used to carry out tests to check the way blood clots and how long it takes to clot. These are called tests of 'haemostasis'.

They do not need to be carried out unless there is a clinical reason to test – for example if you are taking warfarin or are on dialysis.

They may also be appropriate if you have a family history of abnormal bleeding, or evidence of liver disease or vascular disease (a disease of the blood vessels, such as hardening of the arteries).

Blood gases test

This blood test analyses the acidity, oxygen content, and carbon dioxide content of the blood.

There should always be a specific medical reason for blood gas testing, for example moderate or severe respiratory (lung) disease or cardiovascular disease (disease of the heart and blood vessels).

Blood glucose

A blood sample may be used to test for diabetes, by measuring the amount of glucose (sugar) in the blood.

This test may be recommended if you are going to have major surgery.

It may also be recommended for some people who are having minor surgery but who have a history of kidney (renal) disease.

Urine 'dipstick' test

A urine 'dipstick' test is an alternative to measuring your blood glucose. A stick is dipped into a specimen of urine and it changes colour if there is glucose (sugar) in the urine. This type of test may also be used to detect other substances in urine that can be signs of disease or of how well the kidneys are working and to check for urinary tract infections. It is especially important to check for urinary tract infections before certain types of implant surgery, such as a hip replacement.

Chest X-ray

A chest X-ray can help to detect a disease or infection (usually of the lungs and the heart) that you're not aware of.

You shouldn't have a chest X-ray unless there is a specific medical or surgical reason to do so. Chest X-rays are not recommended for younger adults and children although they may be considered in older healthy adults (more than 60 years old) who are undergoing major surgery. A chest X-ray may be needed if you have a history of smoking, respiratory disease or heart disease, or kidney disease.

X-rays can damage a fetus (unborn baby). If an X-ray is recommended and you think you could be pregnant, you need to tell the radiographer

(the person who takes the X-ray) before you have the X-ray.

ECG (electrocardiogram)

An ECG tests patients for heart problems such as abnormal heart rhythm.

ECGs are not recommended for children or healthy adults under 40. The need for an ECG increases with age and depends also on how major the operation is.

If you are under 60 years of age, an ECG would not normally be recommended unless there are medical or surgical reasons to suspect there may be a problem with your health – for example, if you have chest pain or a history of heart disease – or are undergoing specific types of major surgery.

Renal function tests

Renal (kidney) function tests involve a variety of tests – including tests on urine and blood samples – that check how well your kidneys are working.

The decision to recommend renal function tests may depend on your age, because as people get older their kidneys may not work as well.

It is also important to test you if you have cardiovascular disease (including high blood pressure), or if you have diabetes.

Whether you need renal function tests may also depend on the kind of medicines you are taking, because some medicines – like diuretics ('water tablets') – can affect how your kidneys work.

In healthy adults and children, renal function tests may be recommended only before a major operation.

Lung function tests

Lung (or pulmonary) function tests measure how efficiently you breathe.

There should always be a specific medical reason for carrying out lung function tests. For example, they may be useful if you have asthma, chronic bronchitis, or another lung disease.

Sickle cell test

Sickle cell anaemia is a disorder that affects the red pigment (haemoglobin) in red blood cells which carries oxygen. It is an inherited disease, which means that it is passed on in the genes from parents to child. Someone who inherits the sickle cell anaemia gene from both parents has sickle cell anaemia, which can cause serious health problems. Someone who inherits the

sickle cell anaemia gene from only one parent has 'sickle cell trait', which doesn't cause any symptoms. Someone with sickle cell trait is a carrier of the sickle cell gene.

Someone with sickle cell anaemia or sickle cell trait is at risk of having problems if they have a general anaesthetic (these problems can be particularly serious for someone with sickle cell anaemia).

Sickle cell anaemia and sickle cell trait are found mainly in people whose families come from Africa, the Caribbean, the eastern Mediterranean, the Middle East, or Asia. It has also been detected in Cypriot people and a few other white ethnic groups. A special blood test, called haemoglobin electrophoresis, can tell you whether you have sickle cell anaemia or sickle cell trait.

If you are of an ethnic origin considered to be at risk you should be offered testing before you have a general anaesthetic, and genetic counselling before and after screening. A sickle cell test should only need to be carried out once in your life. When it's been done the results should be put in your medical records.

Pregnancy test

The need to test for pregnancy depends on the possible risk of the anaesthetic and surgery

to the unborn baby. If you are a woman of childbearing age you should be made aware of the risks of surgery and anaesthesia to an unborn baby. You should always be asked whether there is any chance you could be pregnant before you have an operation. You should also be asked whether there is any chance you could be pregnant before having a chest X-ray. If there's any chance you could be pregnant you should have a pregnancy test before a decision is made to operate.

Further information

It is your right to be fully informed and to share in decision making about your healthcare. If you would like further information about the tests that might be carried out before your operation, ask your specialist or nurse at the hospital where you are going to have your operation.

If you would like further information about the National Institute for Clinical Excellence, the clinical guidelines programme or other versions of this guideline, you can visit the NICE website at www.nice.org.uk.