

## Preoperative tests overview

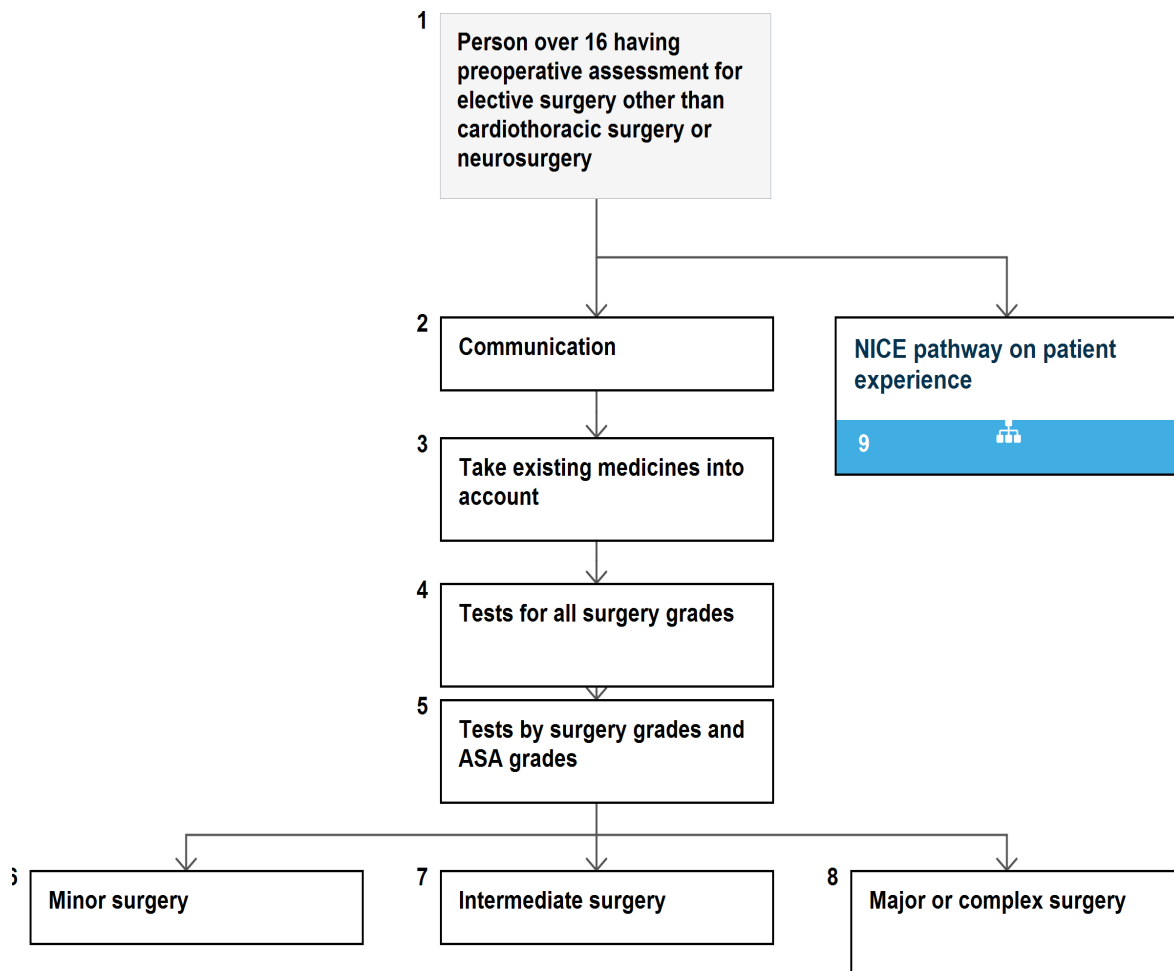
NICE Pathways bring together everything NICE says on a topic in an interactive flowchart. NICE Pathways are interactive and designed to be used online.

They are updated regularly as new NICE guidance is published. To view the latest version of this NICE Pathway see:

<http://pathways.nice.org.uk/pathways/preoperative-tests>

NICE Pathway last updated: 25 November 2016

This document contains a single flowchart and uses numbering to link the boxes to the associated recommendations.



## 1 Person over 16 having preoperative assessment for elective surgery other than cardiothoracic surgery or neurosurgery

No additional information

## 2 Communication

When offering tests before surgery, give people information in line with recommendations (including those on consent and capacity) made in the NICE pathway on [patient experience](#).

Ensure that the results of any preoperative tests undertaken in primary care are included when referring people for surgical consultation.

## 3 Take existing medicines into account

Take into account any medicines people are taking when considering whether to offer any preoperative test.

## 4 Tests for all surgery grades

### Pregnancy tests

On the day of surgery, sensitively ask all women of childbearing potential whether there is any possibility they could be pregnant.

Make sure women who could possibly be pregnant are aware of the risks of the anaesthetic and the procedure to the fetus.

Document all discussions with women about whether or not to carry out a pregnancy test.

Carry out a pregnancy test with the woman's consent if there is any doubt about whether she could be pregnant.

Develop locally agreed protocols for checking pregnancy status before surgery.

Make sure protocols are documented and audited, and in line with statutory and professional guidance.

---

This pathway does not cover other preoperative tests for women if they are pregnant.

### **Sickle cell disease or sickle cell trait tests**

**Do not routinely offer** testing for sickle cell disease or sickle cell trait before surgery.

Ask the person having surgery if they or any member of their family have sickle cell disease.

If the person is known to have sickle cell disease and has their disease managed by a specialist sickle cell service, liaise with this team before surgery.

### **HbA1c testing for people without diagnosed diabetes**

**Do not routinely offer** HbA1c testing before surgery to people without diagnosed diabetes.

### **HbA1c testing for people with diabetes**

People with diabetes who are being referred for surgical consultation from primary care should have their most recent HbA1c test results included in their referral information.

Offer HbA1c testing to people with diabetes having surgery if they have not been tested in the last 3 months.

### **Urine tests**

**Do not routinely offer** urine dipstick tests before surgery.

Consider microscopy and culture of midstream urine sample before surgery if the presence of a urinary tract infection would influence the decision to operate.

### **Chest X-rays**

**Do not routinely offer** chest X-rays before surgery.

### **Echocardiography**

**Do not routinely offer** resting echocardiography before surgery.

Consider resting echocardiography if the person has:

- a heart murmur **and** any cardiac symptom (including breathlessness, pre-syncope, syncope or chest pain) **or**

- signs or symptoms of heart failure.

Before ordering the resting echocardiogram, carry out a resting ECG and discuss the findings with an anaesthetist.

## 5 Tests by surgery grades and ASA grades

The following recommendations are specific to surgery grade and ASA grade.

### Surgery grades

Surgery grades	Examples
Minor	<ul style="list-style-type: none"> <li>• excising skin lesion</li> <li>• draining breast abscess</li> </ul>
Intermediate	<ul style="list-style-type: none"> <li>• primary repair of inguinal hernia</li> <li>• excising varicose veins in the leg</li> <li>• tonsillectomy or adenotonsillectomy</li> <li>• knee arthroscopy</li> </ul>
Major or complex	<ul style="list-style-type: none"> <li>• total abdominal hysterectomy</li> <li>• endoscopic resection of prostate</li> <li>• lumbar discectomy</li> <li>• thyroidectomy</li> <li>• total joint replacement</li> <li>• lung operations</li> <li>• colonic resection</li> <li>• radical neck dissection</li> </ul>

### ASA grades

The ASA Physical Status Classification System is a simple scale describing fitness to undergo an anaesthetic. The ASA states that it does not endorse any elaboration of these definitions. However, anaesthetists in the UK often qualify (or interpret) these grades as relating to

functional capacity – that is, comorbidity that does not (ASA 2) or that does (ASA 3) limit a person's activity.

ASA 1	Normal healthy patient
ASA 2	A patient with mild systemic disease
ASA 3	A patient with severe systemic disease
ASA 4	A patient with severe systemic disease that is a constant threat to life

## 6 Minor surgery

See tests for people undergoing [minor surgery](#) [See page 7].

## 7 Intermediate surgery

See tests for people undergoing [intermediate surgery](#) [See page 7].

## 8 Major or complex surgery

See tests for people undergoing [major or complex surgery](#) [See page 9].

## 9 NICE pathway on patient experience

See [Patient experience in adult NHS services / Patient experience in adult NHS services overview](#)

## Minor surgery

	ASA grade		
Test	ASA 1 (a normal healthy patient)	ASA 2 (a patient with mild systemic disease)	ASA 3 (a patient with severe systemic disease) or ASA 4 (a patient with severe systemic disease that is a constant threat to life)
Full blood count	Not routinely	Not routinely	Not routinely
Haemostasis	Not routinely	Not routinely	Not routinely
Kidney function	Not routinely	Not routinely	Consider in people at risk of AKI (see <a href="#">adults having surgery</a> in the NICE pathway on acute kidney injury)
ECG	Not routinely	Not routinely	Consider if no ECG results available from past 12 months
Lung function / arterial blood gas	Not routinely	Not routinely	Not routinely

## Intermediate surgery

	ASA grade
--	-----------

Test	ASA 1 (a normal healthy patient)	ASA 2 (a patient with mild systemic disease)	ASA 3 (a patient with severe systemic disease) or ASA 4 (a patient with severe systemic disease that is a constant threat to life)
<b>Full blood count</b>	Not routinely	Not routinely	Consider for people with cardiovascular or renal disease if any symptoms not recently investigated
<b>Haemostasis</b>	Not routinely	Not routinely	Consider in people with chronic liver disease <ul style="list-style-type: none"> <li>• If people taking anticoagulants need modification of their treatment regimen, make an individualised plan in line with local guidance</li> <li>• If clotting status needs to be tested before surgery (depending on local guidance) use point-of-care testing. Note that currently the effects of direct oral anticoagulants (DOACs) cannot be measured by routine testing</li> </ul>
<b>Kidney function</b>	Not routinely	Consider in people at risk of AKI (see <a href="#">adults having surgery</a> in the NICE pathway on acute kidney injury)	Yes
<b>ECG</b>	Not routinely	Consider an ECG for people with cardiovascular, renal or diabetes comorbidities	Yes



<b>Lung function/ arterial blood gas</b>	Not routinely	Not routinely	Consider seeking advice from a senior anaesthetist as soon as possible after assessment for people who are ASA grade 3 or 4 due to known or suspected respiratory disease
--	---------------	---------------	---

## Major or complex surgery

	ASA grade		
Test	ASA 1 (a normal healthy patient)	ASA 2 (a patient with mild systemic disease)	ASA 3 (a patient with severe systemic disease) or ASA 4 (a patient with severe systemic disease that is a constant threat to life)
<b>Full blood count</b>	Yes	Yes	Yes
<b>Haemostasis</b>	Not routinely	Not routinely	<p>Consider in people with chronic liver disease</p> <ul style="list-style-type: none"> <li>If people taking anticoagulants need modification of their treatment regimen, make an individualised plan in line with local guidance</li> <li>If clotting status needs to be tested before surgery (depending on local guidance) use point-of-care testing. Note that currently the effects of direct oral anticoagulants (DOACs) cannot be measured by routine testing</li> </ul>

<b>Kidney function</b>	Consider in people at risk of AKI (see <a href="#">adults having surgery</a> in the NICE pathway on acute kidney injury)	Yes	Yes
<b>ECG</b>	Consider for people aged over 65 if no ECG results available from past 12 months	Yes	Yes
<b>Lung function/ arterial blood gas</b>	Not routinely	Not routinely	Consider seeking advice from a senior anaesthetist as soon as possible after assessment for people who are ASA grade 3 or 4 due to known or suspected respiratory disease

## Glossary

### AKI

acute kidney injury

### ASA

American Society of Anesthesiologists

### ECG

electrocardiogram

## Sources

[Routine preoperative tests for elective surgery](#) (2016) NICE guideline NG45

## Your responsibility

### Guidelines

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

### Technology appraisals

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, health professionals are expected to take these recommendations fully into account, alongside the individual needs, preferences and values of their patients. The application of the recommendations in this interactive flowchart is at the discretion of health professionals and their individual patients and do not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Commissioners and/or providers have a responsibility to provide the funding required to enable the recommendations to be applied when individual health professionals and their patients wish to use it, in accordance with the NHS Constitution. They should do so in light of their duties to

have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

### **Medical technologies guidance, diagnostics guidance and interventional procedures guidance**

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take these recommendations fully into account. However, the interactive flowchart does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Commissioners and/or providers have a responsibility to implement the recommendations, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this interactive flowchart should be interpreted in a way that would be inconsistent with compliance with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.