NICE National Institute for Health and Care Excellence

# Venous thromboembolism in adults admitted to hospital: reducing the risk

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**NICE clinical guideline 92**

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# Contents

# Introduction

Recommendations on mechanical prophylaxis for venous thromboembolism in patients who are admitted for stroke have been added to section 1.4. The addendum contains details of the methods and evidence used to update these recommendations.

The House of Commons Health Committee[1] reported in 2005 that an estimated 25,000 people in the UK die from preventable hospital-acquired venous thromboembolism (VTE) every year. This includes patients admitted to hospital for medical care and surgery. The inconsistent use of prophylactic measures for VTE in hospital patients has been widely reported. A UK survey suggested that 71% of patients assessed to be at medium or high risk of developing deep vein thrombosis did not receive any form of mechanical or pharmacological VTE prophylaxis[2].

VTE is a condition in which a blood clot (thrombus) forms in a vein. It most commonly occurs in the deep veins of the legs; this is called deep vein thrombosis. The thrombus may dislodge from its site of origin to travel in the blood – a phenomenon called embolism.

VTE encompasses a range of clinical presentations. Venous thrombosis is often asymptomatic; less frequently it causes pain and swelling in the leg. Part or all of the thrombus can come free and travel to the lung as a potentially fatal pulmonary embolism. Symptomatic venous thrombosis carries a considerable burden of morbidity, including long-term morbidity because of chronic venous insufficiency. This in turn can cause venous ulceration and development of a post-thrombotic limb (characterised by chronic pain, swelling and skin changes).

VTE is an important cause of death in hospital patients, and treatment of non-fatal symptomatic VTE and related long-term morbidities is associated with considerable cost to the health service.

The risk of developing VTE depends on the condition and/or procedure for which the patient is admitted and on any predisposing risk factors (such as age, obesity and concomitant conditions).

This guideline makes recommendations on assessing and reducing the risk of VTE in patients in hospital. It offers guidance on the most clinically and cost-effective measures for VTE prophylaxis in these patients. The recommendations take into account the potential risks of the various options for prophylaxis and patient preferences.

The guideline assumes that prescribers will use a medicine's summary of product characteristics to inform decisions made with individual patients.

## *Recommendations about medicines*

The guideline will assume that prescribers will use a medicine's summary of product characteristics to inform decisions made with individual patients.

This guideline recommends some medicines for indications for which they do not have a UK marketing authorisation at the date of publication, if there is good evidence to support that use. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. The patient (or those with authority to give consent on their behalf) should provide informed consent, which should be documented. See the General Medical Council's Good practice in prescribing and managing medicines and devices for further information. Where recommendations have been made for the use of medicines outside their licensed indications ('off-label use'), these medicines are marked with a footnote in the recommendations.

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[1] House of Commons Health Committee (2005) *The prevention of venous thromboembolism in hospitalised patients.* London: The Stationery Office.

[2] Rashid ST, Thursz MR, Razvi NA et al. (2005) Venous thromboprophylaxis in UK medical inpatients. *Journal of the Royal Society of Medicine* 98 (11): 507–12.

# Patient-centred care

This guideline offers best practice advice on the care of patients with venous thromboembolism.

Patients and healthcare professionals have rights and responsibilities as set out in the NHS Constitution for England – all NICE guidance is written to reflect these. Treatment and care should take into account individual needs and preferences. Patients should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If the patient is under 16, their family or carers should also be given information and support to help the child or young person to make decisions about their treatment. Healthcare professionals should follow the Department of Health's advice on consent. If someone does not have capacity to make decisions, healthcare professionals should follow the code of practice that accompanies the Mental Capacity Act and the supplementary code of practice on deprivation of liberty safeguards.

NICE has produced guidance on the components of good patient experience in adult NHS services. All healthcare professionals should follow the recommendations in patient experience in adult NHS services.

# Key priorities for implementation

The following recommendations were identified as priorities for implementation in the 2010 guideline and have not been changed in the 2015 update.

## *Assessing the risks of VTE and bleeding*

- Assess all patients on admission to identify those who are at increased risk of VTE. **[2010]**
- Regard medical patients as being at increased risk of VTE if they:
  - have had or are expected to have significantly reduced mobility for 3 days or more **or**
  - are expected to have ongoing reduced mobility relative to their normal state and have one or more of the risk factors shown in box 1. **[2010]**
- Regard surgical patients and patients with trauma as being at increased risk of VTE if they meet one of the following criteria:
  - surgical procedure with a total anaesthetic and surgical time of more than 90 minutes, or 60 minutes if the surgery involves the pelvis or lower limb
  - acute surgical admission with inflammatory or intra-abdominal condition
  - expected significant reduction in mobility
  - one or more of the risk factors shown in box 1. **[2010]**
- Assess all patients for risk of bleeding before offering pharmacological VTE prophylaxis[3]. Do not offer pharmacological VTE prophylaxis to patients with any of the risk factors for bleeding shown in box 2, unless the risk of VTE outweighs the risk of bleeding. **[2010]**
- Reassess patients' risks of bleeding and VTE within 24 hours of admission and whenever the clinical situation changes, to:
  - ensure that the methods of VTE prophylaxis being used are suitable
  - ensure that VTE prophylaxis is being used correctly
  - identify adverse events resulting from VTE prophylaxis. **[2010]**

## Reducing the risk of VTE

- Encourage patients to mobilise as soon as possible. **[2010]**
- Offer pharmacological VTE prophylaxis to general medical patients assessed to be at increased risk of VTE (see section 1.1). Choose any one of:
  - fondaparinux sodium
  - low molecular weight heparin (LMWH)[a]
  - unfractionated heparin (UFH) (for patients with severe renal impairment or established renal failure). **[2010]**
- Start pharmacological VTE prophylaxis as soon as possible after risk assessment has been completed. Continue until the patient is no longer at increased risk of VTE. **[2010]**

## Patient information and planning for discharge

- Before starting VTE prophylaxis, offer patients and/or their families or carers verbal and written information on:
  - the risks and possible consequences of VTE
  - the importance of VTE prophylaxis and its possible side effects
  - the correct use of VTE prophylaxis (for example, anti-embolism stockings, foot impulse or intermittent pneumatic compression devices)
  - how patients can reduce their risk of VTE (such as keeping well hydrated and, if possible, exercising and becoming more mobile). **[2010]**
- As part of the discharge plan, offer patients and/or their families or carers verbal and written information on:
  - the signs and symptoms of deep vein thrombosis and pulmonary embolism
  - the correct and recommended duration of use of VTE prophylaxis at home (if discharged with prophylaxis)

- the importance of using VTE prophylaxis correctly and continuing treatment for the recommended duration (if discharged with prophylaxis)
- the signs and symptoms of adverse events related to VTE prophylaxis (if discharged with prophylaxis)
- the importance of seeking help and who to contact if they have any problems using the prophylaxis (if discharged with prophylaxis)
- the importance of seeking medical help and who to contact if deep vein thrombosis, pulmonary embolism or another adverse event is suspected. **[2010]**

[3] Prescribers should consult the summary of product characteristics for the pharmacological VTE prophylaxis being used or planned for further details.

[4] At the time of publication (June 2015) some types of LMWH do not have UK marketing authorisation for VTE prophylaxis in medical patients. Prescribers should consult the summary of product characteristics for the individual LMWH. Informed consent for off-label use should be obtained and documented.

# 1 Recommendations

The following guidance is based on the best available evidence. The full guideline gives details of the methods and the evidence used to develop the **2010** recommendations. The guideline addendum gives details of the methods and the evidence used to develop the **2015** recommendations.

> The wording used in the recommendations in this guideline (for example, words such as 'offer' and 'consider') denotes the certainty with which the recommendation is made (the strength of the recommendation). See about this guideline for details.

Throughout this guidance 'significantly reduced mobility' is used to denote patients who are bedbound, unable to walk unaided or likely to spend a substantial proportion of the day in bed or in a chair.

'Major bleeding' refers to a bleeding event that results in one or more of the following:

- death
- a decrease in haemoglobin concentration of 2 g/dl or more
- transfusion of 2 or more units of blood
- bleeding into a retroperitoneal, intracranial or intraocular site
- a serious or life-threatening clinical event
- a surgical or medical intervention.

'Severe renal impairment or established renal failure' refers to an estimated glomerular filtration rate (eGFR) of less than 30 ml/min/1.73m$^2$.

## *1.1 Assessing the risks of VTE and bleeding*

1.1.1 Assess all patients on admission to identify those who are at increased risk of VTE. **[2010]**

1.1.2 Regard medical patients as being at increased risk of VTE if they:

- have had or are expected to have significantly reduced mobility for 3 days or more **or**
- are expected to have ongoing reduced mobility relative to their normal state and have one or more of the risk factors shown in box 1. **[2010]**

1.1.3 Regard surgical patients and patients with trauma as being at increased risk of VTE if they meet one of the following criteria:

- surgical procedure with a total anaesthetic and surgical time of more than 90 minutes, or 60 minutes if the surgery involves the pelvis or lower limb
- acute surgical admission with inflammatory or intra-abdominal condition
- expected significant reduction in mobility
- one or more of the risk factors shown in box 1. **[2010]**

**Box 1 Risk factors for VTE**

- Active cancer or cancer treatment
- Age over 60 years
- Critical care admission
- Dehydration
- Known thrombophilias
- Obesity (body mass index [BMI] over 30 kg/$m^2$)
- One or more significant medical comorbidities (for example: heart disease; metabolic, endocrine or respiratory pathologies; acute infectious diseases; inflammatory conditions)
- Personal history or first-degree relative with a history of VTE
- Use of hormone replacement therapy
- Use of oestrogen-containing contraceptive therapy
- Varicose veins with phlebitis

For women who are pregnant or have given birth within the previous 6 weeks see recommendations 1.6.4–1.6.6.

1.1.4 Assess all patients for risk of bleeding before offering pharmacological VTE prophylaxis[b]. Do not offer pharmacological VTE prophylaxis to patients with any of the risk factors for bleeding shown in box 2, unless the risk of VTE outweighs the risk of bleeding. **[2010]**

1.1.5 Reassess patients' risks of bleeding and VTE within 24 hours of admission and whenever the clinical situation changes, to:

- ensure that the methods of VTE prophylaxis being used are suitable
- ensure that VTE prophylaxis is being used correctly

- identify adverse events resulting from VTE prophylaxis. **[2010]**

**Box 2 Risk factors for bleeding**

- Active bleeding
- Acquired bleeding disorders (such as acute liver failure)
- Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with international normalised ratio [INR] higher than 2)
- Lumbar puncture/epidural/spinal anaesthesia expected within the next 12 hours
- Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours
- Acute stroke
- Thrombocytopenia (platelets less than 75 × $10^9$/l)
- Uncontrolled systolic hypertension (230/120 mmHg or higher)
- Untreated inherited bleeding disorders (such as haemophilia and von Willebrand's disease)

## *1.2 Reducing the risk of VTE*

1.2.1 Do not allow patients to become dehydrated unless clinically indicated. **[2010]**

1.2.2 Encourage patients to mobilise as soon as possible. **[2010]**

1.2.3 Do not regard aspirin or other antiplatelet agents as adequate prophylaxis for VTE. **[2010]**

1.2.4 Consider offering temporary inferior vena caval filters to patients who are at very high risk of VTE (such as patients with a previous VTE event or an active malignancy) and for whom mechanical and pharmacological VTE prophylaxis are contraindicated. **[2010]**

# *1.3 Using VTE prophylaxis*

## Mechanical VTE prophylaxis

1.3.1 Base the choice of mechanical VTE prophylaxis on individual patient factors including clinical condition, surgical procedure and patient preference. Choose any one of:

- anti-embolism stockings (thigh or knee length)
- foot impulse devices
- intermittent pneumatic compression devices (thigh or knee length).

For patients who are admitted for stroke see recommendations 1.4.2, 1.4.4 and 1.4.5. **[2010]**

## Anti-embolism stockings

1.3.2 Do not offer anti-embolism stockings to patients who have:

- suspected or proven peripheral arterial disease
- peripheral arterial bypass grafting
- peripheral neuropathy or other causes of sensory impairment
- any local conditions in which stockings may cause damage, for example fragile 'tissue paper' skin, dermatitis, gangrene or recent skin graft
- known allergy to material of manufacture
- cardiac failure
- severe leg oedema or pulmonary oedema from congestive heart failure
- unusual leg size or shape
- major limb deformity preventing correct fit.

Use caution and clinical judgement when applying anti-embolism stockings over venous ulcers or wounds. **[2010]**

1.3.3 Ensure that patients who need anti-embolism stockings have their legs measured and that the correct size of stocking is provided. Anti-embolism stockings should be fitted and patients shown how to use them by staff trained in their use. **[2010]**

1.3.4 Ensure that patients who develop oedema or postoperative swelling have their legs re-measured and anti-embolism stockings refitted. **[2010]**

1.3.5 If arterial disease is suspected, seek expert opinion before fitting anti-embolism stockings. **[2010]**

1.3.6 Use anti-embolism stockings that provide graduated compression and produce a calf pressure of 14–15 mmHg. (This relates to a pressure of 14–18 mmHg at the ankle and is in line with British Standards 6612:1985 Specification for graduated compression hosiery and 7672:1993 Specification for compression, stiffness and labelling of anti-embolism hosiery.) **[2010]**

1.3.7 Encourage patients to wear their anti-embolism stockings day and night until they no longer have significantly reduced mobility. **[2010]**

1.3.8 Remove anti-embolism stockings daily for hygiene purposes and to inspect skin condition. In patients with a significant reduction in mobility, poor skin integrity or any sensory loss, inspect the skin two or three times per day, particularly over the heels and bony prominences. **[2010]**

1.3.9 Discontinue the use of anti-embolism stockings if there is marking, blistering or discolouration of the skin, particularly over the heels and bony prominences, or if the patient experiences pain or discomfort. If suitable, offer a foot impulse or intermittent pneumatic compression device as an alternative. **[2010]**

1.3.10 Show patients how to use anti-embolism stockings correctly and ensure they understand that this will reduce their risk of developing VTE. **[2010]**

1.3.11 Monitor the use of anti-embolism stockings and offer assistance if they are not being worn correctly. **[2010]**

### Foot impulse devices and intermittent pneumatic compression devices

1.3.12 Do not offer foot impulse or intermittent pneumatic compression devices to patients with a known allergy to the material of manufacture. **[2010]**

1.3.13 Encourage patients on the ward who have foot impulse or intermittent pneumatic compression devices to use them for as much of the time as is possible and practical, both when in bed and when sitting in a chair. **[2010]**

### Pharmacological VTE prophylaxis

1.3.14 Base the choice of pharmacological VTE agents on local policies and individual patient factors, including clinical condition (such as severe renal impairment or established renal failure) and patient preferences. **[2010]**

## *1.4 Medical patients*

### General medical patients

1.4.1 Offer pharmacological VTE prophylaxis to general medical patients assessed to be at increased risk of VTE (see section 1.1). Choose any one of:

- fondaparinux sodium
- low molecular weight heparin (LMWH)[a]
- unfractionated heparin (UFH) (for patients with severe renal impairment or established renal failure).

Start pharmacological VTE prophylaxis as soon as possible after risk assessment has been completed. Continue until the patient is no longer at increased risk of VTE. **[2010]**

## Patients with stroke

1.4.2 Do not offer anti-embolism stockings for VTE prophylaxis to patients who are admitted for stroke. **[2010]**

1.4.3 Consider offering prophylactic-dose LMWH[6] (or UFH for patients with severe renal impairment or established renal failure) if:

- a diagnosis of haemorrhagic stroke has been excluded, and
- the risk of bleeding (haemorrhagic transformation of stroke or bleeding into another site) is assessed to be low, and
- the patient has one or more of:
  - major restriction of mobility
  - previous history of VTE
  - dehydration
  - comorbidities (such as malignant disease).

  Continue until the acute event is over and the patient's condition is stable. **[2010]**

1.4.4 Do not offer foot impulse or neuromuscular electrical stimulation devices for VTE prophylaxis to patients who are admitted for stroke, except in the context of research. **[new 2015]**

1.4.5 Consider intermittent pneumatic compression (IPC) for VTE prophylaxis in immobile patients who are admitted within 3 days of acute stroke.

- Explain to the patient or their family members or carers (as appropriate) that:
  - it reduces the risk of deep vein thrombosis and may provide an increase in survival
  - it will not help them recover from stroke, and there may be an associated increased risk of surviving with severe disability (see table 1).

- When using intermittent pneumatic compression for patients who are admitted for stroke, provide it for 30 days or until the patient is mobile or discharged, whichever is sooner. **[new 2015]**

## Table 1: Average comparative outcomes with and without intermittent pneumatic compression (IPC) per 1000 patients who are immobile when admitted for stroke

| | | **Standard best medical care (cases per 1000 patients)** | **Standard best medical care plus intermittent pneumatic compression (IPC) [a] (cases per 1000 patients, with 95% confidence interval)** |
|---|---|---|---|
| | **Outcomes in hospital** | | |
| | Skin breaks[b] | 14 | 30 *(between 18 and 49)* |
| | Deep vein thrombosis that will cause symptoms and need treatment[b] | 63 | 45 *(between 34 and 62)* |
| | Deep vein thrombosis that may or may not cause symptoms[c] | 149 | 113 *(between 94 and 136)* |
| **OHS*** | **Outcomes at 6 months [b,d]** | | |
| 0-4 | Alive and not severely disabled[e] | 562 | 550 (between 517 and 590) |
| 5 | Alive but severely disabled | 180 | 218 (between 187 and 252) |
| 6 | Dead[f] | 258 | 232 (between 204 and 259) |

[a] Absolute risk: number of cases per 1000 patients (95% confidence interval).

[b] Data from CLOTS3 trial (Dennis 2013, 2014).

[c] Data from Lacut (2005) and CLOTS3 trial (Dennis 2013, 2014).

[d] These are average outcomes at 6 months after stroke, assessed using the Oxford Handicap Scale*. However, death rate and functional outcomes will vary depending on the severity of the initial stroke.

[e] The difference between the 2 groups on this outcome is not statistically significant.

[f] The difference between the 2 groups on this outcome is not statistically significant. However, when 6-month all-cause mortality data from the CLOTS3 trial are pooled with 3-month data from the Lacut (2005) trial, the survival effect favouring IPC is statistically significant (see outcome 8 and figure 8 in appendix I of the full guideline).

*The Oxford Handicap Scale is a categorical scale for measuring functional outcome after a stroke. Key: 0 = Healthy survival – fully independent; 1 = Minor symptoms – independent, no interference; 2 = Minor disability – independent, some restrictions but able to self-care; 3 = Moderate disability – significant restriction, unable to lead a totally independent existence (requires some assistance); 4 = Moderate-to-severe disability – unable to live independently but does not require constant attention; 5 = Severe disability – totally dependent, requires constant attention day and night; 6 = Death.

You can download a printable version of this table here.

## Patients with cancer

1.4.6 Offer pharmacological VTE prophylaxis to patients with cancer who are assessed to be at increased risk of VTE (see section 1.1). Choose any one of:

- fondaparinux sodium
- LMWH[ɷ]
- UFH (for patients with severe renal impairment or established renal failure).

Start pharmacological VTE prophylaxis as soon as possible after risk assessment has been completed. Continue until the patient is no longer at increased risk of VTE. **[2010]**

1.4.7 Do not routinely offer pharmacological or mechanical VTE prophylaxis to patients with cancer having oncological treatment who are ambulant. **[2010]**

## Patients with central venous catheters

1.4.8 Do not routinely offer pharmacological or mechanical VTE prophylaxis to patients with central venous catheters who are ambulant. **[2010]**

1.4.9 Consider offering pharmacological VTE prophylaxis with LMWH[6] (or UFH for patients with severe renal impairment or established renal failure) to patients with central venous catheters who are at increased risk of VTE (see section 1.1). **[2010]**

## Patients in palliative care

1.4.10 Consider offering pharmacological VTE prophylaxis to patients in palliative care who have potentially reversible acute pathology. Take into account potential risks and benefits and the views of patients and their families and/or carers. Choose any one of:

- fondaparinux sodium
- LMWH[6]
- UFH (for patients with severe renal impairment or established renal failure). [2010]

1.4.11 Do not routinely offer pharmacological or mechanical VTE prophylaxis to patients admitted for terminal care or those commenced on an end-of-life care pathway. **[2010]**

1.4.12 Review decisions about VTE prophylaxis for patients in palliative care daily, taking into account the views of patients, their families and/or carers and the multidisciplinary team. **[2010]**

### Medical patients in whom pharmacological VTE prophylaxis is contraindicated

1.4.13 Consider offering mechanical VTE prophylaxis to medical patients in whom pharmacological VTE prophylaxis is contraindicated. Choose any one of:

- anti-embolism stockings (thigh or knee length)
- foot impulse devices
- intermittent pneumatic compression devices (thigh or knee length).

For patients who are admitted for stroke see recommendations 1.4.2, 1.4.4 and 1.4.5 **[2010]**

## *1.5 Surgical patients*

### All surgery

1.5.1 Advise patients to consider stopping oestrogen-containing oral contraceptives or hormone replacement therapy 4 weeks before elective surgery. If stopped, provide advice on alternative contraceptive methods. **[2010]**

1.5.2 Assess the risks and benefits of stopping pre-existing established antiplatelet therapy 1 week before surgery. Consider involving the multidisciplinary team in the assessment. **[2010]**

1.5.3 Consider regional anaesthesia for individual patients, in addition to other methods of VTE prophylaxis, as it carries a lower risk of VTE than general anaesthesia. Take into account patients' preferences, their suitability for regional anaesthesia and any other planned method of VTE prophylaxis. **[2010]**

1.5.4 If regional anaesthesia is used, plan the timing of pharmacological VTE prophylaxis to minimise the risk of epidural haematoma. If antiplatelet or anticoagulant agents are being used, or their use is planned, refer to the summary of product characteristics for guidance about the safety and timing of these agents in relation to the use of regional anaesthesia. **[2010]**

1.5.5 Do not routinely offer pharmacological or mechanical VTE prophylaxis to patients undergoing a surgical procedure with local anaesthesia by local infiltration with no limitation of mobility. **[2010]**

## Cardiac

1.5.6 Offer VTE prophylaxis to patients undergoing cardiac surgery who are not having other anticoagulation therapy and are assessed to be at increased risk of VTE (see section 1.1).

- Start mechanical VTE prophylaxis at admission. Choose any one of:
  - anti-embolism stockings (thigh or knee length)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking into account individual patient factors and according to clinical judgement. Choose one of:
  - LMWH
  - UFH (for patients with severe renal impairment or established renal failure).

  Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility (generally 5–7 days). **[2010]**

## Gastrointestinal, gynaecological, thoracic and urological

1.5.7 Offer VTE prophylaxis to patients undergoing bariatric surgery.

- Start mechanical VTE prophylaxis at admission. Choose any one of:
  - anti-embolism stockings (thigh or knee length)

- foot impulse devices
- intermittent pneumatic compression devices (thigh or knee length).

Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.

- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking into account individual patient factors and according to clinical judgement. Choose any one of:
  - fondaparinux sodium
  - LMWH
  - UFH (for patients with severe renal impairment or established renal failure).

  Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility (generally 5–7 days). **[2010]**

1.5.8 Offer VTE prophylaxis to patients undergoing gastrointestinal surgery who are assessed to be at increased risk of VTE (see section 1.1).

- Start mechanical VTE prophylaxis at admission. Choose any one of:
  - anti-embolism stockings (thigh or knee length)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility. **[2010]**
- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking into account individual patient factors and according to clinical judgement. Choose any one of:
  - fondaparinux sodium

- LMWH
- UFH (for patients with severe renal impairment or established renal failure).

Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility (generally 5–7 days). **[2010]**

1.5.9 Offer VTE prophylaxis to patients undergoing gynaecological, thoracic or urological surgery who are assessed to be at increased risk of VTE (see section 1.1).

- Start mechanical VTE prophylaxis at admission. Choose any one of:
  - anti-embolism stockings (thigh or knee length)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking into account individual patient factors and according to clinical judgement. Choose one of:
  - LMWH
  - UFH (for patients with severe renal impairment or established renal failure).

  Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility (generally 5–7 days). **[2010]**

1.5.10 Extend pharmacological VTE prophylaxis to 28 days postoperatively for patients who have had major cancer surgery in the abdomen or pelvis. **[2010]**

## Neurological (cranial or spinal)

1.5.11 Offer VTE prophylaxis to patients undergoing cranial or spinal surgery who are assessed to be at increased risk of VTE (see section 1.1).

- Start mechanical VTE prophylaxis at admission. Choose any one of:
  - anti-embolism stockings (thigh or knee length)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking into account individual patient factors and according to clinical judgement. Choose one of:
  - LMWH
  - UFH (for patients with severe renal impairment or established renal failure).

  Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility (generally 5–7 days). **[2010]**

1.5.12 Do not offer pharmacological VTE prophylaxis to patients with ruptured cranial or spinal vascular malformations (for example, brain aneurysms) or acute traumatic or non-traumatic haemorrhage until the lesion has been secured or the condition is stable. **[2010]**

## Orthopaedic surgery – elective hip replacement, elective knee replacement and hip fracture

The summaries of product characteristics state postoperative start times for dabigatran, rivaroxaban and fondaparinux, and preoperative start times for most LMWHs, although individual start times vary depending on the specific LMWH. In this guideline it is recommended that LMWH is started postoperatively, which is off-label use, because of concerns about the risk of bleeding into the joint. Patients would be protected preoperatively by mechanical VTE prophylaxis. **[2010]**

## Elective hip replacement

1.5.13 Offer combined VTE prophylaxis with mechanical and pharmacological methods to patients undergoing elective hip replacement surgery.

- Start mechanical VTE prophylaxis at admission. Choose any one of the following, based on individual patient factors:
  - anti-embolism stockings (thigh or knee length), used with caution (see recommendations 1.3.2–1.3.11)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- Provided there are no contraindications, start pharmacological VTE prophylaxis after surgery. Choose any one of:
  - dabigatran etexilate, starting 1–4 hours after surgery[7]
  - fondaparinux sodium, starting 6 hours after surgical closure provided haemostasis has been established
  - LMWH, starting 6–12 hours after surgery
  - rivaroxaban, starting 6–10 hours after surgery[8]
  - UFH (for patients with severe renal impairment or established renal failure), starting 6–12 hours after surgery.

  Continue pharmacological VTE prophylaxis for 28–35 days, according to the summary of product characteristics for the individual agent being used. **[2010]**

## Elective knee replacement

1.5.14 Offer combined VTE prophylaxis with mechanical and pharmacological methods to patients undergoing elective knee replacement surgery.

- Start mechanical VTE prophylaxis at admission. Choose any one of the following, based on individual patient factors:
  - anti-embolism stockings (thigh or knee length), used with caution (see recommendations 1.3.2–1.3.11)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- Provided there are no contraindications, start pharmacological VTE prophylaxis after surgery. Choose any one of:
  - dabigatran etexilate, starting 1–4 hours after surgery[7]
  - fondaparinux sodium, starting 6 hours after surgical closure provided haemostasis has been established
  - LMWH, starting 6–12 hours after surgery
  - rivaroxaban, starting 6–10 hours after surgery[8]
  - UFH (for patients with severe renal impairment or established renal failure), starting 6–12 hours after surgery.

  Continue pharmacological VTE prophylaxis for 10–14 days, according to the summary of product characteristics for the individual agent being used. **[2010]**

## Hip fracture

1.5.15 Offer combined VTE prophylaxis with mechanical and pharmacological methods to patients undergoing hip fracture surgery.

- Start mechanical VTE prophylaxis at admission. Choose any one of the following, based on individual patient factors:
  - anti-embolism stockings (thigh or knee length), used with caution (see recommendations 1.3.2–1.3.11)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- Provided there are no contraindications, add pharmacological VTE prophylaxis. Choose any one of:
  - fondaparinux sodium, starting 6 hours after surgical closure, provided haemostasis has been established and there is no risk of bleeding (see box 2)
  - LMWH, starting at admission, stopping 12 hours before surgery and restarting 6–12 hours after surgery
  - UFH (for patients with severe renal impairment or established renal failure), starting at admission, stopping 12 hours before surgery and restarting 6–12 hours after surgery.

  Continue pharmacological VTE prophylaxis for 28–35 days, according to the summary of product characteristics for the individual agent being used. **[2010]**

1.5.16 Fondaparinux sodium is not recommended for use preoperatively for patients undergoing hip fracture surgery. If it has been used preoperatively it should be stopped 24 hours before surgery and restarted 6 hours after surgical closure,

provided haemostasis has been established and there is no risk of bleeding (see box 2). **[2010]**

## Other orthopaedic surgery

1.5.17 Consider offering combined VTE prophylaxis with mechanical and pharmacological methods to patients having orthopaedic surgery (other than hip replacement, knee replacement or hip fracture surgery) based on an assessment of risks (see section 1.1) and after discussion with the patient.

- Start mechanical VTE prophylaxis at admission. Choose one of the following, based on individual patient factors:
  - anti-embolism stockings (thigh or knee length), used with caution (see recommendations 1.3.2–1.3.11)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- Start pharmacological VTE prophylaxis 6–12 hours after surgery. Choose one of:
  - LMWH
  - UFH (for patients with severe renal impairment or established renal failure).

  Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility. **[2010]**

1.5.18 Do not routinely offer VTE prophylaxis to patients undergoing upper limb surgery. If a patient is assessed to be at increased risk of VTE (see section 1.1), refer to recommendation 1.5.17. **[2010]**

## Vascular

1.5.19 Offer VTE prophylaxis to patients undergoing vascular surgery who are not having other anticoagulant therapy and are assessed to be at increased risk of VTE (see section 1.1). If peripheral arterial disease is present, seek expert opinion before fitting anti-embolism stockings.

- Start mechanical VTE prophylaxis at admission. Choose any one of:
  - anti-embolism stockings (thigh or knee length)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking into account individual patient factors and according to clinical judgement. Choose one of:
  - LMWH
  - UFH (for patients with severe renal impairment or established renal failure).

  Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility (generally 5–7 days). **[2010]**

## Day surgery

1.5.20 Offer VTE prophylaxis to patients undergoing day surgery who are assessed to be at increased risk of VTE (see section 1.1).

- Start mechanical VTE prophylaxis at admission. Choose any one of:
  - anti-embolism stockings (thigh or knee length)
  - foot impulse devices

- intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.

- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking into account individual patient factors and according to clinical judgement. Choose any one of:

  - fondaparinux
  - LMWH
  - UFH (for patients with severe renal impairment or established renal failure).

  If the patient is expected to have significantly reduced mobility after discharge, continue pharmacological VTE prophylaxis, generally for 5–7 days. **[2010]**

## Other surgical patients

1.5.21 Offer VTE prophylaxis to patients undergoing surgery other than that covered in recommendations 1.5.6–1.5.20 who are assessed to be at increased risk of VTE (see section 1.1).

- Start mechanical VTE prophylaxis at admission. Choose any one of:

  - anti-embolism stockings (thigh or knee length)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.

- Add pharmacological VTE prophylaxis for patients who have a low risk of major bleeding, taking into account individual patient factors and according to clinical judgement. Choose one of:

- LMWH
- UFH (for patients with severe renal impairment or established renal failure).

Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility (generally 5–7 days). **[2010]**

## *1.6 Other patient groups*

### Major trauma

1.6.1 Offer combined VTE prophylaxis with mechanical and pharmacological methods to patients with major trauma. Regularly reassess the patient's risks of VTE and bleeding.

- Start mechanical VTE prophylaxis at admission or as early as clinically possible. Choose any one of:
  - anti-embolism stockings (thigh or knee length), used with caution (see recommendations 1.3.2–1.3.11)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- If the benefits of reducing the risk of VTE outweigh the risks of bleeding (see box 2) and the bleeding risk has been established as low, add pharmacological VTE prophylaxis. Choose one of:
  - LMWH
  - UFH (for patients with severe renal impairment or established renal failure).

  Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility. **[2010]**

## Spinal injury

1.6.2 Offer combined VTE prophylaxis with mechanical and pharmacological methods to patients with spinal injury. Regularly reassess the patient's risks of VTE and bleeding.

- Start mechanical VTE prophylaxis at admission or as early as clinically possible. Choose any one of:
  - anti-embolism stockings (thigh or knee length), used with caution (see recommendations 1.3.2–1.3.11)
  - foot impulse devices
  - intermittent pneumatic compression devices (thigh or knee length).

  Continue mechanical VTE prophylaxis until the patient no longer has significantly reduced mobility.
- If the benefits of reducing the risk of VTE outweigh the risks of bleeding (see box 2) and the bleeding risk has been established as low, add pharmacological VTE prophylaxis. Choose one of:
  - LMWH
  - UFH (for patients with severe renal impairment or established renal failure).

  Continue pharmacological VTE prophylaxis until the patient no longer has significantly reduced mobility. **[2010]**

## Lower limb plaster casts

1.6.3 Consider offering pharmacological VTE prophylaxis to patients with lower limb plaster casts after evaluating the risks (see section 1.1) and benefits based on clinical discussion with the patient. Offer LMWH (or UFH for patients with severe renal impairment or established renal failure) until lower limb plaster cast removal. **[2010]**

## Pregnancy and up to 6 weeks post partum

1.6.4 Consider offering pharmacological VTE prophylaxis with LMWH (or UFH for patients with severe renal impairment or established renal failure) to women who are pregnant or have given birth within the previous 6 weeks who are admitted to hospital but are not undergoing surgery, and who have one or more of the following risk factors:

- expected to have significantly reduced mobility for 3 or more days
- active cancer or cancer treatment
- age over 35 years
- critical care admission
- dehydration
- excess blood loss or blood transfusion
- known thrombophilias
- obesity (pre-pregnancy or early pregnancy BMI over 30 kg/$m^2$)
- one or more significant medical comorbidities (for example: heart disease; metabolic, endocrine or respiratory pathologies; acute infectious diseases; inflammatory conditions)
- personal history or a first-degree relative with a history of VTE
- pregnancy-related risk factor (such as ovarian hyperstimulation, hyperemesis gravidarum, multiple pregnancy or pre-eclampsia)
- varicose veins with phlebitis. **[2010]**

1.6.5 Consider offering combined VTE prophylaxis with mechanical methods and LMWH (or UFH for patients with severe renal impairment or established renal failure) to women who are pregnant or have given birth within the previous 6 weeks who are undergoing surgery, including caesarean section. **[2010]**

1.6.6 Offer mechanical and/or pharmacological VTE prophylaxis to women who are pregnant or have given birth within the previous 6 weeks only after assessing the risks and benefits and discussing these with the woman and with healthcare professionals who have knowledge of the proposed method of VTE prophylaxis during pregnancy and post partum. Plan when to start and stop pharmacological VTE prophylaxis to minimise the risk of bleeding. **[2010]**

## Critical care

1.6.7 Assess all patients on admission to the critical care unit for their risks of VTE (see section 1.1) and bleeding (see box 2). Reassess patients' risks of VTE and bleeding daily and more frequently if their clinical condition is changing rapidly. **[2010]**

1.6.8 Offer VTE prophylaxis to patients admitted to the critical care unit according to the reason for admission, taking into account:

- any planned interventions
- the use of other therapies that may increase the risk of complications. **[2010]**

1.6.9 Review decisions about VTE prophylaxis for patients in critical care daily and more frequently if their clinical condition is changing rapidly. Take into account the known views of the patient, comments from their family and/or carers and the multidisciplinary team. **[2010]**

## Patients already having antiplatelet agents or anticoagulation on admission or needing them for treatment

1.6.10 Consider offering additional mechanical or pharmacological VTE prophylaxis to patients who are having antiplatelet agents to treat other conditions and who are assessed to be at increased risk of VTE (see section 1.1). Take into account the risk of bleeding (see box 2) and of comorbidities such as arterial thrombosis.

- If the risk of VTE outweighs the risk of bleeding, consider offering pharmacological VTE prophylaxis according to the reason for admission.

- If the risk of bleeding outweighs the risk of VTE, offer mechanical VTE prophylaxis. **[2010]**

1.6.11 Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are taking vitamin K antagonists and who are within their therapeutic range, providing anticoagulant therapy is continued. **[2010]**

1.6.12 Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are having full anticoagulant therapy (for example, fondaparinux sodium, LMWH or UFH). **[2010]**

## *1.7 Patient information and planning for discharge*

### Patient information

1.7.1 Be aware that heparins are of animal origin and this may be of concern to some patients[9]. For patients who have concerns about using animal products, consider offering synthetic alternatives based on clinical judgement and after discussing their suitability, advantages and disadvantages with the patient. **[2010]**

1.7.2 Before starting VTE prophylaxis, offer patients and/or their families or carers verbal and written information on:

- the risks and possible consequences of VTE
- the importance of VTE prophylaxis and its possible side effects
- the correct use of VTE prophylaxis (for example, anti-embolism stockings, foot impulse or intermittent pneumatic compression devices).
- how patients can reduce their risk of VTE (such as keeping well hydrated and, if possible, exercising and becoming more mobile). **[2010]**

### Planning for discharge

1.7.3 As part of the discharge plan, offer patients and/or their families or carers verbal and written information on:

- the signs and symptoms of deep vein thrombosis and pulmonary embolism
- the correct and recommended duration of use of VTE prophylaxis at home (if discharged with prophylaxis)
- the importance of using VTE prophylaxis correctly and continuing treatment for the recommended duration (if discharged with prophylaxis)
- the signs and symptoms of adverse events related to VTE prophylaxis (if discharged with prophylaxis)
- the importance of seeking help and who to contact if they have any problems using the prophylaxis (if discharged with prophylaxis)
- the importance of seeking medical help and who to contact if deep vein thrombosis, pulmonary embolism or other adverse events are suspected. **[2010]**

1.7.4 Ensure that patients who are discharged with anti-embolism stockings:

- understand the benefits of wearing them
- understand the need for daily hygiene removal
- are able to remove and replace them, or have someone available who will be able to do this for them
- know what to look for, such as skin marking, blistering or discolouration, particularly over the heels and bony prominences
- know who to contact if there is a problem. **[2010]**

1.7.5 Ensure that patients who are discharged with pharmacological and/or mechanical VTE prophylaxis are able to use it correctly, or have arrangements made for someone to be available who will be able to help them. **[2010]**

1.7.6 Notify the patient's GP if the patient has been discharged with pharmacological and/or mechanical VTE prophylaxis to be used at home. **[2010]**

[5] Prescribers should consult the summary of product characteristics for the pharmacological VTE prophylaxis being used or planned for further details.

[6] At the time of publication (June 2015) some types of LMWH do not have UK marketing authorisation for VTE prophylaxis in medical patients. Prescribers should consult the summary of product characteristics for the individual LMWH. Informed consent for off-label use should be obtained and documented.

[7] In line with 'Dabigatran etexilate for the prevention of venous thromboembolism after hip or knee replacement surgery in adults' (NICE technology appraisal guidance 157), dabigatran etexilate, within its marketing authorisation, is recommended as an option for the primary prevention of venous thromboembolic events in adults who have undergone elective total hip replacement surgery or elective total knee replacement surgery.

[8] In line with 'Rivaroxaban for the prevention of venous thromboembolism after total hip or total knee replacement in adults' (NICE technology appraisal guidance 170), rivaroxaban, within its marketing authorisation, is recommended as an option for the prevention of venous thromboembolism in adults having elective total hip replacement surgery or elective total knee replacement surgery.

[9] See 'Religion or belief: a practical guide for the NHS'.

# 2 Research recommendations

In 2010, the Guideline Development Group made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future.

## *2.1 Assessing the risk of VTE*

What is the absolute risk of VTE among different groups of hospital patients, and can the risk be reliably estimated on admission to hospital to ensure that appropriate patients are offered VTE prophylaxis?

**Why this is important**

One of the most difficult areas the Guideline Development Group faced when developing the guideline was to identify the absolute risk of VTE among specific patient groups in relation to the reason for admission. A new, large pragmatic cohort study and/or record linkage study using Hospital Episode Statistics and the General Practice Research Database is proposed. This would allow all people admitted to hospital to be studied to identify those who develop VTE, including people who are diagnosed with VTE in primary care after discharge from hospital. Information on baseline patient-related factors, procedures and duration of stay, complications, prophylactic therapies and concomitant drug use should be collected and analysed. It should allow the identification of independent risk factors for VTE and the development and subsequent validation of a risk model to estimate the absolute risk of VTE in individual patients. This research would allow clearer identification of those patients at risk of VTE and those in whom the risk is so low that the bleeding risk of pharmacological VTE prophylaxis would add overall hazard.

## *2.2 VTE prophylaxis for medical patients*

What is the clinical and cost effectiveness of pharmacological prophylaxis, mechanical prophylaxis and combined pharmacological and mechanical prophylaxis for reducing the risk of VTE in medical patients?

**Why this is important**

Only a small number of trials with medical patients were identified and generally the inclusion criteria were narrow, for example, patients with an acute medical illness, with a hospital stay of more than 5 days, and often with severely limited mobility. Further research into less severely ill patient groups would be beneficial.

The evidence concerning mechanical VTE prophylaxis in medical patients is sparse. There have been a few small trials of patients with coronary syndrome but the only large, randomised controlled trial was of patients with stroke. This trial showed that routine care plus thigh-length anti-embolism stockings did not confer significantly more protection against VTE than routine care alone and was associated with significantly more harm. All of these trials included large proportions of patients who were taking aspirin, which may have influenced the results.

New trial(s) should investigate the benefits of reducing the risk of VTE balanced against the risk of bleeding. The trial(s) should compare pharmacological VTE prophylaxis alone, mechanical VTE prophylaxis alone, and combined mechanical and pharmacological VTE prophylaxis. The benefit of extended-duration VTE prophylaxis in medical patient groups may also be investigated.

## *2.3 VTE prophylaxis for patients with lower limb plaster casts*

What is the clinical and cost effectiveness of pharmacological prophylaxis for reducing the risk of VTE in patients with lower limb plaster casts?

**Why this is important**

A number of randomised controlled trials have been published reporting the use of VTE prophylaxis in patients with lower limb plaster casts. However, within these trials there has been a range of patients, including patients with soft tissue injuries and no operation, those with operated and unoperated fractures and patients having elective surgical procedures. The incidence of VTE in the published trials that did not use VTE prophylaxis ranges from 4–40%. The implications of providing pharmacological VTE prophylaxis for all patients with lower limb plaster casts are potentially considerable with respect to cost. Trials stratifying patients by reason for plaster cast would be useful to determine which patients should be recommended for VTE prophylaxis.

## 2.4 VTE prophylaxis for patients after stroke

What are the overall risks/benefits of LMWH and/or fondaparinux sodium in respect of both stroke outcome and the development of VTE for patients with acute stroke?

**Why this is important**

Patients with either ischaemic or haemorrhagic stroke have a risk of both VTE and bleeding into the brain. 'Stroke: diagnosis and management of acute stroke and transient attack [TIA]' (NICE clinical guideline 68, published July 2008) recommends the use of aspirin for treatment of ischaemic stroke but does not recommend anticoagulants. There is recent evidence to suggest that prophylactic doses of anticoagulants in addition to aspirin reduce the risk of VTE in patients with ischaemic stroke, but there are no data showing an effect of these anticoagulants on the stroke itself. Do they increase the risk of haemorrhagic transformation and so increase neurological damage? This research should include patients with haemorrhagic or ischaemic strokes to identify which patients would benefit from additional pharmacological VTE prophylaxis.

## 2.5 Incidence of post-thrombotic syndrome after VTE

What is the incidence, loss of quality of life and cost associated with post-thrombotic syndrome after potentially preventable deep vein thrombosis?

**Why this is important**

During development of the guideline it became apparent that the incidence of post-thrombotic syndrome, particularly after asymptomatic deep vein thrombosis, was not well reported. This study should use standard, validated definitions to identify the incidence of post-thrombotic syndrome both when a deep vein thrombosis has occurred as a result of a hospital admission and in the absence of hospital-acquired deep vein thrombosis. The study should also aim to identify the costs to the NHS of treating post-thrombotic syndrome.

# 3 Other information

## *3.1 Scope and how this guideline was developed*

The scope for the 2010 guideline covers the recommendations labelled **[2010]**. The recommendations labelled **[2015]** have been produced during the update.

**How this guideline was developed**

The 2010 guideline was developed by the National Clinical Guideline Centre for Acute and Chronic Conditions (now the National Clinical Guideline Centre following the merger of National Collaborating Centres). The Collaborating Centre worked with a Guideline Development Group, comprising healthcare professionals (including consultants, GPs and nurses), patients and carers, and technical staff, which reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation.

NICE's Clinical Guidelines Update Programme updated this guideline in 2015. This guideline was updated using a Standing Committee of healthcare professionals, methodologists and lay members from a range of disciplines and localities, as well as topic experts.

The methods and processes for developing NICE clinical guidelines can be found here.

## *3.2 Related NICE guidance*

See the embolism and thrombosis page on the NICE website for related NICE guidance.

# 4 Standing Committee and NICE staff

## *4.1 Standing Committee*

Members of Standing Committee B and the topic experts for the 2015 update are listed on the NICE website.

For the composition of (the) previous Guideline Development Group(s), see the full guideline.

## *4.2 Clinical Guidelines Update Team*

**Philip Alderson**
Clinical Adviser

**Nicole Elliott**
Associate Director

**Jennifer Craven**
Information Scientist

**Susannah Moon**
Programme Manager

**Rebecca Parsons**
Project Manager

**Nicki Mead**
Technical Analyst

**Toni Tan**
Technical Advisor

## 4.3 NICE project team

**Martin Allaby**
Clinical Lead

**Sharon Summers-Ma**
Guideline Lead

**Louise Shires**
Guideline Commissioning Manager

**Joy Carvill**
Guideline Coordinator

**Judith Thornton**
Technical Lead

**James Hall**
Editor

## 4.4 Declarations of interests

The following members of the Standing Committee made declarations of interest. All other members of the Committee stated that they had no interests to declare.

| Member name | Interest declared | Type of interest | Decision |
|---|---|---|---|
| Susan Bewley | Self-employed academic and obstetric expert. | Personal financial interest | Declare and participate |
| Susan Bewley | 100 hour per annum teaching contract with King's College London. | Personal financial interest | Declare and participate |

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|---|---|---|---|
| Susan Bewley | Received income/fee for Teaching (BSc law and ethics tutor at KCL, occasional fees for lectures on obstetrics). | Personal financial interest | Declare and participate |
| Susan Bewley | Received income/fee for Medico-legal reports (approx. 2/year) and Medical Defence Union cases committee and council. | Personal financial interest | Declare and participate |
| Susan Bewley | Received income/fee for external reviews for NHS organisations related to my obstetric expertise (serious incident and maternal mortality investigations, RCOG review). | Personal financial interest | Declare and participate |
| Susan Bewley | Received fee for Chairing NICE GDG. | Personal financial interest | Declare and participate |
| Susan Bewley | Received royalties from edited books. | Personal financial interest | Declare and participate |
| Susan Bewley | Expressed views in publications about obstetric matters, largely based on evidence. | Personal non-financial interest | Declare and participate |
| Susan Bewley | A trustee and committee member of Healthwatch (a charity devoted to evidence and "for treatments that work") and a trustee of Sophia (a charity devoted to women with HIV and the UK arm of the Global Coalition for Women and AIDS). | Personal non-financial interest | Declare and participate |
| Susan Bewley | Member of the following editorial boards: Medical Law Review, International Journal of Childbirth, Journal Article Summary Service; Member All-Parliamentary Party Group on Maternity; Trustee of Maternity Action (a charity which aims to end inequality and improve the health and well-being of pregnant women, partners and young children), one of seven members of the Women's Health and Equality Consortium which is a Strategic Partner of the Department of Health. | Personal non-financial interest | Declare and participate |

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|---|---|---|---|
| Susan Bewley | Part-time on call sexual offences examiner (forensic medical examinations) working at the Haven Camberwell Sexual Assault Referral Centre (King's College Hospital). | Personal financial interest | Declare and participate |
| Susan Bewley | Received income/fee as Consultant for the World Health Organisation (five days approx), for their updated guideline on Reproductive and Sexual Health and Human Rights for Women living with HIV. | Personal financial interest | Declare and participate |
| Susan Bewley | Received fee as Chair of NICE Fertility Evidence Update. | Personal financial interest | Declare and participate |
| Susan Bewley | Received income/fee as External examiner obstetrics and gynaecology, University College Dublin. | Personal financial interest | Declare and participate |
| Susan Bewley | Expert fee (one off piece of work) for maternal mortality investigation. | Personal financial interest | Declare and participate |
| Susan Bewley | Expert fee (one off piece of work) for RCOG service review Independent Review panel. | Personal financial interest | Declare and participate |
| Susan Bewley | Expert fee (one off piece of work) for medicolegal criminal case. | Personal financial interest | Declare and participate |
| Susan Bewley | Expert fee (one off piece of work) for obstetric and managerial advice (overseas not-for-profit hospital). | Personal financial interest | Declare and participate |
| Susan Bewley | Received fee for attending NICE GRADE training development. | Personal financial interest | Declare and participate |
| Susan Bewley | Received fee for appearances on BBC Radio 4 (inside health, in the ethics committee). | Personal financial interest | Declare and participate |

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|---|---|---|---|
| Susan Bewley | Received fee for lecture at Royal Society of Medicine Retired Fellows Modern Reproduction: blood, guts, loss and King Midas. | Personal financial interest | Declare and participate |
| Susan Bewley | Expenses paid to lecture at the National RCOG trainees annual conference. | Personal financial interest | Declare and participate |
| Susan Bewley | Expenses only lecture at the Royal Society of Medicine. | Personal financial interest | Declare and participate |
| Susan Bewley | Expenses only lecture at the GLADD Annual conference. | Personal financial interest | Declare and participate |
| Susan Bewley | Expenses only lecture at the FIL Annual conference. | Personal financial interest | Declare and participate |
| Susan Bewley | Expenses only lecture at the RCOG Review training. | Personal financial interest | Declare and participate |
| Susan Bewley | Expenses only lecture at the BPAS Annual Meeting Clinical Forum. | Personal financial interest | Declare and participate |
| Susan Bewley | Expenses only lecture at the WOW Festival. | Personal financial interest | Declare and participate |
| Susan Bewley | Expenses only lectures relating to publicising NICE intrapartum guidelines. | Personal non-financial interest | Declare and participate |
| Susan Bewley | Lecture fee, at 'safe hands conference' Bolton. | Personal financial interest | Declare and participate |

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|---|---|---|---|
| Susan Bewley | Unpaid (but travel, hotel and subsistence) trip to 2 not-for-profit maternity hospitals in return for 4 days' teaching/ expert advice, India. | Personal financial interest | Declare and participate |
| Gita Bhutani | Chair of Psychological Professions Network North West. | Personal non-financial interest | Declare and participate |
| Gita Bhutani | Member of British Psychological Society; Division of Clinical Psychology; Faculty of Leadership and Management Committee Member. | Personal non-financial interest | Declare and participate |
| Gita Bhutani | Project lead on BPS Division of Clinical Psychology project on 'Comprehensively representing the complexity of psychological services'. | Personal non-financial interest | Declare and participate |
| Gita Bhutani | Analytical support in partnership with Liverpool University on Liverpool Health Partners project on Patient Quality and Safety. | Personal non-financial interest | Declare and participate |
| Simon Corbett | Network Service Adviser for the British Cardiovascular Society. This role incorporates the regional specialty adviser role for the Royal College of Physicians. | Personal non-financial interest | Declare and participate |
| Simon Corbett | Director for Clinical Effectiveness for employer (University Hospital Southampton NHS Foundation Trust). Part of this role involves the dissemination and implementation of NICE guidance in the Trust. | Personal non-financial interest | Declare and participate |
| Simon Corbett | Independent cardiologist on the Trial Steering Committee of the randomised controlled AVATAR trial, a randomised trial of medical therapy vs ablation in patients with atrial fibrillation. The study is sponsored by Imperial College London and is part funded by Medtronic. Travel expenses are paid by Imperial. | Personal financial interest | Declare and participate |
| Gail Fortes Mayer | None. | | |

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|---|---|---|---|
| John Graham | Director of National Collaborating Centre for Cancer – this post is funded through a contract with NICE to produce NICE's clinical guidelines. | Non-personal financial interest | Declare and participate |
| John Graham | Principal investigator for On-going clinical trials in prostate cancer:<br>1) With Custirsen funded by OncoGenex Technologies Inc and Teva Pharmaceutical Industries Ltd.<br>2) Orteronel Affinity Trial funded by Millennium Pharmaceuticals Inc.<br>3) Principal investigator for a study of radium-223 in prostate cancer that is funded by Bayer Pharmaceuticals. | Non-personal financial interest | Declare and participate |
| John Graham | Principal investigator for 8 ongoing clinical trials in breast and prostate cancer run via the National Cancer Research Network (not pharmaceutical industry funded). | Non-personal financial interest | Declare and participate |
| John Graham | Member of the trial management groups for 2 prostate cancer trials: RT01 and CHHIP. Both are closed to recruitment but continuing to report trial results. | Personal non-financial interest | Declare and participate |
| John Graham | Consultancy work for NICE International on a project with the Philippines Department of Health to produce clinical guidelines on breast cancer. Travel expenses paid. | Personal non-financial interest | Declare and participate |
| John Graham | Council member of the South-West England Clinical Senate. | Personal non-financial non specific | Declare and participate |
| Peter Hoskin | Investigator in research studies sponsored by various companies with payment for expenses to NHS Trust and department, which funds research staff. Recent studies have been on behalf of Millennium, Astellas, Ipsen and Amgen. | Non-personal financial interest | Declare and participate |

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|---|---|---|---|
| Peter Hoskin | Fellow of the Royal College of Radiologists and member of Faculty Board, Specialist Training Board and Chair of Exam Board. | Personal non-financial interest | Declare and participate |
| Peter Hoskin | Consultant to the IAEA; Undertake by invitation lectures and working group meetings for which expenses may be paid. | Personal financial interest | Declare and participate |
| Peter Hoskin | Department reimbursed for studies on alpharadin by Astellas. | Non-personal financial interest | Declare and participate |
| Peter Hoskin | Department reimbursed for studies on MDV 3100 by Medivation. and Astellas | Non-personal financial interest | Declare and participate |
| Peter Hoskin | Department receives grants from Astellas for trials in prostate cancer. | Non-personal financial interest | Declare and participate |
| Peter Hoskin | Department receives grants from Bayer for trials in prostate cancer. | Non-personal financial interest | Declare and participate |
| Peter Hoskin | Department received grants from Millennium for trials in prostate cancer. | Non-personal financial interest | Declare and participate |
| Peter Hoskin | Trustee for funding research within the unit/ department. Funded by Donations/Legacies. No Non-Hodgkin's lymphoma research has been funded in the last 12 months. | Personal non-financial interest | Declare and participate |
| Peter Hoskin | Chair Steering Group for National Cancer Intelligence Network (NCIN). | Personal non-financial interest | Declare and participate |
| Peter Hoskin | Member of the faculty board of the Royal College of Radiologists. | Personal non-financial interest | Declare and participate |

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| Peter Hoskin | Member of the specialist training committee for the Royal College of Radiologists. | Personal non-financial interest | Declare and participate |
| Peter Hoskin | Editorial board member for the Journal of Contemporary Brachytherapy. | Personal non-financial interest | Declare and participate |
| Peter Hoskin | Member of the East of England senate. | Personal non-financial interest | Declare and participate |
| Peter Hoskin | Member of the NICE standing committee for rapid updates / and non-Hodgkin's lymphoma GDG. | Personal non-financial interest | Declare and participate |
| Roberta James | Programme Lead at Scottish Intercollegiate Guidelines Network. | Personal financial interest | Declare and participate |
| Roberta James | Member of Guideline Implementability Research and Application network. | Personal non-financial interest | Declare and participate |
| Roberta James | Expert group member of Project on a Framework for Rating Evidence in Public Health. | Personal non-financial interest | Declare and participate |
| Asma Khalil | Member of the National Clinical Reference Group for Fetal Medicine. | Personal non-financial | Declare and participate |
| Asma Khalil | Co-chair of the "Improving Outcomes" working group, South West London Maternity Network. | Personal non-financial | Declare and participate |
| Asma Khalil | Associate Editor for the journal Biomedical Central Pregnancy and Childbirth. | Personal non-financial | Declare and participate |

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|---|---|---|---|
| Asma Khalil | Member of the Maternal and Fetal Medicine National Clinical Study Group. | Personal non-financial | Declare and participate |
| Asma Khalil | Assistant Convenor for the MRCOG Part1 course, RCOG. | Personal non-financial | Declare and participate |
| Asma Khalil | Principal Investigator at St George's Hospital for several NIHR funded studies, e.g. Non-invasive Prenatal Testing. | Personal non-financial | Declare and participate |
| Asma Khalil | Chief Investigator for Cardiovascular changes in Pregnancy study and Quantitative fetal fibronectin, Cervical length and ActimPartus® for the prediction of Preterm birth in Symptomatic women (QFCAPS). | Personal non-financial | Declare and participate |
| Asma Khalil | Collaboration with commercial companies, such as USCOM®, Roche Diagnostics®, Alere Diagnostics® and proact medical Ltd® (research equipment and/or consumables). | Personal non-financial | Declare and participate |
| Asma Khalil | Reviewer for the National Maternal Near-miss Surveillance Programme. | Personal non-financial | Declare and participate |
| Manoj Mistry | Public member of Pennine Care NHS FT in the capacity as a carer. | Personal non-financial interest | Declare and participate |
| Manoj Mistry | PPI representative for the Health Research Authority, London. | Personal non-financial interest | Declare and participate |
| Manoj Mistry | PPI representative for the Health Quality Improvement Partnership, London. | Personal non-financial interest | Declare and participate |
| Manoj Mistry | PPI representative for the Primary Care Research in Manchester Engagement Resource group at the University of Manchester. | Personal non-financial interest | Declare and participate |

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|---|---|---|---|
| Manoj Mistry | Carer representative on NICE Guideline Development Group: 'Transition between inpatient hospital settings and community or care home settings for adults with social care needs.' | Personal non-financial interest | Declare and participate |
| Manoj Mistry | Lay representative for the MSc (Clinical Bioinformatics) at the University of Manchester | Personal non-financial interest | Declare and participate |
| Manoj Mistry | Lay Educational Visitor with the Health and Care Professions Council, London. | Personal non-financial interest | Declare and participate |
| Manoj Mistry | Lay representative at the Clinical Research Facility (collaboration between Central Manchester University Hospital NHS FT/University of Manchester). | Personal non-financial interest | Declare and participate |
| Manoj Mistry | Public Representative Interviewer at the Medical School, Lancaster University. | Personal non-financial interest | Declare and participate |
| Manoj Mistry | Public Member of NUHS 'Research for Patient Benefit Programme Committee' (North West region). | Personal non-financial interest | Declare and participate |
| Manoj Mistry | Member of the Patient Panel at NIHRs 'The Collaboration for Leadership in Applied Health Research and Care' Greater Manchester. | Personal non-financial interest | Declare and participate |
| Manoj Mistry | Member of the Patient and Public Involvement Group, Liverpool Clinical Trials Unit, University of Liverpool. | Personal non-financial interest | Declare and participate |
| Manoj Mistry | PPI panel assisting research into Information Systems: Dashboard: Monitoring and Managing from Ward to Board at the University of Leeds. | Personal non-specific non-financial | Declare and participate |
| Amaka Offiah | Provision of expert advice to Her Majesty's Courts in cases of suspected child abuse. | Personal financial interest | Declare and participate |

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| Amaka Offiah | Recipient of honoraria and expenses for lectures and guidelines development from BioMarin. | Personal financial interest | Declare and participate |
| Amaka Offiah | Chairperson Skeletal Dysplasia Group for Teaching and Research. | Personal non-financial interest | Declare and participate |
| Amaka Offiah | Chairperson Child Abuse Taskforce of the European Society of Paediatric Radiology. | Personal non-financial interest | Declare and participate |
| Amaka Offiah | Member Joint RCR/RCPCH NAI Working Party for Guideline Update - Imaging in Suspected Non-Accidental Injury. | Personal non-financial interest | Declare and participate |
| Amaka Offiah | Member of the Royal College of Radiology Academic Committee. | Personal non-financial interest | Declare and participate |
| Amaka Offiah | Committee member of the International Consortium for Vertebral Anomalies and Scoliosis. | Personal non-financial interest | Declare and participate |
| Amaka Offiah | Member of South Yorkshire (Sheffield) Research Ethics Committee. | Personal non-financial interest | Declare and participate |
| Amaka Offiah | Medical Academic Staff Committee Representative of the Yorkshire Regional Council of the BMA. | Personal non-financial interest | Declare and participate |
| Amaka Offiah | Partner Governor of the Sheffield Children's NHS Foundation Trust (representing the University of Sheffield). | Personal non-financial interest | Declare and participate |
| Amaka Offiah | Editorial Committee Member of the journal Paediatric Radiology. | Personal non-financial interest | Declare and participate |

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| Amaka Offiah | Recipient of research funding from NIHR, ARUK, The Sheffield Children's Charity, Skeletal Dysplasia Group for Teaching and Research. | Non-personal financial interest | Declare and participate |
| Amaka Offiah | Member of the Sheffield Children's Hospital Research and Innovations Committee. | Personal non-financial | Declare and participate |
| Mark Rodgers | Associate editor of the journal Systematic Reviews that publishes research on health and social care. | Personal non-financial non-specific interest | Declare and participate |
| Mark Rodgers | Research fellow in health services research; has provided independent academic reviews of clinical effectiveness and diagnostic accuracy evidence for funders including NIHR and NICE. | Non-personal non-financial non-specific interest | Declare and participate |
| Mark Rodgers | Employee of the Centre for Reviews and Dissemination (University of York) which provides Evidence Review Group reports and Technology Assessment Reports as part of the NICE technology appraisals process. | Non-personal financial non-specific | Declare and participate |
| Nicholas Steel | Work as the principal investigator on a National Institute of Health Research funded project on: 'Are NICE clinical guidelines for primary care based on evidence from primary care?' | Non-personal financial interest | Declare and participate |
| Nicholas Steel | National Institute for Health Research Health Services & Delivery Research Programme Healthcare Delivery Research Panel member. | Personal non-financial interest | Declare and participate |
| Nicholas Steel | NIHR Regional Advisory Committee for the Research for Patient Benefit Programme East of England region. | Personal non-financial interest | Declare and participate |
| Nicholas Steel | Norfolk & Suffolk Primary & Community Care Research Steering Group. | Personal non-financial interest | Declare and participate |

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| Nicholas Steel | Advisory Committee on Clinical Excellence Awards East of England. | Personal non-financial interest | Declare and participate |
| Nicholas Steel | 'Implementation Science' Editorial Board member. | Personal non-financial interest | Declare and participate |
| Nicholas Steel | 'Quality in Primary Care' Editorial Board member. | Personal non-financial interest | Declare and participate |
| Nicholas Steel | Faculty of Public Health Part A MFPH Examiner. | Personal non-financial interest | Declare and participate |
| Nicholas Steel | Faculty of Public Health Part A MFPH Development Committee. | Personal non-financial interest | Declare and participate |
| Nicholas Steel | Honorary Public Health Academic Consultant, Public Health England. | Personal non-financial interest | Declare and participate |
| Nicholas Steel | Publication in press: Steel N, Abdelhamid A, Stokes T, Edwards H, Fleetcroft R, Howe A, Qureshi N. Publications cited in national clinical guidelines for primary care were of uncertain relevance: literature review. In Press Journal of Clinical Epidemiology. | Personal non-financial interest | Declare and participate |
| Sietse Wieringa | At the Centre for Primary care & Public Health at Barts & The London School of Medicine & Dentistry/ Queen Mary University I am working on a literature review of 'mindlines' (related to communities of practice) and a qualitative study of a large group of GPs on a virtual social network sharing medical knowledge. I was funded for this via an NIHR In practice fellowship. | Personal financial interest | Declare and participate |

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| Sietse Wieringa | I co-own a small social enterprise called ZorgIdee that develops ideas to help GPs to collaborate. There are no current funders. | Personal financial interest | Declare and participate |
| Sietse Wieringa | Board member of the Platform of Medical Leadership in the Netherlands, via which I am involved in a mixed methods study for the development of a medical leadership competency framework. The study group receives funds from KNMG (Royal Dutch College of Medicine) and SBOH which receives its funds from the Dutch Ministry of Health. | Non-personal financial interest | Declare and participate |
| Sietse Wieringa | Member of Generation Next, a think tank and network of young GPs. It's indirectly funded by the Ministry of Health. | Personal non-financial interest | Declare and participate |
| Sietse Wieringa | Member of NHG (Dutch GP Society), which produces guidelines and I worked for this organisation in the past. | Personal non-financial interest | Declare and participate |
| Topic experts | Interest declared | Type of interest | Decision |
| Paula Beech | None. | | No action |
| Martin Dennis | Chief investigator of the CLOTS trials (MRC and HTA funded). | Non-personal financial interest | Declare and participate |
| Martin Dennis | Worked with NHS IQ on the roll out of IPC into stroke units in England. | Non-personal financial interest | Declare and participate |
| Martin Dennis | Worked with Covidien to produce video for training and marketing purposes. | Non-personal financial interest | Declare and participate |

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| Martin Dennis | As result of working on the CLOTS trails I have formed a view about the place of external compression in VTE prevention in stroke. Our findings have been published in the lancet and I presented the findings at multiple meetings. I appeared on TV and radio at the time of the announcement of our results. I have written a monograph for the HTA describing the results of CLOTS 3 and their interpretation. | Personal non-financial interest | Declare and participate |
| Martin Dennis | Chair of the European stroke organisation group on VTE prophylaxis in ischaemic stroke. | Personal non-financial interest | Declare and participate |
| Martin Dennis | Chair of the national Advisory Committee for stroke in Scotland. | Personal non-financial interest | Declare and participate |
| Clare Reynolds | None. | | No action |
| Carron Sintler | None. | | No action |

# About this guideline

NICE clinical guidelines are recommendations about the treatment and care of people with specific diseases and conditions.

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover.

The original guideline (published in 2010) was developed by the National Collaborating Centre for Acute and Chronic Conditions, which is based at the Royal College of Physicians. The Collaborating Centre worked with a Guideline Development Group, comprising healthcare professionals (including consultants, GPs and nurses), patients and carers, and technical staff, which reviewed the evidence and drafted the recommendations.

NICE's Clinical Guidelines Update Programme updated this guideline in 2015. These guidelines are updated using a Standing Committee of healthcare professionals, methodologists and lay members from a range of disciplines and localities.

The recommendations were finalised after public consultation.

The methods and processes for developing NICE clinical guidelines can be found here.

NICE produces guidance, standards and information on commissioning and providing high-quality healthcare, social care, and public health services. We have agreements to provide certain NICE services to Wales, Scotland and Northern Ireland. Decisions on how NICE guidance and other products apply in those countries are made by ministers in the Welsh government, Scottish government, and Northern Ireland Executive. NICE guidance or other products may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

## *Update information*

Recommendations on mechanical prophylaxis for venous thromboembolism in patients who are admitted for stroke have been added to section 1.4. The addendum contains details of the methods and evidence used to update these recommendations.

Recommendations are marked as **[new 2015]** or **[2010]**:

**[new 2015]** indicates that the evidence has been reviewed and the recommendation has been added or updated

**[2010]** indicates that the evidence has not been reviewed since 2010.

# *Strength of recommendations*

Some recommendations can be made with more certainty than others. The Guideline Development Group makes a recommendation based on the trade-off between the benefits and harms of an intervention, taking into account the quality of the underpinning evidence. For some interventions, the Guideline Development Group is confident that, given the information it has looked at, most patients would choose the intervention. The wording used in the recommendations in this guideline denotes the certainty with which the recommendation is made (the strength of the recommendation).

For all recommendations, NICE expects that there is discussion with the patient about the risks and benefits of the interventions, and their values and preferences. This discussion aims to help them to reach a fully informed decision (see also patient-centred care).

## Interventions that must (or must not) be used

We usually use 'must' or 'must not' only if there is a legal duty to apply the recommendation. Occasionally we use 'must' (or 'must not') if the consequences of not following the recommendation could be extremely serious or potentially life threatening.

## Interventions that should (or should not) be used – a 'strong' recommendation

We use 'offer' (and similar words such as 'refer' or 'advise') when we are confident that, for the vast majority of patients, an intervention will do more good than harm, and be cost effective. We use similar forms of words (for example, 'Do not offer…') when we are confident that an intervention will not be of benefit for most patients.

### Interventions that could be used

We use 'consider' when we are confident that an intervention will do more good than harm for most patients, and be cost effective, but other options may be similarly cost effective. The choice of intervention, and whether or not to have the intervention at all, is more likely to depend on the patient's values and preferences than for a strong recommendation, and so the healthcare professional should spend more time considering and discussing the options with the patient.

### Recommendation wording in guideline updates

NICE began using this approach to denote the strength of recommendations in guidelines that started development after publication of the 2009 version of 'The guidelines manual' (January 2009). This does not apply to any recommendations ending **[2010]** (see 'Update information' above for details about how recommendations are labelled). In particular, for recommendations labelled **[2010]** the word 'consider' may not necessarily be used to denote the strength of the recommendation.

## *Other versions of this guideline*

The full guideline, venous thromboembolism in adults admitted to hospital: reducing the risk, contains details of the methods and evidence used to develop the guideline. It is published by the National Collaborating Centre Acute and Chronic Conditions.

The addendum to the full guideline contains details of the methods and evidence used to develop the updated recommendations (labelled **[2015]**)

The recommendations from this guideline have been incorporated into a NICE pathway.

We have produced information for the public about this guideline.

## *Implementation*

Implementation tools and resources to help you put the guideline into practice are also available.

## *Your responsibility*

This guidance represents the view of NICE, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance 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, and informed by the summaries of product characteristics of any drugs.

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, 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 guidance should be interpreted in a way that would be inconsistent with compliance with those duties.

## *Copyright*



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