



National Patient Safety Agency

How to Guide

**Venous
Thromboembolism
Risk Assessment**

February 2011

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Using this 'How to Guide'

This How to Guide will support NHS organisations in the implementation of Venous Thromboembolism Risk Assessment for all patients admitted to hospital. It is not intended to include the appropriate treatment of VTE, which is covered in the NICE Clinical Guideline 92.¹

The guide builds on the existing and extensive resources already available and can be used to support the implementation of the National Institute for Health and Clinical Excellence (NICE) Quality Standards Programme, CQUIN requirements and NICE Guideline 92.

The guide should be used by:

- Medical staff
- Nursing staff
- Midwifery staff
- Pharmacy staff
- General practitioners
- Information analysts
- Trust board members

The guide uses the model for improvement promoted by Patient Safety First (www.patientsafetyfirst.nhs.uk) and the Welsh 1000 Lives Campaign 'How to Improve' [1000 Lives Plus - Improvement Guides](#)

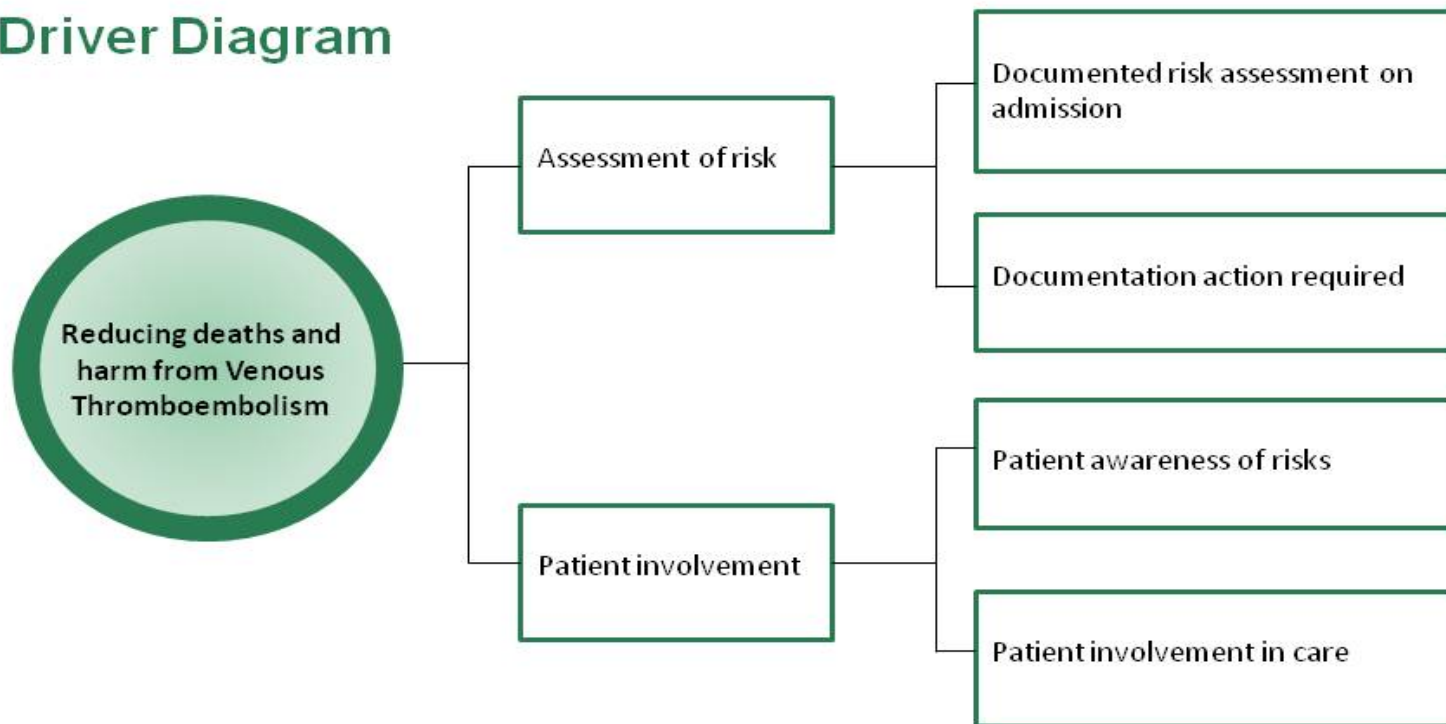
For maximum impact from the How to Guide for Venous Thromboembolism Risk Assessment we recommend you use this guide in conjunction with:

- Patient Safety First: *The how-to guide for measurement improvement* (www.patientsafetyfirst.nhs.uk).
- Patient Safety First: *The quick guide to implementing improvement* (www.patientsafetyfirst.nhs.uk).

Throughout this document venous thromboembolism is referred to as VTE.

Overview of the intervention:
Venous Thromboembolism (VTE) Risk Assessment

Driver Diagram



Background

In 2007 there were 16,670 recorded deaths in England and Wales where pulmonary embolism and deep vein thrombosis, collectively known as venous thromboembolism (VTE), were mentioned on the death certificate (Office of National Statistics)².

The House of Commons Health Committee (2005)³ identified that:

- VTE is the immediate cause of death in 10 per cent of all patients who die in hospital.
- There were around 25,000 deaths each year from VTE in hospitals in England.
- The total cost (direct and indirect) of treating the long-term disability caused by VTE was around £640 million a year.

The overall death rate from VTE in hospital and the community is likely to be significantly higher because the condition is often missed as there are often no signs or symptoms that there is a problem and deaths are not being identified due to a reduction in post-mortem examinations. It has been estimated that fewer than one in 10 fatal pulmonary emboli are diagnosed before death.

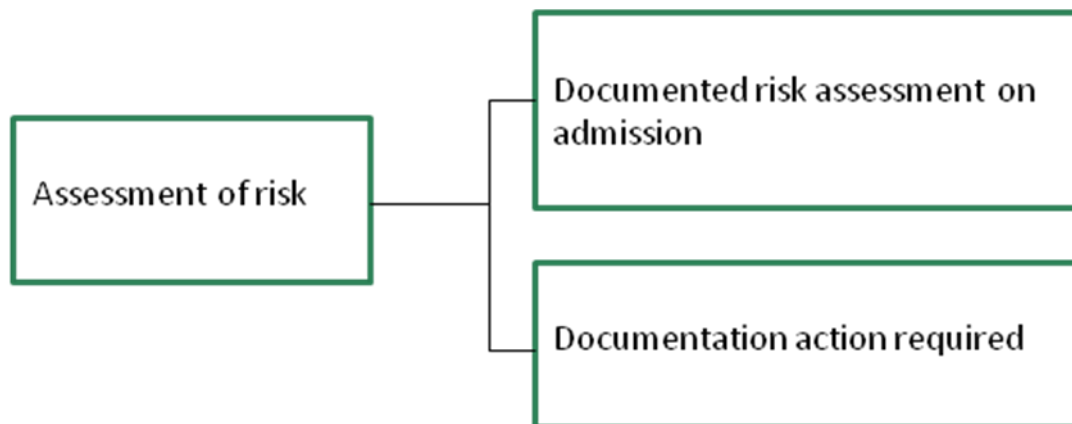
The emerging picture of death and acute and chronic disability (such as chronic venous insufficiency, venous leg ulcers and pulmonary hypertension) leaves no room for complacency when low-cost effective preventative treatments are available.

VTE prevention is, above all, about saving lives and reducing long term ill-health. This is a common and often avoidable circumstance.

There is extensive evidence to assert that the patient must be assessed for their risk of a VTE and where appropriate should receive a form of prophylaxis suitable to their personal risk and existing conditions. NICE⁴ and the Royal College of Obstetricians and Gynaecologists⁵ provide various resources and flow charts that identify appropriate evidence based prophylaxis guidelines.

The momentum to reduce harm and deaths associated with VTE increased in 2010 by linking performance measures with the financial status of NHS organisations in England. The Department of Health Commissioning for Quality and Innovation (CQUIN) payment framework linked the uptake of risk assessment with payments². The NHS standard acute contract also introduced the requirement for a root cause analysis on all confirmed inpatient cases of pulmonary embolism and deep vein thrombosis.

Implementing venous thromboembolism risk assessment



Assessment of risk

What are we trying to achieve?

- Every patient admitted to hospital for medical reasons should have a documented risk assessment to identify those at risk of VTE⁴.
- Every elective surgical patient pre-assessed for day surgery or admission to hospital should have a documented risk assessment to identify those at increased risk of VTE⁴.
- On referral to hospital for an elective surgical procedure, patients are risk assessed as part of their pre assessment procedure.
- Every woman at her antenatal booking should have a documented risk assessment to identify those at increased risk of a VTE⁵.
- Every patient identified as being at risk, should also have a documented risk assessment of the complications of thromboprophylaxis⁴.

How will we know a change has been an improvement?

Organisations are expected to provide census data on the number of patients who have a risk assessment for CQUIN⁶. This data will also be required as the quality measure for the NICE *Quality Standard for VTE-prevention*^{1,4}.

To support local improvement we suggest this data is used to provide feedback to local clinical areas (for example in the form of run charts) to track improvements in compliance.

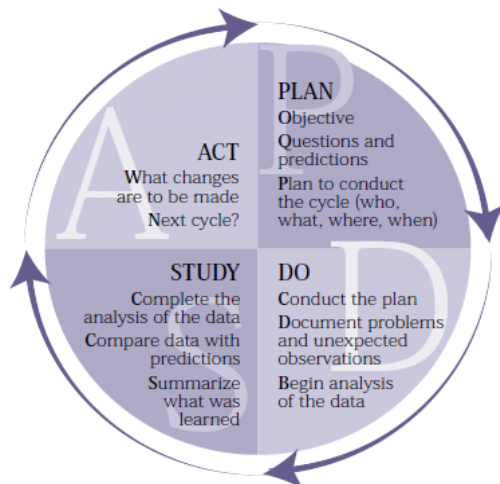
Measure*
Percentage of medical inpatients who have a documented assessment for the risk of VTE on admission.
Percentage of elective surgical patients who have a documented assessment for the risk of developing a VTE during pre-assessment.
Percentage of elective surgical patients who have a documented assessment for the risk of developing a VTE during referral process from primary care (not a CQUIN or quality measure).
Percentage of pregnant women who have a documented assessment for the risk of developing a VTE (only admitted pregnant woman included in CQUIN or quality measure).

*The measures listed here are local measures for improvement, from the 1000 Lives campaign measures. The official measure is from the Department of Health *Guidance notes for VTE data collection*² 'the percentage of adult hospital admissions, admitted within the month assessed for risk of VTE on admission.'

What changes can we make that will result in an improvement?

Use the PDSA cycle to drive improvement.

The PDSA Cycle for Learning and Improvement



The 'How to Guide' for

Venous Thromboembolism Risk Assessment

Plan – Identify one GP, nurse or midwife who is happy to test the draft format of a separate risk assessment form during a patient's assessment at the pre-assessment clinic or antenatal booking clinic.

Do - Use the appropriate risk assessment at referral, pre-assessment or antenatal booking.

Study - At an appropriate point in the day talk to the nurse/ midwife/ doctor involved about how user friendly the risk assessment was, did it fit into the normal pattern of assessment? Was there anything they would like to see added? How long did it take? Did it pick up any 'glitches'? How could we make the form or the process better next time?

Act - Make refinements based on the discussion. If the refinements may take time to implement, such as creating a new form, arrange to do this but agree how you could carry on the testing by making refinements as you go along, testing again each time until you can do this successfully for the whole day.

Now test with another nurse / midwife / doctor. It may help if the first tester identifies and discusses the risk assessment with a willing colleague.

Top tips

- Map the current care pathway for when the risk assessment should be done
- A single risk assessment format or model, at the point of entry to services for all, is advantageous.
- Standardisation of the process will achieve approximately 80% reliability
- Keep the risk assessment simple and easy to use
- The risk assessments provided in this guide and by the Department of Health⁷ can be incorporated into the local organisation's policy
- Ensure the risk assessment process is built into the normal flow of work, for example ensure risk assessment takes place at a logical point in the admission of the patients
- Test the best place to record the risk assessment in the medical/ nursing/ maternity records and link this to the prophylaxis prescribed
- Make risk assessment mandatory
- Staff education should highlight which patients admitted to hospital are particularly at risk (for example identifying at risk patients using Virchow's Triad⁸).
- Use link nurses/midwives in each area as champions. A link nurse is member of the nursing family, a registered nurse or healthcare assistant, with an interest in an area of specialty practice, who can be a useful champion for that area of care, supported by a specialist practitioner

Case Study: Orthopaedic thromboprophylaxis policy

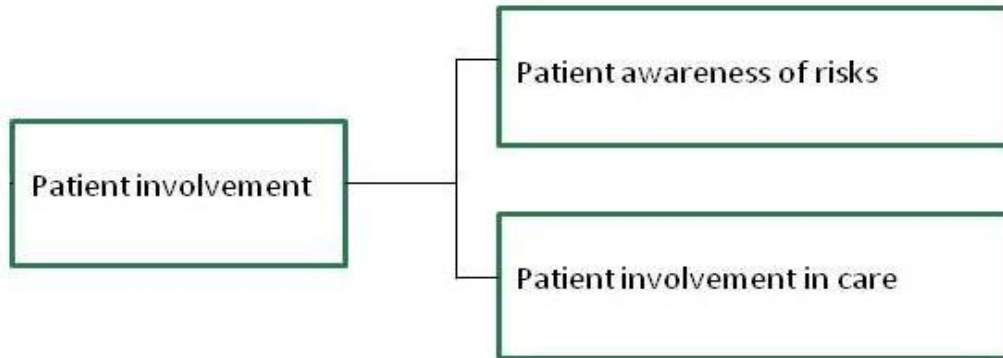
Orthopaedic thromboprophylaxis policy: Dr Tim Nokes, Consultant Haematologist, Plymouth NHS Trust

The DVT clinic at Derriford Hospital used VERITY data as a driver for change in thromboprophylaxis practice after orthopaedic surgery. They identified from their local data a problem of high rates of symptomatic VTE after major orthopaedic surgery. VERITY confirmed symptomatic DVTs in orthopaedic patients totalled a mean of 2.3 patients per month over a two year period.

There was an agreement to set up a standard approach to thromboprophylaxis. An orthopaedic VTE champion was identified; a comprehensive literature review was conducted; agreement for a unified approach from orthopaedic surgeons was obtained; a multidisciplinary team of an orthopaedic surgeon, a haematologist, an anaesthetist, medical clinician and pharmacist (local and community) was established and the coroner was consulted.

The protocol they developed assumed risk in all patients undergoing orthopaedic surgery and therefore all patients to receive a standard prophylactic regimen. Very-high risk patients (those with previous or strong family history of VTE, active cancer or gross obesity) were assigned a more intensive regimen. Recent data from the DVT clinic now shows DVTs <1 per month in orthopaedic patients, protocols and are adhered to. They have identified that ongoing audit is needed, with continuous review of policies and further use of data from VERITY required verifying effectiveness of this protocol.

Patient involvement



What are we trying to achieve?

Good quality and consistent education plays a vital role in helping patients to take responsibility for their own health including preventing illness. This is true for the prevention of VTE.

Patients should be informed of their risk of developing a VTE. The risk assessment should take place in partnership with the patient (whether at a pre-assessment clinic, a GP practice during a referral or at admission to hospital for medical reasons).

Patients should be given an explanation of the risks and what can be done to prevent the development of VTE.

Lifeblood and NICE have developed leaflets specifically for patients^{9,10}.

How will we know a change has been an improvement?

This data will be required as the quality measure for *Quality Standard for VTE-prevention: Quality Statement 2 and 6⁴* and *NICE Guideline 92 criterion 19 and 20¹*.

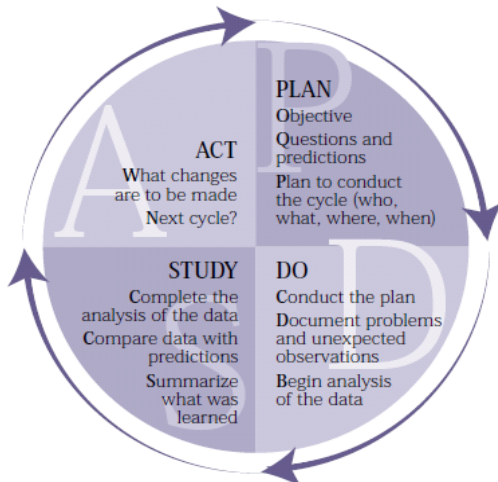
To support local improvement we suggest this data is used to provide feedback to local clinical areas (for example in the form of run charts) to track improvements in compliance.

Suggested measure
Proportion of patients offered verbal and written information on VTE prevention as part of the admission process.
Proportion of patients who are offered verbal and written information on VTE prevention as part of the discharge process.

What changes can we make that will result in an improvement?

Use the PDSA cycle to drive improvement.

The PDSA Cycle for Learning and Improvement



The 'How to Guide' for

Venous Thromboembolism Risk Assessment

Plan – Identify one GP/nurse/midwife who is happy to test the patient information on risk assessment with the patient at referral/pre-assessment/booking.

Do - Use the appropriate patient information leaflet at discussion.


Study - At an appropriate point in the day talk to nurse /midwife / doctor involved about how user friendly the information leaflet was to go through with the patient, and whether it fitted into the process. Was there anything they would like to see added or did the patient ask for further information that wasn't included? How long did it take? Did it pick up any 'glitches'? Also ask the patient if they understood the information and how it was presented.

Act - Make refinements based on the discussion. Test again. Make refinements as you go until you can do this successfully for the whole day.

Now test with another nurse/midwife/doctor. It may help if the first tester identifies and discusses the patient information with a willing colleague.

Appendix 1

National Risk Assessment Model (DH 2010)¹

	
RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM (VTE)	

Mobility – all patients (tick one box)	Tick		Tick		Tick
Surgical patient		Medical patient expected to have ongoing reduced mobility relative to normal state		Medical patient NOT expected to have significantly reduced mobility relative to normal state	
Assess for thrombosis and bleeding risk below			Risk assessment now complete		

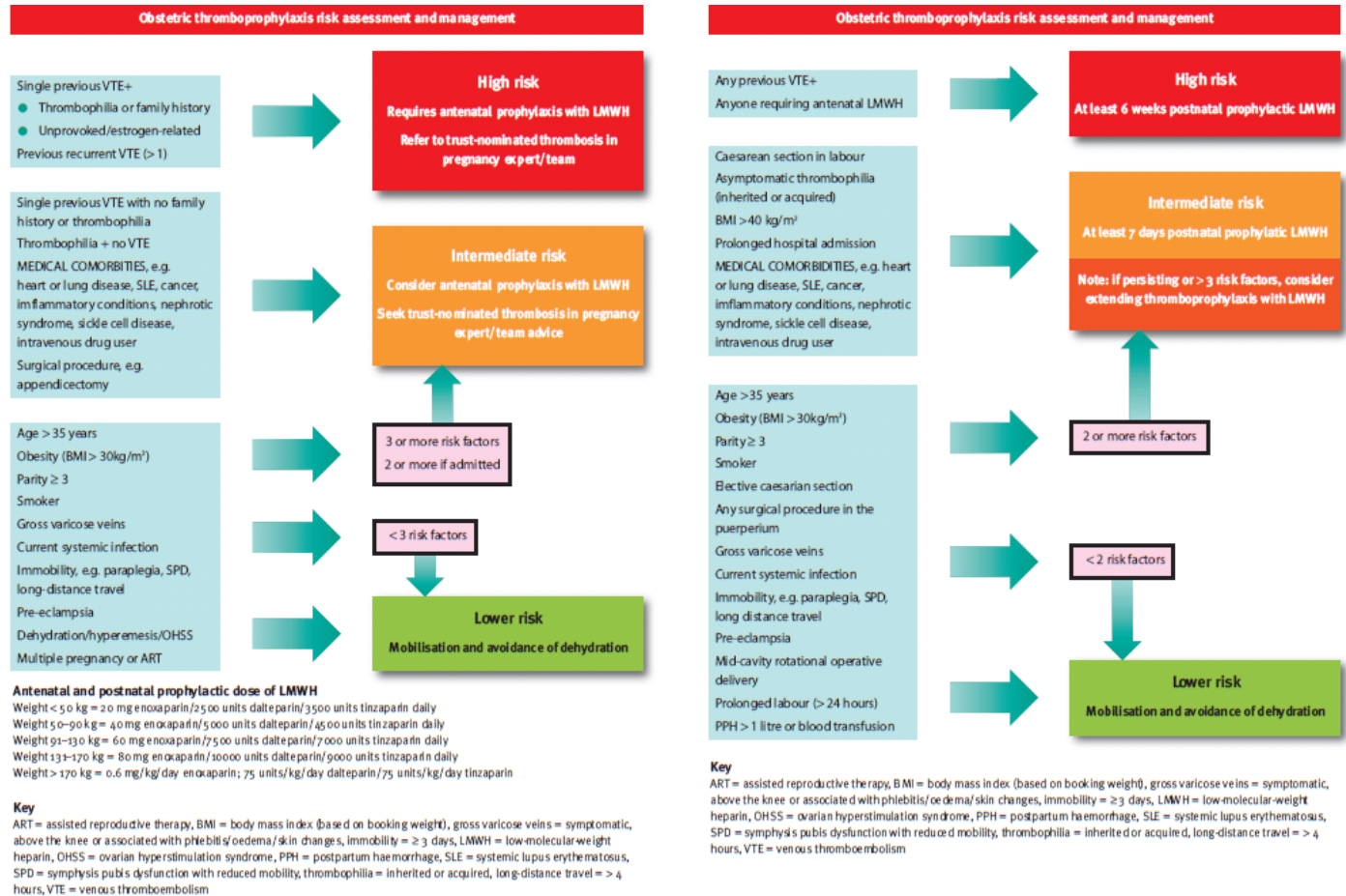
Thrombosis risk			
Patient related	Tick	Admission related	Tick
Active cancer or cancer treatment		Significantly reduced mobility for 3 days or more	
Age > 60		Hip or knee replacement	
Dehydration		Hip fracture	
Known thrombophilia		Total anaesthetic + surgical time > 90 minutes	
Obesity (BMI >30 kg/m ²)		Surgery involving pelvis or lower limb with a total anaesthetic + surgical time > 60 minutes	
One or more significant medical comorbidities (eg heart disease; metabolic, endocrine or respiratory pathologies; acute infectious diseases; inflammatory conditions)		Acute surgical admission with inflammatory or intra-abdominal condition	
Personal history or first-degree relative with a history of VTE		Critical care admission	
Use of hormone replacement therapy		Surgery with significant reduction in mobility	
Use of oestrogen-containing contraceptive therapy			
Varicose veins with phlebitis			
Pregnancy or < 6 weeks post partum (see NICE guidance for specific risk factors)			

Bleeding risk			
Patient related	Tick	Admission related	Tick
Active bleeding		Neurosurgery, spinal surgery or eye surgery	
Acquired bleeding disorders (such as acute liver failure)		Other procedure with high bleeding risk	
Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with INR >2)		Lumbar puncture/epidural/spinal anaesthesia expected within the next 12 hours	
Acute stroke		Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours	
Thrombocytopenia (platelets < 75x10 ⁹ /l)			
Uncontrolled systolic hypertension (230/120 mmHg or higher)			
Untreated inherited bleeding disorders (such as haemophilia and von Willebrand's disease)			

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Appendix 2

Royal College of Obstetricians and Gynaecology Risk Assessment (RCOG 2009)⁹



References

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Acknowledgments

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- Patient Safety First for access to their materials.