NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health and social care directorate

Quality standards

Briefing paper

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| Quality standard topic: Venous thromboembolic diseases (QS update)  Output: Prioritised quality improvement areas for development.  Date of Quality Standards Advisory Committee meeting: 16 September 2020 |

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1 Introduction

This briefing paper presents a structured overview of potential quality improvement areas for venous thromboembolic diseases (QS update). It provides the committee with a basis for discussing and prioritising quality improvement areas for development into draft quality statements and measures for public consultation.

* 1. Structure

This briefing paper includes a brief description of the topic, a summary of each of the suggested quality improvement areas and supporting information.

If relevant, recommendations selected from the key development source below are included to help the committee in considering potential statements and measures.

* 1. Development source

The key development sources referenced in this briefing paper are:

[Venous thromboembolic diseases: diagnosis, management and thrombophilia testing](https://www.nice.org.uk/guidance/NG158) (2020) NICE guideline NG158

[Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism](https://www.nice.org.uk/guidance/ng89) (2018) NICE guideline NG89

1. Overview

2.1 Focus of quality standard

This quality standard will cover both the diagnosis and treatment of acute venous thromboembolism (VTE) and reducing the risk of suspected or confirmed deep vein thrombosis (DVT) or pulmonary embolism (PE) in people aged 16 and over. A range of settings and healthcare practitioners will also be included.

This quality standard will replace the existing NICE quality standards for venous thromboembolism diseases ([QS3](https://www.nice.org.uk/guidance/qs3) and [QS29](https://www.nice.org.uk/guidance/qs29)). The topic was identified for update following the annual review of quality standards in 2017/18. The review identified that there had been changes in the areas for improvement. The quality standards will be replaced by one single quality standard using two updated NICE guidelines which cover the whole pathway with new primary care guidance on [Venous thromboembolic diseases: diagnosis, management and thrombophilia testing](https://www.nice.org.uk/guidance/NG158) (NG158) and secondary care prevention on [Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism (NG89](https://www.nice.org.uk/guidance/ng89)).

In addition we asked stakeholders at topic engagement if they support the proposal to update QS3 and QS29, feedback will be discussed at the Committee on 16 September.

2.2 Definitions

**Venous thromboembolism (VTE)**

VTE is the formation of a blood clot in a vein, usually in the deep veins of the legs or pelvis. This is known as deep vein thrombosis (DVT). The blood clot can dislodge and travel in the blood, particularly to the pulmonary arteries. This is known as pulmonary embolism (PE). The term 'VTE' includes both DVT and PE.

Failure to diagnose and treat VTE correctly can result in fatal PE, in which the blood clot blocks the blood supply to the lungs. However, diagnosis of VTE is not always straightforward.

**Hospital-acquired VTE**

Hospital-acquired venous thromboembolism (VTE), also known as hospital-acquired or hospital-associated thrombosis (HAT), covers all VTE that occurs in hospital and within 90 days after a hospital admission. It is a common and potentially preventable problem.

2.3 Incidence, mortality and disability

The All-Party Parliamentary Thrombosis Group (2019) [Annual Review](https://thrombosisuk.org/downloads/APPTG%20Annual%20Review%202019%20100320.pdf) reported that VTE is a significant cause of mortality and disability in England with thousands of deaths directly attributed to it each year and an estimated incidence rate of 1-2 per 1,000 of the population. 1 in 20 people will have VTE during their lifetime and more than half of those events are associated with prior hospitalisation. At least two thirds of HAT cases are preventable through VTE risk assessment and the administration of appropriate thromboprophylaxis, however currently VTE is one of the most common forms of hospital mortality.

2.4 Policy

The National VTE prevention programme was launched in England in 2010 by the Department of Health. This included the mandatory VTE risk assessment of 90% (later increased to 95%) of all people admitted to hospital. In 2014, a national VTE CQUIN goal required healthcare providers to meet and exceed a VTE risk assessment monthly target of 95% each month. This is now a national requirement included in the [NHS Standard Contract for 2020/21](https://www.england.nhs.uk/publication/nhs-standard-contract-2020-21-technical-guidance/).

2.5 Current service delivery and management

The NICE [pathway](https://pathways.nice.org.uk/pathways/venous-thromboembolism#path=view%3A/pathways/venous-thromboembolism/venous-thromboembolism-overview.xml&content=view-info-category%3Aview-about-menu) illustrates VTE care across multiple care settings involving a range of healthcare practitioners to conduct and lead on:

* assessing and reducing the risk of VTE in adults admitted to hospital
* diagnosing VTE in adults in primary, secondary and tertiary care, including Wells score, D-dimer measurement, ultrasound and radiological imaging
* treating VTE in adults
* investigations for cancer and testing for thrombophilia in adults diagnosed with VTE.

In the updated 2018 NICE guideline [NG89](https://www.nice.org.uk/guidance/ng89), new evidence emerged for new treatment for specific groups. In the updated 2020 NICE guideline [NG158](https://www.nice.org.uk/guidance/NG158), new evidence has also emerged and practice has changed for the diagnosis and management of VTE in relation to the use of the following:

* direct oral anticoagulants
* prognostic tools
* diagnosis of VTE using age-adjusted and point-of-care D-dimer testing pulmonary embolism rule-out criteria
* outpatient treatment for PE
* inferior vena caval filters (IVCF) and
* investigations for cancer in people with unprovoked VTE.

2.6 COVID-19

Emerging data and clinical experience suggests an increased prevalence of venous thromboembolic events during the COVID-19 pandemic especially in patients with more severe disease.

NHS England published a [Clinical guide for the management of anticoagulant services during the coronavirus pandemic](https://www.england.nhs.uk/coronavirus/secondary-care/other-resources/specialty-guides/) and The British Thoracic Society has published a range of information, guidance and resources to support the respiratory community including [Guidance on Venous Thromboembolic Disease in patients with COVID-19](https://brit-thoracic.org.uk/about-us/covid-19-information-for-the-respiratory-community/).

At topic engagement, stakeholders highlighted a number of issues relating to COVID-19 that we should take into account when developing this quality standard. These comments are included in the paper and will be discussed at the Committee.

3 Summary of suggestions

3.1 Responses

In total 20 registered stakeholders responded to the 2-week engagement exercise 22/7/2020-5/8/2020. 17 of these registered stakeholders provided areas for quality improvement and 3 advised they had no comment to make. We also received comments from 9 specialist committee members. The responses have been merged and summarised in table 1 for further consideration by the Committee.

Full details of all the suggestions provided are given in appendices 3 and 4 for information.

The NHS England & Improvement Patient Safety Team submitted comments which can be found in full in appendix 5.

### Table 1 Summary of suggested quality improvement areas

| Suggested area for improvement | Stakeholders |
| --- | --- |
| Reducing risk in hospital patients   * Risk assessment * Pulmonary embolism rule-out criteria (the PERC rule) * Planning for discharge * Advance planning for elective surgery * Orthopaedic surgery | APPGVVD, BAYER, BTS,  CLOT, FRSHCEU, NPSA, SCM2, SCM3, SCM4, SCM5, SCM6, SCM7, SCM8, SCM9, THUK |
| Diagnosis and initial management   * Proximal leg vein ultrasound scan * Interim therapeutic anticoagulation | BMSPA, BTS, CLOT, SCM3, SCM5, SCM6, SCM7, THUK |
| Anticoagulation treatment   * Confirmed DVT or PE * Long-term anticoagulation for secondary prevention | APPGVVD, ATCUK, BAYER, BMSPA, BSH, LEO, SCM1, SCM3, SCM4, SCM5  SCM6, SCM7, THUK |
| Further interventions and tests   * Mechanical interventions * Investigating the causes of DVT and PE | APPGVVD, ATCUK, BSH BSIR, LEO, SCM5, SCM6, SCM8 |
| Information and support   * Outpatient treatment for low-risk PE * Shared decision making and supporting adherence | ATCUK, BAYER, BMSPA, BTS, CLOT, SCM1, SCM3, SCM5, SCM8 |
| Additional areas   * Access to more complex therapies * COVID-19 * Equality considerations * Scope * Service delivery * Training and development | APPGVVD, ATUK, BAYER, BSIR, BTS, CLOT, LEO, NPSA, RCPCH, SAM, SCM1, SCM2, SCM4, SCM5, SCM7, THUK, UNIB |
| Abbreviations:  APPGVVD, All Party Parliamentary Group on Vascular and Venous Disease  ATCUK, Anticoagulation UK  BAYER, Bayer plc  BMSPA, Bristol Myers Squibb-Pfizer Alliance  BGS, British Geriatrics Society  BSH, British Society of Haematology  BSIR, British Society of Interventional Radiology  BTS, British Thoracic Society  CLOT, Clinical Leaders of Thrombosis  FRSHCEU, The Faculty of Sexual and Reproductive Healthcare Clinical Effectiveness Unit  LEO, LEO Pharma  NHSEI, NHS England and Improvement  NPSA, National Patient Safety Team at NHS England and Improvement  RCN, Royal College of Nursing  RCPCH, Royal College of Paediatrics and Child Health  RCP, Royal College of Physicians  RPS, Royal Pharmaceutical Society  SAM, Society for Acute Medicine  SCM, Specialist Committee Member  THUK, Thrombosis UK  UNIB, University Hospital, Birmingham NHS Foundation Trust | |

3.2 Identification of current practice evidence

Bibliographic databases were searched to identify examples of current practice in UK health and social care settings; 1865 papers were identified for VTE. In addition, 22 papers were suggested by stakeholders at topic engagement and 30 papers internally at project scoping.

Of these papers, 3 have been included in this report and are included in the current practice sections where relevant. Appendix 2 outlines the search process.

3.3 Priorities for committee discussion

The format of this briefing paper has been amended to support the move to virtual committee meetings. Table 2 summarises the availability of information presented in the briefing paper for each suggested quality improvement area. We have used this to suggest priority areas for the quality standards advisory committee to discuss. The areas that are not suggested as a priority for discussion are shaded in grey within the briefing paper. These are suggestions only however and the committee on 16th September 2020 will decide which areas it wishes to discuss.

**Table 2 Summary of information available for suggested areas for improvement**

| **Suggested area for improvement** | **In scope** | **Guideline recs** | **Current practice evidence** | **Existing QS statement** | **Priority to discuss?** |
| --- | --- | --- | --- | --- | --- |
| **Reducing risk in hospital patients** | | | | | |
| * Risk assessment | Yes | Yes | Yes | Yes | **Yes** |
| * PERC rule | Yes | Yes | No | Yes | **Yes** |
| * Planning for discharge | Yes | Yes | Yes | Yes | **Yes** |
| * Advance planning for elective surgery | Yes | Yes | Yes | Yes | **Yes** |
| * Orthopaedic surgery | Yes | Yes | Yes | Yes | **Yes** |
| **Diagnosis and initial management** | | | | | |
| * Proximal leg vein ultrasound scan | Yes | Yes | Yes | Yes | **Yes** |
| * Interim therapeutic anticoagulation | Yes | Yes | Yes | Yes | **Yes** |
| **Anticoagulation treatment** | | | | | |
| * Confirmed DVT or PE | Yes | Yes | Yes | Yes | **Yes** |
| * Long-term anticoagulation for secondary prevention | Yes | Yes | Yes | Yes | **Yes** |
| **Further interventions and tests** | | | | | |
| * Mechanical interventions | Yes | Yes | Yes | Yes | **Yes** |
| * Investigating the causes of DVT and PE | Yes | Yes | Yes | Yes | **Yes** |
| **Information and support** | | | | | |
| * Outpatient treatment for low-risk PE | Yes | Yes | Yes | Yes | **Yes** |
| * Shared decision making and supporting adherence | Yes | Yes | Yes | Yes | **Yes** |

| **Suggested area for improvement** | **In scope** | **Guideline recs** | **Current practice evidence** | **Existing QS statement** | **Priority to discuss?** |
| --- | --- | --- | --- | --- | --- |
| **Additional areas** | | | | | |
| * Access to more complex therapies | Yes | Yes | N/A | No | **No** |
| * COVID-19 | Yes | No | N/A | No | **Yes** |
| * Equality considerations | Yes | No | N/A | No | **Yes** |
| * Scope | No | No | N/A | No | **No** |
| * Service delivery | No | No | N/A | No | **No** |
| * Training and development | No | No | N/A | No | **No** |

4 Suggested improvement areas

4.1 Reducing risk in hospital patients

4.1.1 Summary of suggestions

**Risk assessment**

Stakeholders supported risk assessments as a crucial part of overall VTE management, however there were reported inconsistencies in how these assessments are conducted. To address these inconsistencies they suggested an evaluation of the national tool’s diagnostic accuracy and effectiveness is needed for comparison with other different tools currently in use. Further risk assessment is also needed to identify patients who may benefit from reperfusion therapy (blood pressure and radiological and biochemical markers of right ventricular dysfunction).

A stakeholder suggested that the quality improvement focus should be on the interventions in response to risk assessment rather than the assessment itself as this is already being nationally monitored.

**Pulmonary embolism rule-out criteria (the PERC rule)**

A stakeholder supported this tool as potentially having significant impact on patient safety, cost and clinical efficiency.

**Planning for discharge**

Providing verbal and written VTE risk information at discharge was felt to be a key area of quality improvement by stakeholders as it is often incorrectly assumed that information on admission will be successfully recalled by patients or carers.

Tailored discharge planning was supported to provide reassurance, ensure treatment adherence and reduce patient risk, for example post discharge HAT. It was however highlighted that further work is needed to increase patient or carer awareness as prescribing the prophylaxis and/or treatment is a less challenging than delivering it. The emphasis should be on consistent delivery, for example, ensuring there are no missed treatment doses, stockings are always replaced after showers and mechanical devices always applied for the hours intended.

More effective communication was supported to positively improve the post discharge transition to community settings needed to continue treatment.

**Advance planning for elective surgery**

A stakeholder suggested that use of combined hormonal contraception should be identified with alternative effective contraception advised in appropriate cases.

**Orthopaedic surgery**

Stakeholders highlighted how risk assessment VTE prophylaxis is not considered or prescribed at the initial emergency department presentation and patients return home. There is then a delay in the risk assessment and appropriate prophylaxis until the orthopaedic teams review the patients in clinic. Stakeholders therefore supported the clinical and cost effectiveness of thromboprophylaxis for people with lower limb immobilisation.

* + 1. Selected recommendations from development sources

Table 3 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after the table to help inform the committee’s discussion.

### Table 3 Specific areas for quality improvement

|  |  |
| --- | --- |
| Suggested quality improvement area | Suggested source guidance recommendations |
| Risk assessment | [NICE NG89 Recommendation](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations#risk-assessment)s 1.1.1, 1.1.2 and 1.1.3 |
| Pulmonary embolism rule-out criteria (the PERC rule) | [NICE NG158 Recommendation](https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#diagnosis-and-initial-management) 1.1.16 |
| Planning for discharge | [NICE NG89 Recommendations](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations#risk-assessment) 1.2.4, 1.2.5, 1.2.6 and 1.2.7 |
| Advance planning for elective surgery | [NICE NG89 Recommendation](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations#risk-assessment) 1.3.13 |
| Orthopaedic surgery | [NICE NG89 Recommendation](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations#risk-assessment) 1.11.1 |

**Risk assessment**

NICE NG89 Recommendation 1.1.1

Assess all patients to identify the risk of venous thromboembolism (VTE) and bleeding (see recommendation 1.1.2 for all medical patients, 1.1.5 for all surgical patients, 1.1.9 for all pregnant women and all women who gave birth or had a miscarriage or termination of pregnancy in the past 6 weeks, 1.8.1 for all people admitted to the critical care unit and 1.9.1 for all acute psychiatric patients). **[2018]**

NICE NG89 Recommendation 1.1.2

Assess all medical patients to identify the risk of VTE and bleeding:

* As soon as possible after [admission](https://www.nice.org.uk/guidance/ng89/chapter/recommendations#admission) to hospital or by the time of the first consultant review
* Using a tool published by a national UK body, professional network or peer-reviewed journal. The most commonly used risk assessment tool for medical patients is the [Department of Health VTE risk assessment tool](https://www.nice.org.uk/guidance/ng89/resources/department-of-health-vte-risk-assessment-tool-pdf-4787149213). **[2018]**

NICE NG89 Recommendation 1.1.3

Balance the person's individual risk of VTE against their risk of bleeding when deciding whether to offer pharmacological thromboprophylaxis to medical patients. **[2018]**

**Pulmonary embolism rule-out criteria (the PERC rule)**

NICE NG158 Recommendation 1.1.16

If clinical suspicion of PE is low (the clinician estimates the likelihood of PE to be less than 15% based on the overall clinical impression, and other diagnoses are feasible), consider using the [pulmonary embolism rule-out criteria](https://www.mdcalc.com/perc-rule-pulmonary-embolism) (PERC) to help determine whether any further investigations for PE are needed. **[2020]**

**Planning for discharge**

NICE NG89 Recommendation 1.2.4

As part of the [discharge](https://www.nice.org.uk/guidance/ng89/chapter/recommendations#discharge) plan, give patients and their family members or carers (as appropriate) verbal and written information on:

* the signs and symptoms of deep vein thrombosis (DVT) and pulmonary embolism
* how people can reduce their risk of VTE (such as keeping well hydrated and, if possible, exercising and becoming more mobile)
* the importance of seeking help if DVT, pulmonary embolism or other adverse events are suspected. **[2018]**

NICE NG89 Recommendation 1.2.5

Give people discharged with VTE prophylaxis and their family members or carers (as appropriate) verbal and written information on:

* the importance of using VTE prophylaxis correctly (including the correct administration and disposal of pharmacological prophylaxis)
* the importance of continuing treatment for the recommended duration
* the signs and symptoms of adverse events related to VTE prophylaxis
* the importance of seeking help and who to contact if people have problems using VTE prophylaxis. **[2018]**

NICE NG89 Recommendation 1.2.6

Ensure that people who are discharged with anti-embolism stockings:

* understand the benefits of wearing them
* understand the importance of wearing them correctly
* understand the need to remove them daily for hygiene purposes
* 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 if there is a problem – for example, skin marking, blistering or discolouration, particularly over the heels and bony prominences
* know who to contact if there is a problem
* know when to stop wearing them. **[2018]**

NICE NG89 Recommendation 1.2.7

Ensure that people 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. **[2018]**

**Advance planning for elective surgery**

NICE NG89 Recommendation 1.3.13

Advise people 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]**

**Orthopaedic surgery**

NICE NG89 Recommendation 1.11.1

Consider pharmacological VTE prophylaxis with [LMWH](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations)or [fondaparinux sodium](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations)for people with lower limb immobilisation whose risk of VTE outweighs their risk of bleeding. Consider stopping prophylaxis if lower limb immobilisation continues beyond 42 days. **[2018]**

4.1.3 Current UK practice

**Risk assessment**

The All-Party Parliamentary Thrombosis Group [2019 Annual Review](https://thrombosisuk.org/downloads/APPTG%20Annual%20Review%202019%20100320.pdf) reported Acute trusts on average risk assessed 95.5% of adult inpatients for VTE in 2017/18.

The national [venous thromboembolism risk assessment data collection](https://improvement.nhs.uk/resources/vte-risk-assessment-q1-201920/) Quarter 1 2019/20 (April to June 2019) report found 96% of inpatients (aged 16 and over at the time of admission) admitted to NHS-funded acute care received a VTE risk assessment in quarter 1 (Q1) 2019/20.

Variation in national achievement of VTE risk assessments over time is shown below.

|  |  |
| --- | --- |
| Quarter/ Year | National achievement |
| Q3 2015/16 - Q4 2016/17 | Static at 96% |
| Q1 2017/18 - Q4 2017/18 | Static at 95% |
| Q1 2018/19 | 96% |
| Q2 2018/19 | 95% |
| Q3 2018/19 | 96% |
| Q4 2018/19 | 96% |
| Q1 2019/20 | 96% |

Six regions (North East and Yorkshire, North West, Midlands, East of England, London and South East) achieved the 95% NHS Standard Contract operational standard in Q1 2019/20. The South West did not meet the operational standard and risk assessed 94.7% of inpatients.

**Pulmonary embolism rule-out criteria (the PERC rule)**

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder’s knowledge and experience.

**Planning for discharge**

The All-Party Parliamentary Thrombosis Group [2019 Annual Review](https://thrombosisuk.org/downloads/APPTG%20Annual%20Review%202019%20100320.pdf) reported that only 21% of hospital admissions included VTE risk status in the patient’s discharge summary.

**Advance planning for elective surgery**

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported approximately 46% of hospitals included contraception within their patient information. Advice on consider stopping oestrogen-containing oral contraceptives was however not mentioned as being included in this information.

**Orthopaedic surgery**

4.1.4 Committee discussion

**For discussion**

* What is the priority for improvement?
* What is the key action that will lead to improvement?
* Can we develop a specific, measurable statement?

**For decision**

* Should any of these areas be prioritised for inclusion in the quality standard?
  1. Diagnosis and initial management

4.2.1 Summary of suggestions

**Proximal leg vein ultrasound scan**

Stakeholders highlighted that significant variation in access to scanning can lead to inequalities and potential harm. Further guidance is needed on what to do when scanning is not available within 24 hours.

**Interim therapeutic anticoagulation**

Stakeholders suggested that this treatment should be initiated as soon possible to protect patients as significant national variations in access to diagnostic services was reported such as GP delays in this first dosage.

* + 1. Selected recommendations from development source

Table 4 below highlights recommendations that have been provisionally selected from the development source that may support potential statement development. These are presented in full after the table to help inform the committee’s discussion.

### Table 4 Specific areas for quality improvement

|  |  |
| --- | --- |
| Suggested quality improvement area | Suggested source guidance recommendations |
| Proximal leg vein ultrasound scan | [NICE NG158 Recommendations](https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#diagnosis-and-initial-management) 1.1.3, 1.1.4 and 1.1.10 |
| Interim therapeutic anticoagulation | [NICE NG158 Recommendations](https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#anticoagulation-treatment-for-suspected-or-confirmed-dvt-or-pe) 1.3.2,1.3.3 and 1.3.4 |

**Proximal leg vein ultrasound scan**

**DVT likely (Wells score 2 points or more)**

NICE NG158 Recommendation 1.1.3

Offer people with a **likely**DVT Wells score (2 points or more):

* a proximal leg vein ultrasound scan, with the result available within 4 hours if possible (if the scan result cannot be obtained within 4 hours follow recommendation 1.1.4)
* a D-dimer test if the scan result is negative. [2012]

NICE NG158 Recommendation 1.1.4

* If a proximal leg vein ultrasound scan result cannot be obtained within 4 hours, offer people with a DVT Wells score of 2 points or more:
* a D-dimer test, **then**
* interim therapeutic anticoagulation (see the section on interim therapeutic anticoagulation for suspected DVT or PE) **and**
* a proximal leg vein ultrasound scan with the result available within 24 hours. **[2012, amended 2020]**

NICE NG158 Recommendation 1.1.10

If the D-dimer test result is positive, offer:

* a proximal leg vein ultrasound scan, with the result available within 4 hours if possible **or**
* interim therapeutic anticoagulation (see the [section on interim therapeutic anticoagulation for suspected DVT or PE](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#interim-therapeutic-anticoagulation-for-suspected-dvt-or-pe)) and a proximal leg vein ultrasound scan with the result available within 24 hours. **[2012, amended 2020]**

**Interim therapeutic anticoagulation**

NICE NG158 Recommendation 1.3.2

Follow the recommendations on when to offer interim therapeutic anticoagulation for suspected [proximal DVT](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#proximal-dvt) or PE in the [section on diagnosis and initial management](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#diagnosis-and-initial-management). **[2020]**

NICE NG158 Recommendation 1.3.3

If possible, choose an interim anticoagulant that can be continued if DVT or PE is confirmed (see [the section on anticoagulation treatment for confirmed DVT or PE](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#anticoagulation-treatment-for-confirmed-dvt-or-pe)). **[2020]**

NICE NG158 Recommendation 1.3.4

When using interim therapeutic anticoagulation for suspected proximal DVT or PE:

* carry out baseline blood tests including full blood count, renal and hepatic function, prothrombin time (PT) and activated partial thromboplastin time (APTT)
* do not wait for the results of baseline blood tests before starting anticoagulation treatment
* review, and if necessary act on, the results of baseline blood tests within 24 hours of starting interim therapeutic anticoagulation. **[2020]**
  + 1. Current UK practice

**Proximal leg vein ultrasound scan**

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported on imaging undertaken. It concluded out of 484 patients, 40 patients recieved ultrasounds of the lower limb veins and 2 patients recieved ultrasounds of the upper limb veins.

The report noted that on-site formal (cardiology) transthoracic echocardiography was available at 179/182 (98.4%) hospitals. The service was available 24/7 in 40/180 (22.2%). CT pulmonary angiography (CTPA) was widely available as a 24 hours/day, 7 days/week service in 156/169 (92.3%) hospitals with only 13/169 (7.7%) declaring incomplete access across the day or week.

**Interim therapeutic anticoagulation**

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported approximately 26% of hospitals administer an interim therapeutic dose of low molecular weight heparin (LMWH) when the CTPA report will be delayed by 1 hour or more.

* + 1. Committee discussion

**For discussion**

* What is the priority for improvement?
* What is the key action that will lead to improvement?
* Can we develop a specific, measurable statement?

**For decision**

* Should any of these areas be prioritised for inclusion in the quality standard?
  1. Anticoagulation treatment

4.3.1 Summary of suggestions

**Confirmed DVT or PE**

A stakeholder highlighted the importance of adjusting anticoagulants to improve treatment efficacy in people at extremes of body weight or with renal impairment or established renal failure.

Another stakeholder suggested that monitoring is not required for people at the extremes of weight.

Standardised care was suggested to be needed with annual anticoagulation reviews to address current variation in hospital care.

The consideration of direct oral anticoagulants (DOACs) before low molecular weight heparin (LMWH) injections was also supported by a stakeholder with changes needed to local service delivery to support this.

**Long-term anticoagulation for secondary prevention**

A stakeholder reported significant inconsistencies in the duration of long-term anticoagulation therapy. They emphasised more clarity is needed as during this treatment phase maintaining adherence and persistence with extended anticoagulation therapy is crucial. Ensuring all patients are regularly reviewed to evaluate the clinical impact of anticoagulation therapy and consider any adjustments is also critical.

4.3.2 Selected recommendations from development source

Table 5 below highlights recommendations that have been provisionally selected from the development source that may support potential statement development. These are presented in full after the table to help inform the committee’s discussion.

### Table 5 Specific areas for quality improvement

|  |  |
| --- | --- |
| Suggested quality improvement area | Selected source guidance recommendations |
| Confirmed DVT or PE | [NICE NG158 Recommendations](https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#anticoagulation-treatment-for-suspected-or-confirmed-dvt-or-pe) 1.3.4, 1.3.5, 1.3.6, 1.3.7, 1.3.8 and 1.3.10 |
| Long-term anticoagulation for secondary prevention | [NICE NG158 Recommendations](https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#long-term-anticoagulation-for-secondary-prevention) 1.4.1, 1.4.2, 1.4.3,1.4.4, 1.4.5, 1.4.7, 1.4.12 |

**Confirmed DVT or PE**

NICE NG158 Recommendation 1.3.4

When using interim therapeutic anticoagulation for suspected proximal DVT or PE:

* carry out baseline blood tests including full blood count, renal and hepatic function, prothrombin time (PT) and activated partial thromboplastin time (APTT)
* do not wait for the results of baseline blood tests before starting anticoagulation treatment
* review, and if necessary act on, the results of baseline blood tests within 24 hours of starting interim therapeutic anticoagulation. **[2020]**

NICE NG158 Recommendation 1.3.5

Offer anticoagulation treatment for at least 3 months to people with confirmed proximal DVT or PE. For recommendations on treatment after 3 months see the [section on long-term anticoagulation for secondary prevention](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#long-term-anticoagulation-for-secondary-prevention).**[2020]**

NICE NG158 Recommendation 1.3.6

If not already done, carry out baseline blood tests, as outlined in recommendation 1.3.4, when starting anticoagulation treatment.**[2020]**

NICE NG158 Recommendation 1.3.7

When offering anticoagulation treatment, take into account comorbidities, contraindications and the person's preferences.  
  
Follow the recommendations on anticoagulation treatment in the sections on:

* [DVT or PE in people at extremes of body weight](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#anticoagulation-treatment-for-dvt-or-pe-in-people-at-extremes-of-body-weight)
* [PE with haemodynamic instability](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#anticoagulation-treatment-for-dvt-or-pe-in-people-at-extremes-of-body-weight)
* [DVT or PE with renal impairment or established renal failure](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#anticoagulation-treatment-for-dvt-or-pe-with-renal-impairment-or-established-renal-failure)
* [DVT or PE with active cancer](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#anticoagulation-treatment-for-dvt-or-pe-with-active-cancer)
* [DVT or PE with triple positive antiphospholipid syndrome](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#anticoagulation-treatment-for-dvt-or-pe-with-triple-positive-antiphospholipid-syndrome).**[2020]**

NICE NG158 Recommendation 1.3.8

Offer either apixaban or rivaroxaban to people with confirmed proximal DVT or PE (but see recommendations 1.3.11 to 1.3.20 for people with any of the clinical features listed in recommendation 1.3.7). If neither apixaban nor rivaroxaban is suitable offer:

* low molecular weight heparin (LMWH) for at least 5 days followed by dabigatran or edoxaban **or**
* LMWH concurrently with a vitamin K antagonist (VKA) for at least 5 days, or until the INR is at least 2.0 in 2 consecutive readings, followed by a VKA on its own.**[2020]**

NICE NG158 Recommendation 1.3.10

Do not routinely offer self‑management or self‑monitoring of INR to people who have had DVT or PE and are having treatment with a VKA. **[2012]**

**Long-term anticoagulation for secondary prevention**

NICE NG158 Recommendation 1.4.1

Assess and discuss the benefits and risks of continuing, stopping or changing the anticoagulant with people who have had anticoagulation treatment for 3 months (3 to 6 months for people with [active cancer](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#active-cancer)) after a [proximal DVT](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#proximal-dvt) or PE. Follow the recommendations on shared decision making, supporting adherence and medication review in the NICE guidelines on:

* [medicines optimisation](https://www.nice.org.uk/guidance/ng5)
* [medicines adherence](https://www.nice.org.uk/guidance/cg76)
* [patient experience in adult NHS services](https://www.nice.org.uk/guidance/cg138). **[2020]**

NICE NG158 Recommendation 1.4.2

Consider stopping anticoagulation treatment 3 months (3 to 6 months for people with

active cancer) after a [provoked DVT or PE](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#active-cancer) if the provoking factor is no longer

present and the clinical course has been uncomplicated. If anticoagulation treatment

is stopped, give advice about the risk of recurrence and provide:

* written information on symptoms and signs to look out for
* direct contact details of a healthcare professional or team with expertise in thrombosis who can discuss any new symptoms or signs, or other concerns
* information about out-of-hours services they can contact when their healthcare team is not available. **[2020]**

NICE NG158 Recommendation 1.4.3

Consider continuing anticoagulation beyond 3 months (6 months for people with active cancer) after an [unprovoked DVT or PE](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#unprovoked-dvt-or-pe). Base the decision on the balance between the person's risk of venous thromboembolism (VTE) recurrence and their risk of bleeding. Discuss the risks and benefits of long-term anticoagulation with the person, and take their preferences into account. **[2020]**

NICE NG158 Recommendation 1.4.4

Explain to people with unprovoked DVT or PE and a low bleeding risk that the benefits of continuing anticoagulation treatment are likely to outweigh the risks. **[2020]**

NICE NG158 Recommendation 1.4.5

Do not rely solely on predictive risk tools to assess the need for long-term anticoagulation treatment. **[2020]**

NICE NG158 Recommendation 1.4.7

Take into account the person's preferences and their clinical situation when selecting an anticoagulant for long-term treatment. **[2020]**

NICE NG158 Recommendation 1.4.12

Review general health, risk of VTE recurrence, bleeding risk and treatment preferences at least once a year for people taking long-term anticoagulation treatment or aspirin. **[2020]**

4.3.3 Current UK practice

**Confirmed DVT or PE**

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported out of 450 patients, 274 450 (60.9%) patients were discharged on direct oral anticoagulants (DOACs). The second largest group was 124 patients on low molecular weight heparin (LMWH) injections (27.6%).

**Long-term anticoagulation for secondary prevention**

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported that case reviewers recorded that the duration of anticoagulation was adequate in 343/380 (90.3%) patients, but not in 37/380 (9.7%) patients and unknown in 83 patients. Also, the same report concluded that approximately 18% of hospitals routinely arranged outpatient follow-up appointments. This appears to suggest that some at-risk patients are not being prescribed long-term anticoagulation.

4.3.4 Resource impact

The resource impact report developed to support this guideline expected that there would be a cost of implementing NICE NG158 recommendation 1.3.8 of around £4 million. This was offset by savings from other anti-coagulation recommendations 1.3.15, 1.3.17 and 1.3.18. These savings were expected to be around £6.1 million, giving a total cash saving of around £2.1 million.

**4****.3.5 Committee discussion**

**For discussion**

* What is the priority for improvement?
* What is the key action that will lead to improvement?
* Can we develop a specific, measurable statement?

**For decision**

* Should any of these areas be prioritised for inclusion in the quality standard?

4.4 Further interventions and tests

* + 1. Summary of suggestions

**Mechanical interventions**

A stakeholder reported an increased use of inferior vena caval filters (IVC) filters especially in the peri-operative setting. It is important to consider this increased use in this setting and the need to retrieve the filter in a timely manner to support efficacy and limit the risk of long-term adverse outcomes.

A stakeholder also queried the use of stockings for preventing post-thrombotic syndrome.

**Investigating the causes of DVT and PE**

A stakeholder reported poor uptake of pharmacological VTE prophylaxis for a minimum of 7 days as low molecular weight heparin (LMWH) injections are difficult to administer for many patients on discharge. This needs to be recognised and addressed.

Stakeholders supported cancer investigations in order to establish a diagnosis and the appropriate type and duration of anticoagulation needed.

Stakeholders also supported not offering further investigations to people with unprovoked venous thrombosis to reduce anxiety and overall health service costs.

Another stakeholder supported not offering Thrombophilia testing due its high costs and low clinical value.

* + 1. Selected recommendations from development sources

Table 6 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after the table to help inform the committee’s discussion.

### Table 6 Specific areas for quality improvement

|  |  |
| --- | --- |
| Suggested quality improvement area | Selected source guidance recommendations |
| Mechanical interventions | [NICE NG158 Recommendations](https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#mechanical-interventions) 1.7.1, 1.7.4, 1.7.5 and 1.7.6 |
| Investigating the causes of DVT and PE | [NICE NG89 Recommendation](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations#interventions-for-people-with-acute-coronary-syndromes-or-acute-stroke-or-for-acutely-ill-patients) 1.4.6  [NICE NG158 Recommendations](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#investigations-for-cancer) 1.8.1 and 1.8.2, 1.9.1, 1.9.2 and 1.9.5 |

**Mechanical interventions**

NICE NG158 Recommendation 1.7.1

Do not offer an inferior vena caval (IVC) filter to people with [proximal DVT](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#proximal-dvt) or PE unless:

* it is part of a prospective clinical study **or**
* anticoagulation is contraindicated or a PE has occurred during anticoagulation treatment (see recommendations 1.7.2 and 1.7.3).**[2020]**

NICE NG158 Recommendation 1.7.4

Before fitting an IVC filter, ensure that there is a strategy in place for it to be removed at the earliest possible opportunity. Document the strategy and review it if the clinical situation changes.**[2020]**

NICE NG158 Recommendation 1.7.5

Do not offer elastic graduated compression stockings to prevent post-thrombotic syndrome or VTE recurrence after a DVT. This recommendation does not cover the use of elastic stockings for the management of leg symptoms after DVT. **[2015]**

NICE NG158 Recommendation 1.7.6

If offering elastic graduated compression stockings to manage leg symptoms after DVT, explain how to apply and use them, how long they should be worn and when they should be replaced. **[2012]**

**Investigating the causes of DVT and PE**

NICE NG89 Recommendation 1.4.6

Offer pharmacological VTE prophylaxis for a minimum of 7 days to acutely ill medical

patients whose risk of VTE outweighs their risk of bleeding:

* Use [LMWH](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations)as first-line treatment.
* If [LMWH](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations) is contraindicated, use [fondaparinux sodium](https://www.nice.org.uk/guidance/ng89/chapter/Recommendations). **[2018]**

NICE NG158 Recommendation 1.8.1

For people with [unprovoked DVT or PE](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#unprovoked-dvt-or-pe) who are not known to have cancer, review the medical history and baseline blood test results including full blood count, renal and hepatic function, PT and APTT, and offer a physical examination. **[2020]**

NICE NG158 Recommendation 1.8.2

Do not offer further investigations for cancer to people with unprovoked DVT or PE unless they have relevant clinical symptoms or signs (for further information see the [NICE guideline on suspected cancer](https://www.nice.org.uk/guidance/ng12)).**[2020]**

NICE NG158 Recommendation 1.9.1

Do not offer testing for hereditary thrombophilia to people who are continuing anticoagulation treatment.**[2012, amended 2020]**

NICE NG158 Recommendation 1.9.2

Do not offer thrombophilia testing to people who have had [provoked DVT or PE](https://www.nice.org.uk/guidance/ng158/chapter/recommendations#active-cancer). **[2012]**

NICE NG158 Recommendation 1.9.5

Do not routinely offer thrombophilia testing to first‑degree relatives of people with a history of DVT or PE and thrombophilia.**[2012]**

* + 1. Current UK practice

**Mechanical interventions**

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported that least 786 temporary IVC filters and 318 permanent filters were inserted in the UK in 2017. The report concluded that this suggests a likely increase in use of IVC filters overall and temporary IVC filters compared to historical data.

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported approximately 79% of hospitals prescribed anti-embolism stockings.

**Investigating the causes of DVT and PE**

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported Thrombophilia testing was undertaken in 104 out 147 hospitals (70.7%) as part of routine follow-up.

* + 1. Committee discussion

**For discussion**

* What is the priority for improvement?
* What is the key action that will lead to improvement?
* Can we develop a specific, measurable statement?

**For decision**

* Should any of these areas be prioritised for inclusion in the quality standard?

4.5 Information and support

4.5.1 Summary of suggestions

**Outpatient treatment for low-risk PE**

Stakeholders supported the shift in service delivery of outpatient treatment to community and primary care settings for low-risk PE as being cost effective.

The use of a validated risk stratification tool to determine the suitability of outpatient treatment plus monitoring plans and provision of direct healthcare professional contact details were all supported. However, 24 hour/7 days a week service delivery was reported as being very challenging as within AAU units, contact details can be given but many of these are not 24 hour so it is unclear how this criteria will be met. Contact details during working hours and an out of hours emergency service was felt to be a more achievable aim.

**Shared decision making and supporting adherence**

Shared decision making between healthcare professionals and patients was supported by stakeholders with significant variation reported. Patients should be enabled to make an informed choice based on the risks and benefits of the appropriate treatment. These decisions should be recorded within the patient notes.

Stakeholders also highlighted how people have a choice of anticoagulation and therefore should be informed of their choices to ensure compliance and adherence. Use of an alert card was also supported by stakeholders to increase public awareness of incidence and highlight risk in emergency events.

4.5.2 Selected recommendations from development source

Table 7 below highlights recommendations that have been provisionally selected from the development source that may support potential statement development. These are presented in full after table 7 to help inform the committee’s discussion.

### Table 7 Specific areas for quality improvement

|  |  |
| --- | --- |
| Suggested quality improvement area | Selected source guidance recommendations |
| Outpatient treatment for low-risk PE | [NICE NG158 Recommendation](https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#outpatient-treatment-for-low-risk-pe) 1.2.4 |
| Shared decision making and supporting adherence | [NICE NG158 Recommendations](https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#anticoagulation-treatment-for-suspected-or-confirmed-dvt-or-pe) 1.3.1,  1.5.1 and 1.5.2 |

**Outpatient treatment for low-risk PE**

NICE NG158 Recommendation 1.2.4

Agree a plan for monitoring and follow-up with people having outpatient treatment for suspected or confirmed low-risk PE. Give them:

* written information on symptoms and signs to look out for, including the potential complications of thrombosis and of treatment
* direct contact details of a healthcare professional or team with expertise in thrombosis who can discuss any new symptoms or signs, or other concerns
* information about out-of-hours services they can contact when their healthcare team is not available.**[2020]**

**Shared decision making and supporting adherence**

NICE NG158 Recommendation 1.3.1

When offering anticoagulation treatment follow the recommendations on shared

decision making and supporting adherence in the NICE guidelines on:

* [medicines optimisation](https://www.nice.org.uk/guidance/ng5)
* [medicines adherence](https://www.nice.org.uk/guidance/cg76)
* [patient experience in adult NHS services](https://www.nice.org.uk/guidance/cg138). **[2020]**

NICE NG158 Recommendation 1.5.1

Give people having anticoagulation treatment verbal and written information about:

* how to use anticoagulants
* how long to take anticoagulants
* possible side effects of anticoagulants and what to do if these occur
* how other medications, foods and alcohol can affect oral anticoagulation treatment
* any monitoring needed for their anticoagulant treatment
* how anticoagulants may affect their dental treatment
* taking anticoagulants if they are planning pregnancy or become pregnant
* how anticoagulants may affect activities such as sports and travel
* when and how to seek medical help. **[2012]**

NICE NG158 Recommendation 1.5.2

Give people who are having anticoagulation treatment information and an 'anticoagulant alert card' that is specific to their treatment. Advise them to carry the 'anticoagulant alert card' at all times. **[2012]**

4.5.3 Current UK practice

**Outpatient treatment for low-risk PE**

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported outpatient follow-up was not routinely arranged following a PE diagnosis in 32 out of 179 (17.9%) hospitals.

**Shared decision making and supporting adherence**

The 2019 National Confidential Enquiry into Patient Outcome and Death [Pulmonary embolism: Know the score](https://www.ncepod.org.uk/2019pe.html) reported 112 out of 167 (67.1%) hospitals provided specific information and education about PE, with 62 hospitals providing it at discharge. However, treating clinicians were unable to determine whether 336 out of 600 (56.0%) patients were given this information. There was also little difference between inpatients and ambulatory patients.

4.5.4 Committee discussion

**For discussion**

* What is the priority for improvement?
* What is the key action that will lead to improvement?
* Can we develop a specific, measurable statement?

**For decision**

* Should any of these areas be prioritised for inclusion in the quality standard?

4.6 Additional areas

### Summary of suggestions

The improvement areas below were suggested as part of the stakeholder engagement exercise. However, they were felt to be either unsuitable for development as quality statements, outside the remit of this particular quality standard referral or need further discussion by the committee to establish potential for statement development.

There will be an opportunity for the committee to discuss these areas at the end of the session on 16 September.

**Access to more complex therapies**

NICE’s 2015 interventional procedures guidance (IPG53) on [ultrasound-enhanced, catheter-directed thrombolysis for deep vein thrombosis](https://www.nice.org.uk/guidance/ipg523/chapter/1-Recommendations) was suggested as an additional developmental area of emergent practice.

**COVID-19**

At topic engagement, stakeholders highlighted a number of issues relating to COVID-19 that we should take into account when developing this quality standard. Some of the issues have already been highlighted as particularly relevant to areas for quality improvement discussed earlier in the paper. However, there were also additional themes highlighted by stakeholders that are not currently covered by NICE guidelines:

* Significant increase in VTE patients due to COVID-19.
* D-dimer testing used to stratify intensity of thromboprophylaxis with anticoagulation.
* Management of COVID-19 and VTE overlaps in the community.
* Rapid increase in number of patients on anticoagulation and DOACs.
* The need for comprehensive patient information and psychological support about VTE risk post COVID-19.

These suggestions have not been progressed as evidence-based guidance need to be developed before specific quality statements can be considered.

**Equality considerations**

A stakeholder highlighted that psychological support is needed as a number of patients suffer from anxiety after they have developed a VTE. Another stakeholder also highlighted the need for equal care access for people often disadvantaged by system such as the homeless and intravenous drug users.

Equality and diversity issues will be considered for each quality statement in the quality standard, including the issues which have been raised by these stakeholders. In addition, an equality impact analysis is updated at different stages throughout quality standard development.

**Scope**

A number of stakeholders highlighted young people under 16 years and people with superficial thrombophlebitis. These are out of scope of this quality standard.

**Service delivery**

A number of stakeholders highlighted the need for standardised care pathways across primary, secondary and tertiary settings with joint working collaboration by multidisciplinary teams and regional networks to support local service delivery of VTE care. These suggestions have not been progressed as there are no recommendations on these areas.

**Training and development**

Training of staff conducting risk assessments was suggested as an area of quality improvement.

This suggestion has not been progressed. Quality statements focus on actions that demonstrate high quality care or support, not the training that enables the actions to take place. The committee should consider which parts of care and support would be improved by increased training. Training may be referred to in the audience descriptors.

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# Appendix 1: Glossary

Terms used in NICE guidelines [NG89](https://www.nice.org.uk/guidance/ng89) and [NG158](https://www.nice.org.uk/guidance/NG158)

**Active cancer**

Receiving active antimitotic treatment; or diagnosed within the past 6 months; or recurrent or metastatic; or inoperable. Excludes squamous skin cancer and basal cell carcinoma.

**Admission**

Admission in the context of this guideline refers to admission as an inpatient, where a bed is provided for 1 or more nights, or admission as a day patient, where a bed is provided for a procedure including surgery or chemotherapy but not for an overnight stay.

**CTPA**

Computed tomography pulmonary angiogram

**Discharge**

Discharge in the context of this guideline refers to discharge from hospital as an inpatient or after a day procedure.

**Lower limb immobilisation**

Any clinical decision taken to manage the affected limb in a way that would prevent normal weight-bearing status or use of that limb, or both.

**Provoked DVT or PE**

DVT or PE in a person with a recent (within 3 months) and transient major clinical risk factor for VTE, such as surgery, trauma, significant immobility (bedbound, unable to walk unaided or likely to spend a substantial proportion of the day in bed or in a chair), pregnancy or puerperium – or in a person who is having hormonal therapy (combined oral contraceptive pill or hormone replacement therapy).

**Proximal DVT**

DVT at or above the level of the popliteal trifurcation area.

**Renal impairment**

People with an estimated glomerular filtration rate (eGFR) of less than 30 ml/min/1.73 m2. For more detailed information on renal impairment, see NICE's guideline on [chronic kidney disease in adults](https://www.nice.org.uk/guidance/cg182).

**Significantly reduced mobility**

People who are bed bound, unable to walk unaided or likely to spend a substantial proportion of their day in bed or in a chair.

**Unprovoked DVT or PE**

DVT or PE in a person with no recent major clinical risk factor for VTE (see provoked DVT or PE) who is not having hormonal therapy (combined oral contraceptive pill or hormone replacement therapy).

**Wells score**

Clinical prediction rule for estimating the probability of DVT or PE. There are a number of versions of Wells scores available. This guideline recommends the 2‑level DVT Wells score and the 2-level PE Wells score.

# Appendix 2: Review flowchart

Records identified through topic engagement  
[n = 22]

Records identified through IS scoping search  
[n =30]

Records identified through ViP searching  
[n = 1865]

Records excluded  
[n =1897]

Records screened  
[n =1917]

Citation searching or snowballing

[n= 35]

Full-text papers excluded  
[n 52]

Full-text papers assessed   
[n =55]

Current practice examples included in the briefing paper  
[n = 3]

# Appendix 3: Suggestions from stakeholder engagement exercise – registered stakeholders

| ID | Stakeholder | Suggested key area for quality improvement | Why is this important? | Why is this a key area for quality improvement? | Supporting information |
| --- | --- | --- | --- | --- | --- |
| Reducing risk in hospital patients | | | | | |
| 1 | All Party Parliamentary Group on Vascular and Venous Disease | Diagnosis and treatment of venous thromboembolism | Role of thrombophilia assessment – further clarity and guidance would be helpful (still significant inconsistency). | Inconsistency and variation in practice. | Reference (1) Croles et al., Pregnancy, thrombophilia, and risk of a first venous thrombosis: systematic review and Bayesian meta-analysis. BMJ 2017, Oct 26:359; reference (2): Tsantes et al., Association between the plasminogen activator inhibitor-1 4G/5G polymorphism and venous thrombosis. A meta-analysis. Thromb Haemost 2007 Jun;97(6)907-13; reference (3) Anecdotal feedback from healthcare professionals. |
| 2 | British Thoracic Society | Key area for quality improvement 3 | Further risk assessment to identify patients who may benefit from reperfusion therapy (blood pressure and radiological and biochemical markers of right ventricular dysfunction). |  |  |
| 3 | SCM7 | The following patient groups (16 years and above) have their risk of VTE and bleeding assessed using published tool as soon as possible after admission to the hospital or by the time of the first consultant review and re-assessed if their clinical condition changes:   * Medical * Surgical * Trauma * Patients in critical care * Psychiatric illness * Pregnant women and women who gave birth or had a miscarriage or termination of pregnancy in the past 6 weeks | VTE risk assessment tool identifies which patients are at risk of developing VTE and require pharmacological/ mechanical thromboprophylaxis. Continuing this high standard in risk assessment is a crucial part of the overall VTE management.  Completion of VTE risk assessment is recommended within NICE, with the last 3 specific groups being new subcategories as well as the new age group from 16 years and above in the guideline (NG89) update in 2018. | There is a variation of VTE risk assessment being complete from 70-95%. | The All-Party Parliamentary Thrombosis Group (2019) highlights the VTE remains one of the most common forms of hospital mortality which is preventable through VTE risk assessment and the administration  of appropriate thromboprophylaxis.  <https://thrombosisuk.org/downloads/APPTG%20Annual%20Review%202019%20100320.pdf> |
| 4 | SCM7 | **Key area for quality improvement 2:**  Patients assessed to be at risk of VTE are offered VTE prophylaxis in accordance with NICE guidance. | VTE risk assessment  isn’t enough if the treatment needed to prevent fatalities isn’t given. | 39% of HAT cases were in patients who were not receiving thromboprophylaxis prior to developing HAT, a 20% increase on the previous year’s findings.  There were 13 trusts in which 50% or more of recorded HAT cases were in patients who were not receiving thromboprophylaxis prior to HAT, more than double previous year’s figure.  The regional picture varies. | The All-Party Parliamentary Thrombosis Group (2019) <https://thrombosisuk.org/downloads/APPTG%20Annual%20Review%202019%20100320.pdf> |
| 5 | SCM4 | **Key area for quality improvement 1**  Adoption of a National Standardised Validated Assessment Tool for VTE | There is evidence that in addition to the national tool a number of different tools are currently in use I understand that national tool has not been validated or tested against other tools to evaluate its diagnostic accuracy or effectiveness at correctly identifying people at risk of VTE. | I understand that a lack of validation gives rise to a concern that the national tool may not accurately identify those who are most likely to get VTE. | Please refer NG 89  According to national figures, over 70% of medical patients in the UK have prophylaxis when the national tool has been used, with some trusts offering prophylaxis to over 90% of medical patients. Around 40% of medical patients have prophylaxis in largely US-based populations when other tools are used (although this may partially relate to different indications for hospital admission). It is not known if this means that the national tool identifies too many people or the other tools do not identify enough. The potential impact of giving unnecessary prophylaxis is that people may be at increased risk of bleeding and discomfort through repeated injections. There is also the potential for reducing the cost of thromboprophylaxis by better defining 'at risk' populations, so that the number of those given thromboprophylaxis is reduced  See also  **The Royal College of Emergency Medicine’s** [**2018/9 national quality improvement project (QIP) of Venous Thromboembolism (VTE) risk in lower limb immobilisation**](https://www.rcem.ac.uk/docs/QI%20+%20Clinical%20Audit/RCEM%20VTE%20national%20report%20(July%202019).pdf) **has found that Emergency Departments (EDs) have made significant progress against RCEM standards** |
| 6 | SCM6 | Failure to identify candidates for thrombolysis and also Failure to offer thrombolysis to appropriate cases | Increased risk of PTS |  | Failure to identify candidates for thrombolysis and also Failure to offer thrombolysis to appropriate cases |
| 7 | SCM2 | PERC tool in standard practice | Consideration of the PERC rule out tool is recommended within NICE guidance.  Wells score, D-Dimmer and ultrasound are well established standard practice – PERC tool should be highlighted for quality improvement. | Use of the PERC rule out tool may have an impact to patient management where there is low suspicion of pulmonary embolism – it may help to reduce the need for avoidable clinical imaging, D-Dimmer and interim anticoagulation. There is potential for significant impact (quality improvement) to patient safety, cost and clinical efficiency – therefore should be highlighted in quality standard advice. | Summarised evidence - Evidence review for the use of the pulmonary embolism rule-out criteria for diagnosis of pulmonary embolism – NICE |
| 8 | FSRH CEU | Key area for quality improvement 1  Hospital admissions | General comment: - during hospital admissions, as part of risk assessment for VTE, use of combined hormonal contraception should be identified and alternative effective contraception that is not associated with increased risk of VTE initiated if CHC is discontinued. |  |  |
| 9 | Clinical Leaders of Thrombosis | Key area for quality improvement 1  Use of anti-embolic stockings as venous thromboembolism (VTE) prophylaxis in hospitalised patients | Previous NICE guidance NG89 has recommended the use of either anti embolic stockings (AES) or intermittent pneumatic compression in surgical patients. A randomised control trial looked at AES to see if they offered any additional benefit when used with low molecular weight heparin (LMWH) compared with LMWH alone. This study showed LWH alone was non-inferior to AES and LMWH. The use of AES is associated with patient harm around skin damage and falls so to look at reducing their use would be a patient safety benefit. | The cost to NHS England for AES was £63 million despite no evidence they prevent death or PE and this study shows only patients contra-indicated LMWH would need AES  National guidance on the use of AES would reduce the harm associated with this product, it is already contra-indicated in stroke patients due to evidence of harm, and it would only be used where chemical prophylaxis cannot be used | Please see the GAPS study published in the BMJ <https://www.bmj.com/content/369/bmj.m1309> |
| 10 | Thrombosis UK | Additional developmental areas of emergent practice | There is new clinical trial evidence in the ineffectiveness of graduated compression stockings (GCS).  Summary:  *“for patients who have elective surgery and are at moderate or high risk of venous thromboembolism, administration of pharmaco-thromboprophylaxis alone is non-inferior to a combination of pharmacothromboprophylaxis and GCS.”* compression stockings  Ref: GAPS Trial 2020 | GCS cost the NHS in excess of £60m pa.  Many are poorly fitted and causing patients discomfort and worry. Trial evidence now indicates they are unnecessary in patients who have elective surgery and prescribed pharmaco-thromboprophylaxis. | Practice should now be updated and encouraged to no longer prescribe GCS in these settings.  Ref: GAPS Trial 2020 <https://thrombosisuk.org/downloads/bmj.m1309.pdf> |
| 11 | SCM3 | Provision of VTE risk information at the point of discharge  NG 89 Rec 1.2.4 | It is often incorrectly assumed that provision of information about VTE risk **on admission** will be recalled by patients/carers, and covers the requirement to provide discharge information.  Unfortunately, we still see patients returning late with hospital acquired thrombosis because they are not adequately informed of the potential risks of VTE.  This has been a particular concern of the PPI group regarding a recent research project, NIHR127454 | To my knowledge, there have been limited reports published on this previous QS, to evaluate compliance. Although recent evidence from NHS England would suggest hospital acquired thrombosis is reducing overall, there remain a significant number of cases.  Late presentation runs a higher risk of death and has also been associated with increased rate of poor long term outcomes.  It is essential that patients have this information and are informed how to access acute services if they suspect VTE | Hospital acquired thrombosis BMJ editorial  <https://www.bmj.com/content/365/bmj.l4239>  Post thrombotic syndrome related to deep vein thrombosis  <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/216501> |
| 12 | SCM5 | Key area for quality improvement 2 | Verbal and Written information discharge | Further work to be done to minimise risk of post discharge HAT by increasing patient/ carer awareness |  |
| 13 | SCM8 | NG89 1.2.4/5 and 8  Information given to the person at time of discharge from hospital regarding verbal and written information on DVT/PE; correct administration of thromboprophylaxis and disposal of needles and syringes safely; and notification of GPs regarding thromboprophylaxis, expected duration | Important to record discussion with person prior to discharge, ensure that contact numbers are given for reassurance and advice, and ensure thromboprophylaxis will be adhered to, and administered appropriately | Thromboprophylaxis has a financial cost, so important that those selected to have thromboprophylaxis receive advice to ensure adherence and understand rationale |  |
| 14 | Bayer Plc | Key area for quality improvement 2  Patients/carers should be offered verbal and written information on VTE prevention as part of the discharge process, including advice on therapy where appropriate and importance of adherence.  [[QS3 - Quality statement 6](https://www.nice.org.uk/guidance/qs3/chapter/Quality-statement-6-Information-for-patients-and-carers) – information for patients and carers] | The All-Party Parliamentary Thrombosis Group Annual Survey of NHS Trusts has repeatedly highlighted patients experiencing “disjointed” and “fragmented” care after being discharged from hospital, putting them at risk of harm. | This quality statement should be retained.  In the most recent report from The All-Party Parliamentary Thrombosis Group Annual Survey of NHS Trusts, it highlighted that while the vast majority of trusts provide their own information leaflet to patients on VTE; less than half (48%) indicated that a documented discussion between an HCP and patient takes place at discharge regarding their ongoing management.  Discharge planning should be tailored to each person's needs and equip them with realistic strategies they can implement once discharged from hospital. This should include appropriate information and advice on VTE prevention which covers prescribed therapies, duration of treatment and possible side effects. | APPTG Annual Survey 2019: <https://thrombosisuk.org/downloads/APPTG%20Annual%20Review%202019%20100320.pdf> |
| 15 | Thrombosis UK | Key area for quality improvement 5 | Information & communication with all patients:  while being investigated  on diagnosis  post discharge | Too often little or no information and as a result struggles to understand (i) tests for diagnosis (ii) medication (iii) what to expect post discharge during recovery (iv) future management and risk factors/ changes in life eg pregnancy, they need to be aware of and discuss with an HCP.  Few patients are given a contact name or number should any queries arise post-discharge, as more patients are prescribed DOAC therapy, there is less opportunity to have follow-up opportunities to raise queries, worries and uncertainties with an informed point of care HCP. | Information needs to include:   * Information about tests likely to be carried out * Signs and symptoms of a VTE * Therapy treatment options, how they work and need to be taken. Expected length of time the patient will need to take the medication * Risk factors and how some can be reduced by the individual * Call backs and follow up you should receive an indication of time frame * Contact details of where an individual can seek further information including counselling services   Please see short summary of accounts in Point 1 to illustrate frequent lack of information.  Please see short films made with VTE survivors of the impact of VTE and the need for standard provision for investigation, sharing information and follow-up communication.  Ref: <https://thrombosisuk.org/media-patient-films.php> |
| 16 | SCM4 | **Key area for quality improvement 2**  Information for patients and carers available at all points in the pathway and suitable for use in hospital and community settings including in the regulated care sector. Develop the widespread use of an ‘anticoagulant alert ‘card | Clarity and consistency of information is key to building awareness of the condition and where possible prevention, | Patients who are discharged from a clinical setting will be comprehensively supported to maintain progress in ongoing management of the condition particularly those cohorts of patients whose lifestyle predisposes them to VTE.  Use of an alert card would increase public awareness of incidence and highlight attendant risks in emergency circumstances | Please refer NG 158  Recommendation 1.5  And NG 89  Recommendation 1.2 |
| 17 | Bayer Plc | Key area for quality improvement 1  Patients should be routinely offered extended (post hospital) VTE prophylaxis as clinically appropriate in accordance with [NICE clinical guidelines](https://www.nice.org.uk/guidance/ng89).  [QS3 – Quality statement 7 - [Extended VTE prophylaxis](https://www.nice.org.uk/guidance/qs3/chapter/Quality-statement-7-Extended-VTE-prophylaxis)] | In 2018/19, 57 deaths recorded from venous thromboembolism (VTE) related events within 90 days post discharge from hospital per 100,000 adult hospital admissions. | A key patient safety priority for hospitals and an indicator within the NHS Outcomes Framework. By linking deaths from VTE to a recent hospitalisation, the indicator captures where an omission of prophylaxis or errors in diagnosis or treatment are likely to contribute to the outcome. | See NHS Outcomes Framework indicator 5.1, Deaths from venous thromboembolism (VTE) related events within 90 days post discharge from hospital.  <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-outcomes-framework/may-2020/domain-5-treating-and-caring-for-people-in-a-safe-environment-and-protecting-them-from-avoidable-harm-nof/5-1-deaths-from-venous-thromboembolism-vte-related-events-within-90-days-post-discharge-from-hospital>  <https://files.digital.nhs.uk/E3/5E254F/NHSOF_5.1_I00675_Q.pdf> |
| 18 | SCM3 | Thromboprophylaxis in lower limb immobilisation  NG89 Rec 1.11.1 | There is now good evidence to support the clinical and cost effectiveness of thromboprophylaxis for people with lower limb immobilisation.  Although there has been an improvement in risk assessment nationally, there are still areas of variation in practice | The most recent RCEM report suggests that in 2019, <75% of patients underwent risk assessment prior to discharge and <50% were provided with an information leaflet detailing the risks of VTE following immobilisation.  This is not good enough and there is clearly still much work to be done. | National RCEM report <https://www.rcem.ac.uk/docs/QI%20+%20Clinical%20Audit/RCEM%20VTE%20national%20report%20(July%202019).pdf>  TiLLI Study report  <https://fundingawards.nihr.ac.uk/award/15/187/06>  EMJ overview  <https://emj.bmj.com/content/37/1/36> |
| 19 | SCM9 | Key area for quality improvement 1 | Initial management of many patients with fractures begins in ED whilst definitive assessment and treatment is put in place in outpatient clinic and day surgery environments. | Often risk assessment VTE prophylaxis is not considered or prescribed at the initial ED presentation and patients return home. There is then a delay in the risk assessment and appropriate prophylaxis until the orthopaedic teams review the patients in clinic. | Guidance is in place for patients with lower limb immobilisation in the CG. |
| **Diagnosis and initial management** | | | | | |
| 20 | SCM6 | Availability of diagnostic tests 24/7 for all patients | Ability to provide US diagnosis for DVT not always available quickly (CTPA is not a problem) – means delay in treatment | Units have provided rotas to support this – so is possible | Availability of diagnostic tests 24/7 for all patients |
| 21 | Clinical Leaders of Thrombosis | Key area for quality improvement 2  Time scale for Doppler scanning for suspected DVT | The guidelines recommend that an ultrasound scan should be performed with a result within 24 hours and if not available within 4 hours then interim therapeutic anticoagulation. Many hospitals across the country do not offer 7 day ultrasound scanning and instead start treatment awaiting the scan when this can be carried out. | From an audit across the country of some 25 hospital around two thirds did not scan at weekends and so were not able to meet the NICE guideline. Some further guidance on what to do when scanning is not available within 24 hours would be useful or scan next working day as the advice | There is no specific study looking at this but some hospital guides are shown below  <https://www.kingstonhospital.nhs.uk/media/92030/DVT-Lower-Limb-Pathway-.pdf>  <https://www.harrogateandruraldistrictccg.nhs.uk/data/uploads/liam/test/hard_dvt-pathway.pdf>  <https://www.wwl.nhs.uk/Library/All_New_PI_Docs/VTE/VTE%20002%20DVT%2011.21%20v2.pdf> |
| 22 | SCM7 | **Key area for quality improvement 3:**  People with suspected deep vein thrombosis have all diagnostic investigations completed within 24 hours of first clinical suspicion. | It is important to ensure that diagnostic investigations are completed within 24 hours so that:  - Treatment can be initiated promptly if the diagnosis is confirmed  - To avoid dissolution of thrombus with interim anticoagulation resulting in a false negative investigations  - To avoid unnecessary repeat doses of anticoagulants if the diagnosis is excluded for patient safety, given the high risk nature of anticoagulants. | 2018/19: The average reported time from first clinical suspicion of VTE to diagnosis was 29.8hours. | The All-Party Parliamentary Thrombosis Group (2019) <https://thrombosisuk.org/downloads/APPTG%20Annual%20Review%202019%20100320.pdf> |
| 23 | Thrombosis UK | Key area for quality improvement 2 | Timely access to a scan | While we accept local variations in the VTE pathway, the considerable time differences and access to scan, across Trusts is leading to inequality and potential harm | NICE Guidance – NG158  <https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#diagnosis-and-initial-management> |
| 24 | SCM3 | Stop interim anticoagulation and repeat the US in 1 weeks time  NG 158 Rec 1.1.6 | The committee of NICE NG 158 identified variable practice in this regard, with some sites continuing interim anticoagulant therapy while awaiting a second US scan. This is potentially harmful for several reasons – firstly, it exposes the patient to the additional risks of bleeding from anticoagulation. Second, it risks the temporary control of an isolated distal deep vein thrombosis, which could then propagate outside of follow up once anticoagulation ceases. | There is evidence of variation in practice regarding this aspect of VTE management, despite national guidance and a large body of research. | Article citing concerns regarding variation in practice:  <https://www.bmj.com/content/360/bmj.k351/rr-0>  Original HTA project assessing the optimal cost effective diagnostic pathways for DVT:  <https://fundingawards.nihr.ac.uk/award/02/03/01> |
| 25 | SCM6 | Delays in GP at giving first dose of anticoagulant for suspected VTE | Means patients are delayed being protected against further events or propagation |  | Delays in GP at giving first dose of anticoagulant for suspected VTE |
| 26 | Bristol Myers Squibb – Pfizer Alliance | Ensuring all patients with VTE are protected as early as possible  Interim anticoagulation for VTE | Interim therapeutic anticoagulation is recommended for VTE, in NICE VTE Clinical Guideline NG158.  The guideline suggests that the interim anticoagulant selected is one that can be continued throughout treatment.  Anticoagulation should be initiated as soon as a suspected VTE event has been clinically diagnosed and not delay until confirmatory baseline blood tests confirm the diagnosis. | Wide variations exist in access to diagnostic services across England.  Patients with VTE who are not anticoagulated are at higher risk of recurrent VTE. | NICE NG158 (2020) (<https://www.nice.org.uk/guidance/ng158>). |
| 27 | British Thoracic Society | Key area for quality improvement 1 | Administration of anticoagulation in suspected PE if diagnosis is likely to be delayed by >1 hour. |  |  |
| 28 | Thrombosis UK | Key area for quality improvement 3 | Ensure prescribing and dosing of an anticoagulant when VTE is suspected but yet to be confirmed | Currently there is varied practice in prescribing anticoagulation if VTE is suspected but diagnosis is pending.  Evidence is clear that early intervention provides protection for the individual and, when risks are assessed, (as they should be on an individual basis) the benefit most usually outweighs risk. | NICE Guidance NG158  <https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#anticoagulation-treatment-for-suspected-or-confirmed-dvt-or-pe> |
| 29 | SCM5 | Key area for quality improvement 1 | Interim anticoagulation for PE | NCEPOD highlighted delayed Anticoagulation continues to be an issue in case reviews |  |
| **Anticoagulation** | | | | | |
| 30 | SCM4 | **Key area for quality improvement 3**  Clear and consistent advice regarding the timing and use of prophylaxis in patients with cancer | There appears to be inconsistent advice between NG89 recommendation and the QS 29 |  | Please refer NG89  Recommendation 1.6  QS 29  Quality statement 7 |
| 31 | All Party Parliamentary Group on Vascular and Venous Disease | Prevention of venous thromboembolism. | direct oral anticoagulants are commonly used for venous thromboembolism prevention, but this is often not a licenced indication. This should ideally be included in the new quality standard. | Off licence use may promote variation in practice. | Anecdotal feedback from healthcare professionals. |
| 32 | LEO Pharma | Key area for quality improvement 3  **People with pancreatic cancer or multiple myeloma should be considered for ambulatory prophylaxis at diagnosis** | People with pancreatic cancer or multiple myeloma are at an especially increased risk of VTE and should be considered for ambulatory prophylaxis as recommended in NICE Guidance NG 89.  Hospitals Trusts should develop written policy to document that all such people have been considered for such prophylaxis at diagnosis following the use of a validated risk-assessment score for this purpose | There is variation amongst Hospital Trusts in their approach to primary prophylaxis in ambulatory people with multiple myeloma or pancreatic cancer, with variation in type and use of risk assessment scores and intervention following the use of such scoring |  |
| 33 | British Society for Haematology |  | NG158  We could strongly recommend AGAINST using the following NICE recommendation as a QS: Consider anticoagulation treatment with regular monitoring of therapeutic levels for people with confirmed proximal DVT or PE who weigh less than 50 kg or more than 120 kg, to ensure effective anticoagulation. |  | There is zero evidence for this recommendation as per our BSH submission for the draft of NG158. In fact there is a substantial amount of accumulating evidence that monitoring is not required for improving outcomes in patients at the extremes of weight |
| 34 | SCM6 | Failure to adjust anticoagulants in relation to renal function or extremes of body weight | Reduced efficacy |  | Failure to adjust anticoagulants in relation to renal function or extremes of body weight |
| 35 | Anticoagulation UK | Additional developmental areas of emergent practice | 1.3.8 Prescribing recommendations…  An observation | NG 158 directs prescribing of Apixaban and Rivaroxaban for VTE. ACUK is aware that some CCGS are directing other DOACS as first choice. Could this compromise shared decision making process and limit choice of treatment? |  |
| 36 | Thrombosis UK | Key area for quality improvement 4 | Uniformity of care:  Prescribing of anticoagulation for three months if the VTE is a provoked event unless there are other risk factors indicated.  Annual anticoagulation review. | Current practice varies considerably across England. This is not reflective of evidence nor of a quality standard of care deserved by each patient. | A recently published paper examples the benefits of review and current issues in variation of care and the harm that can occur  <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/24C34506FF0A90FB9349E0D291EEC57F/S1463423620000171a.pdf/implementation_of_a_standardised_annual_anticoagulation_specialist_review_in_primary_care.pdf> |
| 37 | Clinical Leaders of Thrombosis | Additional developmental areas of emergent practice | To look at anticoagulant practice in obese and super obese patients which is a growing issue and practice varies differently across the country |  |  |
| 38 | LEO Pharma | Key area for quality improvement 4  **Specific assessments of bleeding risk in people with VTE and active cancer should be conducted to inform appropriate choice of anticoagulant.** | Patients with Cancer Associated Thrombosis (CAT) have specific risk factors for bleeding and there is evidence to show that these can be managed with appropriate choice of class of medication.  NICE Guidance recommends that bleeding risk is taken into account when choosing class of anticoagulant for people with VTE and active cancer.  Hospital Trusts should document specific risk assessments of bleeding risk in people with VTE and active cancer. | Different Hospital Trust guidelines vary in the recommendation they make on the appropriate class of anticoagulant in people with VTE and cancer | Published reviews suggest an increased risk of clinically relevant non-major bleeding when treating cancer associated thrombosis with Direct-acting Oral Anticoagulants (DOAC) than with Low Molecular Weight Heparins (LMWH)  **Tao et al** Eur J Haematol. 2020 May22.doi:10.1111/ejh.13453 |
| 39 | LEO Pharma | Key area for quality improvement 5  **People with active cancer & VTE receive anticoagulation therapy for up to 6 months & are reviewed within the 6 months.** | People with active cancer benefit from extended treatment.  NICE NG 158 recommends that people with active cancer and VTE are offered anticoagulation for 3 to 6 months and reviewed at 3 to 6 months.  Hospital Trusts should ensure that treatment has been planned for up to 6 months and has been reviewed before 6 months and the benefits and risks of continuing, stopping or changing the anticoagulant beyond this period have been discussed with the recipient and documented | There are variations between hospitals in duration of extended treatment for people with VTE and active cancer. | Prescription data **(from Kantar, commercial in confidence)** shows a difference in the national average number of days that different Low Molecular Weight Heparins are used for anticoagulation in people with cancer and VTE, ranging from 140 to 158 days in people receiving cancer-chemotherapy and from 163 to 200 days in people with metastases |
| 40 | SCM5 | Key area for quality improvement 4 | Chemical prophylaxis and anticoagulation given as per NG89 and NG158 | Still cases of inappropriate dose omissions of thtomboprophylaxis (as well as failure to re-assess following temporary interruption –) unclear how this contributes to HAT but needs to be addressed.  NG158 should be followed where possible to optimise patient pathways. Eg as appropriate DOACs should be considered ahead of lmwh this may require changes to local guidelines and changes/ reconfiguration of cancer associated thrombosis services and clinics. |  |
| 41 | Anticoagulation UK | Key area for quality improvement 1 | Self – testing/ monitoring options for patients on VKA medication | With the uptake of initiation of DOACS for treatment and prevention of VTE, VKA is reducing as a first line treatment. There is a cohort of people who are unsuitable for DOACS, those having undergone mechanical heart valve replacement and antiphospholipid patients. These patients should be offered an opportunity to self – monitor and this should form part of the shared decision making process with their clinician.  We are aware of patients on VKA being reviewed for the purposes of switching to a DOAC. Since the onset of COVID 19, this has become a priority due to the restrictions impacting on regular blood tests and INR readings. Some patients eligible for switching have been reluctant to switch and still needed blood tests for renal function as required by DOACs. New guidelines around switching and self - testing were published during COVID 19 to direct clinicians responsible for anticoagulation service provision.  We would suggest that self – testing must be **regarded as an option going forward for any patient on VKA** | NHS England and NHS Improvement  Specialty guides for patient management during the coronavirus pandemic  Clinical guide for the management of anticoagulant services during the coronavirus pandemic (31 March 2020 Version 1)  Guidance for the safe switching of warfarin to direct oral anticoagulants (DOACs)for patients with non-valvular AF and venouthromboembolism (DVT / PE) during the coronavirus pandemic 26 March 2020  Lead Author: Helen Williams, FFRPS, FRPharmS Consultant Pharmacist for CVD, NHS Southwark CCG National Clinical Adviser for AF, AHSNs Network Endorsed by: Royal College of General Practitioners, British Haematology Society |
| 42 | All Party Parliamentary Group on Vascular and Venous Disease | Diagnosis and treatment of venous thromboembolism | There is enormous inconsistency regarding duration of anticoagulation therapy. Traditionally, patients have been dichotomised into ‘provoked venous thromboembolism ’ or ‘unprovoked venous thromboembolism ’. However, in reality, the distinction is much more difficult. There is an important group with weak provoking factors only, who probably need long-term anticoagulation. More clarity here would be very useful | Inconsistency and variation in practice. | Reference (1) - American College of Physicians – Raja et al., Evaluation of patients with suspected acute pulmonary embolism: Best practice advice from the clinical guidelines committee of the American College of Physicians. Ann Intern Med 2015; 163 (9):701; reference (2) - European Society of Cardiology – Konstantinides et al., Guidelines for the diagnosis and management of acute pulmonary embolism developed in collaboration with European Respiratory Society (ERS) : The task force for the diagnosis and management of acute pulmonary embolism of the European Society of Cardiology (ESC) European Resp J. 2019; 54(3) Epub 2019 (Oct 19); reference (3) - CHEST guideline – Kearon et al., Antithrombotic therapy for VTE disease: CHEST Guideline and Expert Panel Report. CHEST 2016; 149(2):315 Epub 2016 Jan 7; reference (4) Anecdotal feedback from healthcare professionals. |
| 43 | Bayer Plc | Key area for quality improvement 3  Planned review of anticoagulation therapy to discuss the risks and benefits of continuing anticoagulation therapy  [[QS29 - Quality statement 8: Follow‑up for people without cancer](https://www.nice.org.uk/guidance/qs29/chapter/Quality-statement-8-Followup-for-people-without-cancer) and Quality statement 9: Follow‑up for people with cancer] | NICE clinical guidelines recommend that people who receive anticoagulation therapy have a review within 3 months of diagnosis of confirmed proximal DVT or PE.  Patients with VTE and cancer should be reviewed within 3 to 6 months (combine these recommendations into 1). | These quality statements should be retained. Many patients commence treatment for VTE in hospital and are discharged to ongoing care in the community. Throughout this phase of the pathway, maintaining adherence and persistence with extended anticoagulation therapy is a crucial.  Equally, as anticoagulation therapy carries potential risks such as bleeding there is a need to ensure the therapy remains beneficial.  Therefore, ensuring all patients are regularly reviewed to evaluate the clinical impact of anticoagulation therapy and consider any adjustments is critical. |  |
| 44 | Bristol Myers Squibb – Pfizer Alliance | Review of anticoagulation after acute phase of VTE treatment. | Outcomes of treatment for VTE should be reviewed at completion of the acute phase (3-6 months) and form part of the longer term assessment of the need for long-term anticoagulation.  If long-term anticoagulation is indicated, the review should confirm that there is no substantive change in the patient’s clinical circumstances, and that the patient is willing to continue, based on the benefit-risk profile of the anticoagulant. | There is variation in the extent to which patients are reviewed at 3-6 months; one study of patients diagnosed with pulmonary embolism (PE) found that an outpatient appointment was not routinely arranged in 17.9% of hospitals (NCEPOD, 2019).  This is expected to lead to some at-risk patients not being prescribed long-term anticoagulation, with the negative impacts on the NHS and patients described above. | The National Confidential Enquiry into Patient Outcome and Death. Know the Score (2019). London. |
| 45 | SCM7 | Key area for quality improvement 4  Follow up at 3 or 6 months post VTE diagnosis as per NICE guidelines. |  |  |  |
| 46 | **SCM1** | Key area for quality improvement 2 | Self-care | During Covid many patients were classed as vulnerable – a large proportion of those patients are able to slf care with the correct equipment. They had to put themselves at risk by attending INR clinics | AF guideline offers self-care to patients on long term VKA  There ais now a group of patients that cannot switch to a DOAC – the APS patients – they are on long term anticoagulants and they are not offered self-care. This makes them feel patient every time they have to go for their INR  Self-care is very important |
| 47 | All Party Parliamentary Group on Vascular and Venous Disease | Diagnosis and treatment of venous thromboembolism | More clarity on use of low dose long-term direct oral anticoagulants for venous thromboembolism prevention. | Area of improvement. | The evidence base includes robust studies with varying outcomes. Reference (1) – Mai et al., Extended anticoagulation for the secondary prevention of venous thromboembolic events: An updated network meta-analysis. PLoS One 2019 14(4); reference (2) AMPLIFY-Extension Study - Agnelli G, et al. Apixaban for extended treatment of venous thromboembolism. N Engl J Med. 2013;368:699-708; reference (3) EINSTEIN CHOICE - Weitz JI et al, Rivaroxaban or aspirin for extended treatment of venous thromboembolism. N Engl J Med. 2017;376:1211–1222; reference (4) Anecdotal feedback from healthcare professionals. |
| 48 | British Society for Haematology |  | NG158  Assess and discuss the benefits and risks of continuing, stopping or changing the anticoagulant with people who have had anticoagulation treatment for 3 months (3 to 6 months for people with active cancer) after a proximal DVT or PE | This is historically an area of variable practice across the UK. To ensure that all VTE patients have access to specialist follow up may require some additional resources in some institutions and highlighting this as a quality standard will be a lever. Historically, much of the patient information and counselling related to the anticoagulant treatment itself rather the cause and long term management of the condition. | All major guidelines on VTE management (NICE/BTS/ESC/ASH/ACCP) recommend assessment for limited vs extended anticoagulation. Without an assessment at the appropriate time, how can this be applied?  From the patient perspective, assessment is also required to address other issues, not least the psychological impact (Noble S, Lewis R, Whithers J, et al. Long-term psychological consequences of symptomatic pulmonary embolism: a qualitative study. BMJ Open 2014;4:e004561. doi: 10.1136/bmjopen-2013-004561)  Although rare (approx. 5% of PE cases), patients may require referral and specialist management of chronic thromboembolic pulmonary hypertension |
| 49 | Bristol Myers Squibb – Pfizer Alliance | Prevention of VTE recurrence  Long-term anticoagulation for patients at increased risk of recurrent VTE. | The long-term risk for recurrent VTE in patients with a first unprovoked VTE is substantial (Khan F *et al*, 2019).  Long-term anticoagulation should be considered for many patients, including all with unprovoked VTE (NICE Clinical Guideline NG158).  Eligibility for long-term anticoagulation should be considered (and justified) on initiation of acute therapy; continuation of therapy is important to help ensure patient safety by avoiding medication and concordance errors (unless the clinical situation has changed or the medication is not well tolerated). | 56-59% of patients are expected to present with unprovoked VTE (Martinez *et al*, 2014; NICE NG158, 2020) and are thereby indicated for lifelong anticoagulation.  However there is some variation across England in the proportion of eligible patients being prescribed long-term anticoagulation. There is a 30% risk of recurrent VTE within the first five years of stopping anticoagulation with provoked VTE (Kearon C *et al*, 2014).  Many patients therefore remain at high risk of VTE recurrence, increasing the burden to the NHS, to patients, and their families/carers. | Khan F *et al* (2019). Long term risk of symptomatic recurrent venous thromboembolism after discontinuation of anticoagulant treatment for first unprovoked venous thromboembolism event: systematic review and meta-analysis. BMJ 366:14363  Martinez *et al* (2014). Epidemiology of first and recurrent venous thromboembolism: A population-based cohort study in patients without active cancer. Thromb Haemost 112:255-263  Kearon C *et al* (2014). Duration of anticoagulant therapy for deep vein thrombosis and pulmonary embolism. Blood 123(12):1794  NICE NG158 (2020) (<https://www.nice.org.uk/guidance/ng158>). |
| 50 | SCM3 | Consider stopping anticoagulation 3 months after a provoked VTE if the provoking factor is no longer present  NG 158 Rec 1.4.2 | Patients without this early review are likely to be left indefinitely on anticoagulation with no scheduled stop date.  To my knowledge, there are no published reports on implementation of this review and compliance with national reporting metrics. | The incidence rate for major bleeding on therapeutic dose anticoagulation is approximately 2%. In addition, some patients may have a turbulent initial period with anticoagulation, which warrants consideration of the risks and benefits of further therapy at 3 month review. | Bleeding risks on anticoagulation for VTE: meta-analysis  <https://pubmed.ncbi.nlm.nih.gov/14644891/> |
| 51 | **SCM1** | Key area for quality improvement 3 | Recurrent DVT | Unprovoked VTE should be seen as a long term condition and patients should be lifelong anticoagulated | Round table group in London. The consensus was that an unprovoked VTE is a long term condition and to prevent recurrence patients should be anticoagulated for the rest of their life unless bleeding risk outweighs tis. |
| **Further interventions and tests** | | | | | |
| 52 | All Party Parliamentary Group on Vascular and Venous Disease | Diagnosis and treatment of venous thromboembolism | There is considerable new evidence on the use of early compression for treating deep vein thrombosis – clearly beneficial. This needs to be incorporated into guidance. Centralised venous networks could play a supporting role. | Area of improvement. | Reference (1): Cochrane database review Appelen D et al., Compression therapy for prevention of post-thrombotic syndrome. Cochrane Database of Systematic Reviews 2017, Issue 9; reference (2): Anecdotal feedback from healthcare professionals. |
| 53 | All Party Parliamentary Group on Vascular and Venous Disease | Diagnosis and treatment of venous thromboembolism | Use of inferior vena cava filters is generally safe however complications can occur. The use of IVC filters should be followed with a clear plan for the removal of the filter (if its use is intended to be temporary) . Additionally, their use should consider the patient’s circumstances relevant to: presence of pulmonary embolism and deep venous thrombosis in spite of the use of anticoagulant therapy. Centralised venous networks could play a supporting role. | Area of improvement. Inconsistency and variation in practice. | Reference (1): Grewal et al., “Complications of inferior vena cava filters.” Cardiovascular diagnosis and therapy vol. 6,6 (2016): 632-641; reference (2): Sharifi M et al., Role of IVC filters in endovenous therapy for deep venous thrombosis: the FILTER-PEVI (filter implantation to lower thromboembolic risk in percutaneous endovenous intervention) trial. Cardiovasc Intervent Radiol. 2012;35(6):1408-1413; reference (3): Usoh et al., Prospective randomized study comparing the clinical outcomes between inferior vena cava Greenfield and TrapEase filters. J Vasc Surg. 2010;52(2):394-399; reference (4): Anecdotal feedback from healthcare professionals. |
| 54 | All Party Parliamentary Group on Vascular and Venous Disease | Post venous thromboembolism management. | Clarity on use of stockings for preventing post thrombotic syndrome. | Area of improvement. | Reference (1): The SOX trial: Kahn SR et al. Compression stockings to prevent post-thrombotic syndrome: a randomised placebo-controlled trial. Lancet. 2014;383(9920):880-888; reference (2): The OCTAVIA study: Mol G C, et al., One versus two years of elastic compression stockings for prevention of post-thrombotic syndrome (OCTAVIA study): randomised controlled trial BMJ April 2016; reference (3): Anecdotal feedback from healthcare professionals. |
| 55 | British Society of Interventional Radiology | Key area for quality improvement 3 | The use of aspirational mechanical thrombectomy rather than lysis in acute DVT and P.E. | Currently many sites will initially place all patients on lysis as a way to manage clot. This has significant complications in particular bleeding | There is enough data and technology to support the use of systems that remove clot and do not relay on the use of lysis/TpA drugs. This reduces complications rates, hospital stay, contra-indication cases and are more cost effective/efficient in selected cases.  <https://www.dicardiology.com/channel/thrombectomy-devices>  <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5220196/pdf/cdt-06-06-599.pdf>  <http://www.indianvascularsurgery.com/wp-content/uploads/2019/06/Aspiration-thrombectomy-for-acute-iliofemoral-or-central-deep-venous-thrombosis.pdf> |
| 56 | SCM6 | Overuse of IVC filters and failure to remove in a timely fashion | Incorrect use of resources and risk of ong term adverse outcomes |  | Overuse of IVC filters and failure to remove in a timely fashion |
| 57 | SCM8 | NG158 1.7.1/4 IVC filters should only be sited as part of a prospective clinical study, and there should be a strategy in place for removal of the device in a timely manner | Use of IVC filters, especially peri-operatively, is increasing. It is important to consider the role of filters, especially in the peri-operative setting, and the need to retrieve the filter in a timely manner | To prevent increasing use of IVC filters, especially peri-operatively, with little evidence to support efficacy, and limit harm by ensuring early retrieval, and audit of outcome |  |
| 58 | LEO Pharma | **People with unprovoked deep vein thrombosis or pulmonary embolism who are not already known to have cancer are offered timely investigations for cancer.** | People with unprovoked VTE may have cancer and there is evidence that further investigation in people with relevant symptoms will establish a diagnosis and direct appropriate type and duration of anticoagulation.  Hospital Trusts should have a written process to investigate for cancer in people with unprovoked VTE and relevant symptoms | NICE Guidance NG 158 and NG12 recommends that for people with unprovoked VTE and relevant symptoms, urgent investigation for cancer is undertaken | Epidemiological data shows that people with cancer and VTE are at considerably more risk of recurrent VTE and death than those with VTE alone  **Levitan N, et al***.* Medicine 1999; 78: 285-291  **Prandoni P, et al*.***Blood 2002; 100:3484-3488  **SØrensen, Henrik Toft, et al.**  *New England Journal of Medicine* 343.25 (2000): 1846-1850 |
| 59 | All Party Parliamentary Group on Vascular and Venous Disease | Prevention of venous thromboembolism | The recently revised hospital venous thromboembolism prevention made some revisions to the duration of pharmacoprophylaxis (to 7 days for most patients). Uptake for this has been poor, with many hospital trusts choosing to disregard this recommendation. The main reason for this is that low-molecular-weight heparin injections are difficult to administer for many patients on discharge. This needs to be recognised and addressed. | Low uptake due to difficulties in delivering treatment. | Anecdotal feedback from healthcare professionals. |
| 60 | Anticoagulation UK |  | 1.8.1 Investigations for cancer | Ensure patients who are being investigated for cancer or received a diagnosis of cancer understand the heightened risk of blood clots and this explained to them both verbally and given patient information to support the understanding. There can be gaps in which clinical team impart this information and at what time of the investigation or diagnosis. We feel it should be a priority to advise the patient in a timely way of the risk in order to ensure they can be made aware of symptoms of VTE and not asymptomatic issues relating to the cancer diagnosis or treatment. Stress importance of anticoagulation therapy, adherence and review of anticoagulation therapy as recommended |  |
| 61 | SCM8 | NG158 1.8.2 Do not offer investigation for cancer unless person has relevant signs and symptoms | There is strong evidence to support the advice to not perform further imaging such as CT scan in people with unprovoked venous thrombosis. Imaging causes anxiety for people waiting for results and may find incidental pathology that then requires investigation | Reduces waiting times for CT scans and ensures more appropriate allocation of imaging; reduces costs overall to health service |  |
| 62 | SCM5 | Key area for quality improvement 5 | Cancer investigations where other VTE cause not identified | Change in guidance reduces unnecessary investigations, appointments and anxiety and should be implemented particularly in light of COVID |  |
| 63 | British Society for Haematology |  | NG158  Do not offer testing for hereditary thrombophilia to people who are continuing anticoagulation treatment. [2012, amended 2020]. Individuals with features that indicate an increased likelihood of antiphospholipid syndrome should be offered solid phase immunological assays for antiphospholipid antibodies  Do not offer thrombophilia testing to people who have had provoked DVT or PE. [2012] | The clinical utility of thrombophilia screening is known to be low however there is still variable practice across the UK. These tests are very expensive (>£200 per patient) and are not a good use of health care resources | Baglin, T., Gray, E., Greaves, M., Hunt, B.J., Keeling, D., Machin, S., Mackie, I., Makris, M., Nokes, T., Perry, D., Tait, R.C., Walker, I. and Watson, H. (2010), Clinical guidelines for testing for heritable thrombophilia. British Journal of Haematology, 149: 209-220. doi:10.1111/j.1365-2141.2009.08022.x  Due for update now |
| **Information and support** | | | | | |
| 64 | SCM3 | Additional evidence |  |  | British Thoracic Society guidelines for outpatient management of pulmonary embolism  <https://thorax.bmj.com/content/73/Suppl_2/ii1?int_source=trendmd&int_campaign=usage-042019&int_medium=cpc>  British Thoracic Society quality standards for outpatient management of pulmonary embolism  <https://bmjopenrespres.bmj.com/content/7/1/e000636>  This recent NICE accredited guideline overlaps with much of the recent NG158 and the published quality standards in this area are sensible |
| 65 | Clinical Leaders of Thrombosis | Key area for quality improvement 3  Outpatient treatment of PE patient information | The current guidance when patients are deemed suitable for outpatient management one of the criteria is they are “given direct contact details of a healthcare professional or team with expertise in thrombosis who can discuss any new symptoms or signs, or other concerns” To be able to provide a 24/7 service to meet this is very challenging | Whilst guidance on signs and symptoms and potential complications and information on out of hours services should problems arise are all very sensible achievable goals it is not clear how direct contact details can be provided. Within AAU units contact details can be given but many of these are not 24 hour and it is unclear how this criteria is met. Details during working hours and an out of hours emergency service would be more achievable |  |
| 66 | British Thoracic Society | Key area for quality improvement 2 | Use of a validated tool (eg PESI/s-PESI) to assess PE severity immediately following diagnosis |  |  |
| 67 | SCM5 | Key area for quality improvement 3 | Outpatient management of low risk PE | Support better patient pathways and release inpatient capacity particularly relevant in light of COVID |  |
| 68 | SCM3 | Outpatient treatment for PE  NG 158 Rec 1.2 | There is good evidence that **outpatient** management of suspected and confirmed pulmonary embolism is safe and effective, when conducted in line with recent evidence. This is now recommended within BTS and NICE guidance | Recent audits presented at national emergency and respiratory medicine conferences have shown that there is still wide variation in outpatient pathways. In addition, methods of clinical surveillance during outpatient care and ambulatory follow up appear to vary. | British Thoracic Society guidelines for outpatient management of pulmonary embolism  <https://thorax.bmj.com/content/73/Suppl_2/ii1?int_source=trendmd&int_campaign=usage-042019&int_medium=cpc>  British Thoracic Society quality standards for outpatient management of pulmonary embolism  <https://bmjopenrespres.bmj.com/content/7/1/e000636> |
| 69 | Bayer Plc | Key area for quality improvement 5  Consider outpatient treatment for suspected or confirmed low-risk PE, using a validated risk stratification tool to determine the suitability of outpatient treatment. | Outpatient treatment for people with PE who have a low risk of poor outcomes is increasingly being used in settings such as ambulatory care units.  People with low risk PE carry a low risk of mortality and patient experience and cost effectiveness is improved in the outpatient setting | Home Treatment of Patients with Low-Risk Pulmonary Embolism with the Oral Factor Xa Inhibitor Rivaroxaban (HoT-PE) trial, the aim was to investigate the efficacy and safety of early transition from hospital to ambulatory treatment in low-risk acute PE, using the oral factor Xa inhibitor rivaroxaban.  Conclusion: Early discharge and home treatment with rivaroxaban is effective and safe in carefully selected patients with acute low-risk PE. The results of the present trial support the selection of appropriate patients for ambulatory treatment of PE. | Barco S, et al. Early discharge and home treatment of patients with low-risk pulmonary embolism with the oral factor Xa inhibitor rivaroxaban: an international multicentre single-arm clinical trial, *European Heart Journal*, Volume 41, Issue 4, 21 January 2020, Pages 509–518  The committee agreed that outpatient care offers substantial benefits for people with PE and for hospital services and should be considered for those with suspected or confirmed low-risk PE. <https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#outpatient-treatment-for-low-risk-pe> |
| 70 | British Thoracic Society | Key area for quality improvement 5 | Formalised PE follow-up to assess initial response to therapy, symptom resolution and to decide on longer-term anticoagulation |  |  |
| 71 | SCM4 | **Key area for quality improvement 4**  Development of outpatient treatments and therapies | Reduction of pressure on in hospital services | There is a whole system imperative for a systematic shift of a range of services to a community based /primary care model of care to avoid unnecessary use of acute capacity and services | Please refer NG 158  Recommendation 1.2 |
| 72 | Bristol Myers Squibb – Pfizer Alliance | Enabling effective, shared decision-making  Shared decision-making between healthcare professionals and patients with VTE. | NICE guidelines emphasise the importance of shared decision-making, involving patients in decisions on their care. Patients should be enabled to make an informed choice based on an evidence-based assessment of the risks and benefits of therapy prescribed. | Considerable variation exists across England on the extent to which shared decision-making processes are used.  This Quality Standard can help achieve effective shared decision-making, enhancing the way resources are allocated and reducing unwarranted clinical variation. | NICE KTT23 (2019) (<https://www.nice.org.uk/advice/ktt23>).  NICE NG158 (2020) (<https://www.nice.org.uk/guidance/ng158>).  NHS England  <https://www.england.nhs.uk/shared-decision-making/why-is-shared-decision-making-important/> |
| 73 | SCM8 | NG158 1.5.1/2 Information to people having anticoagulation verbal and written information | People have a choice of anticoagulation, and should be informed of their choices, and how to take the medicine chosen for optimal effect. This takes time, and is important to document within the patient record | Ensures compliance and adherence, enabling optimal anticoagulation |  |
| 74 | Anticoagulation UK | Key area for quality improvement 5 | 1.5.1 Information and support for people having anticoagulation treatment | NHS needs to provide standardised patient information available in a variety of formats for the patients with a review cycle. At present, there is a plethora of information available and for consistency and accuracy, PIL should be reviewed in light of the new guidelines and as part of the QS process  1.5.2 Over two years ago, ACUK were invited to be part of a working group to revise the anticoagulation record book and alert card. Most patients are not made aware of the manufacturer’s alert card with the medication and **do not have any alert card to rely on**. There is an urgent requirement to produce Alert Cards for patients which are user friendly, accurate and durable especially for long term anticoagulated patients | **This is a patient priority especially with DOACS ( Apixaban, Rivaroxaban and Edoxaban not having a reversal agent available)** |
| 75 | **SCM1** | Key area for quality improvement 1 | NG158 states: Provide patient with information | There is no standard information for patients at the moment. The yellow book is for Warfarin patients only – It seems imperative that some sort of documents will be available for new and existing patients on anticoagulants | Various support groups – It is an obvious problem seeing the repetitive questions from patients. Patients get diagnosed with a VTE and no follow up or clear instructions. The use of a ‘yellow book’ for all patients should be ‘invented and compulsory’ This book should give clear guidance and follow up appointment dates should be standard in the book.  The use of a proper alert card is very important |
| **Additional areas** | | | | | |
| 76 | All Party Parliamentary Group on Vascular and Venous Disease | Diagnosis and treatment of venous thromboembolism | The indications for the use of thrombolysis or pharmacomechanical thrombectomy remains unclear. Relatively few centres are able to provide this service, so greater clarity (further than just ‘consider’) would be helpful. All cases should be submitted to the British Society of Interventional Radiology’s Deep Venous Thrombosis registry.  Mechanical or pharmacomechanical treatment of deep venous thrombosis does not always achieve adequate thrombus clearance and catheter directed thrombolysis may be required. If endovascular treatment of deep venous thrombosis is undertaken the unit must have ability to offer catheter directed thrombolysis either directly or by referral to local vascular hub.  Further, please consider reviewing interventional procedures guidance IPG651 for inclusion or cross-referencing with NICE guideline NG158. | Area of improvement. | A significant number of patients with an iliofemoral deep venous thrombosis will go on to develop post thrombotic syndrome. Reference (1): Kahn SR, et al.; American Heart Association Council on Peripheral Vascular Disease, Council on Clinical Cardiology, and Council on Cardiovascular and Stroke Nursing. The post thrombotic syndrome: evidence-based prevention, diagnosis, and treatment strategies: a scientific statement from the American Heart Association. Circulation. 2014;130(18):1636-1661; reference (2) Silverstein MD, Heit JA, Mohr DN, et al. Trends in the incidence of deep vein thrombosis and pulmonary embolism: a 25-year population-based study. Arch Intern Med 1998;158:585-93 Traditional management used to be medical only (anticoagulation + compression); reference (3): Subgroup analysis of the ATTRACT trial. Comerota AJ, Kearon C, Gu CS, et al. Endovascular Thrombus Removal for Acute Iliofemoral Deep Vein Thrombosis. Circulation. 2019; 139(9):1162-1173; reference (4): CaVenT trial - Haig et al., Post-thrombotic syndrome after catheter-directed thrombolysis for deep vein thrombosis (CaVenT): 5-year follow-up results of an open-label, randomised controlled trial. 2016; 3(2) e64-e7; reference (5) Anecdotal feedback from healthcare professionals. |
| 77 | NHSEI Patient safety |  | The new QS will need to be mindful of any special considerations for COVID-19 patients and associated VTE risk (including stroke alongside VTE in COVID-19 patients)  The QS needs to acknowledge the challenge that arises from the NICE CG in that there is no validated VTE risk assessment to recommend, as would normally be expected in the field of clinical evidence-based risk assessment, and common practice is to use one published in 2010 that does not fully reflect the current NICE CG recommendations.  There have been some oft-repeated statistics on healthcare-associated VTE deaths without a clear reference trail – note there is good and recent data here <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-outcomes-framework/may-2020/domain-5-treating-and-caring-for-people-in-a-safe-environment-and-protecting-them-from-avoidable-harm-nof/5-1-deaths-from-venous-thromboembolism-vte-related-events-within-90-days-post-discharge-from-hospital> |  |  |
| 78 | Anticoagulation UK | Key area for quality improvement 3 | 1.41 Potential review of anticoagulation therapy to prevent recurrence of further VTE episodes | COVID-19 will have an increasing long-term impact on treatment of venous disease patients  HAT ( hospital acquired thrombosis) is occurring in COVID patients with pro-inflammatory changes in their blood. Whilst these patients may not require long term anticoagulation, it is uncertain as to whether the risk of VTE will continue once they have recovered. We suggest that the review of recurrence at the intervals stated must be followed closely with patients being advised to be proactive in reporting any symptoms which may be as a direct result of COVID and potentially could lead to a diagnosis of pulmonary hypertension. Comprehensive patient information around VTE risk post COVID is vital |  |
| 79 | SCM4 | Additional developmental areas of emergent practice | Development of the proposed QS in the light of ongoing management of ‘long’ Covid 19 patients | To keep currency /future proof this standard as far as is practicable in the light of present/emerging knowledge and to ensure that good practice is cited at an early stage. |  |
| 80 | LEO Pharma | Additional developmental areas of emergent practice | All of the above key areas and their associated Quality Standards should be maintained during the course of the ongoing COVID-19 pandemic or similar emergencies | COVID-19 has impacted the attendance and follow up in hospital of people with cancer.  The ISTH has issued recent guidance re things to consider re management of VTE in light of COVID. <https://www.isth.org/news/517212/A-Systematic-Approach-for-Managing-Venous-Thromboembolism-in-Patients-with-COVID-19.htm> | A market intelligence report from IQVIA (commercial in confidence) suggests that treatment protocols in cancer have significantly changed due to practical issues introduced by COVID-19 |
| 81 | SCM5 | Additional | COVID POINTS:  VTE prevention -standard, double dose and therapeutic anticoagulation being used.  D-dimer traditionally used for negative predictive value, during COVID some centres have been using d-dimer levels to stratify intensity of thtomboprophylaxis with anticoagulation.  Large increase in VTE patients. Unclear whether. any important difference in COVID-VTE and how this will impact follow up  Prospective trials on Thrombosis in COVID slow to start so optimal strategy unclear  Unclear whether post discharge thtomboprophylaxis required.  Guidance doesn’t provide for understanding of VTE risk and specific management of COVID-VTE in community or in particular high risk groups in community  Rapid increase in number of patients on anticoagulation due to COVID-VTE. And rapid increase in numbers of patients on DOACs –(eg due to switch from warfarin to DOACs) further safety netting needs to be in place |  |  |
| 82 | SCM7 | Additional area  The reported effect of COVID on VTE rates and the variable thromboprophylaxis dosing strategies based on D-dimer values, patients weight/renal function and duration of extended thromboprophylaxis. |  |  |  |
| 83 | Anticoagulation UK | Key area for quality improvement 4 | Psychological support for VTE sufferers and COVID 19 affected patients | There is no recognition or reference within NG 158 as to available support mechanisms to be offered to patients following VTE.  There has been research undertaken which indicates the impact of VTE and, since COVID 19, there will inevitably be significant challenges for individuals who have recovered from the illness and now have to acknowledge their increased risk of VTE and potential related vascular problems. | The review pathway for VTE should include reference to the impact of VTE on patients mental health and physical wellbeing.  Clinicians responsible for managing anticoagulation therapy should be able to refer/access to support patients who are affected by their diagnosis and ongoing risk of VTE. As a patient organisation, we engage with patients who are clearly affected by a diagnosis and seek external support. We always direct back to their managing clinician but there is an identified need as identified in research below  Long-term psychosocial impact of venous thromboembolism: a qualitative study in the community Rachael Hunter1, Simon Noble2, Sarah Lewis3, Paul Bennett4  <https://bmjopen.bmj.com/content/9/2/e024805> |
| 84 | All Party Parliamentary Group on Vascular and Venous Disease | Prevention of venous thromboembolism. | COVID-19 is a major risk factor for venous thromboembolism. This may not be typical deep vein thrombosis or pulmonary embolism, but microvascular thrombosis. There needs to be some guidance on venous thromboembolism risk management for patients who are positive, or who have had recent COVID-19 infection, as this will be a commonly encountered scenario for the foreseeable future. | Area of unmet need relevant to current public health context. | Reference (1) Hung et al., Incidence and mortality of pulmonary embolism in COVID-19: a systematic review and meta-analysis. Critical Care volume 24, Article number: 464 (2020); reference (2) Syropoulos et al., Scientific and Standardization Committee Communication: Clinical guidance on the diagnosis, prevention and treatment of venous thromboembolism in hospitalised patients with COVID-19. Thrombosis UK. Journal of thrombosis and haemostasis. This article has been accepted for publication and undergone full peer review but is awaiting copy editing; reference (3) Anecdotal feedback from healthcare professionals; |
| 85 | Society for Acute Medicine | Key area for quality improvement 2  Equal access for people often disadvantaged by system (homeless, intravenous drug users ) | Patients with some underlying health/social issues do not get treated in the way others may do – esp those with Hx of IVDU not being assessed for SDEC | We need to reduce inequality of access to best practice |  |
| 86 | **SCM1** | Key area for quality improvement 4 | Offer mental support | A lot of patients suffer from anxiety after they have developed a VTE. We do not offer adequate support which results in more panic attacks and unnecessary A&E visits. | Once again the patient platforms on social media shows us that there is a lack of guidance and support for newly diagnosed VTE patients. |
| 87 | All Party Parliamentary Group on Vascular and Venous Disease | Diagnosis and treatment of venous thromboembolism. | Guidance on the use of D-Dimer for deciding duration of anticoagulation. | Area of improvement. | The use of serial D-dimer measurement may be of benefit, but further evidence is likely to be needed. The following reference details a subanalysis of the DULCIS trial. Reference (1) Gualtiero P et al., for the DULCIS investigators. Duration of anticoagulation after isolated pulmonary embolism. European Respiratory Journal 2016 47: 1429-1435; reference (2) Anecdotal feedback from healthcare professionals. |
| 88 |  |  | Superficial thrombophlebitis not included within guidance/management  Duplex ultrasound of proximal leg only neglects the impact of calf vessel DVT |  |  |
| 89 | University Hospitals Birmingham | Key area for quality improvement 1  **Anticoagulant treatment initiation & follow up for the frail and the elderly** | UK population is aging and over the next 30 years the number of people above the age of 90 will triple. Older age is associated with an increased risk of VTE and atrial fibrillation and also with an increased risk of bleeding related to underlying medical problems like falls, dementia, angiodysplasia etc.  Long term anticoagulation is recommended by NICE in AF, unprovoked VTE or when permanent VTE risk factors are present. | So far there is no clear guidance how to initiate/follow up anticoagulation in these patients.  Some of them can’t participate in the decision making process or they are unable to attend clinics.  Frailty is not formally assessed when making decisions about anticoagulation.  Geriatric population is usually undertreated with anticoagulants | Publications:  Madhavan et al. Association of frailty and cognitive impairment with benefits of oral anticoagulation in patients with atrial fibrillation. <https://doi.org/10.1016/j.ahj.2019.01.005>  Induruwa et al. Clinical frailty is independently associated with non-prescription of anticoagulants in older patients with atrial fibrillation. <https://doi.org/10.1111/ggi.13058|> |
| 90 | All Party Parliamentary Group on Vascular and Venous Disease | Prevention of venous thromboembolism. | One area frequently neglected is superficial vein thrombosis (also known as superficial thrombophlebitis). These patients are at significant risk of venous thromboembolism and a specific section is warranted in any new venous thromboembolism guidance document. | Area of unmet need. | Reference (1) Hoes et al., Incidence of superficial venous thrombosis in primary care and risk of subsequent venous thromboembolic sequelae: a retrospective cohort study performed with routine healthcare data from the Netherlands. BMJ Open 2018; reference (2) Middledrop et al., Treatment for superficial thrombophlebitis of the leg. Cochrane Database Syst Rev 2018 Feb 25; (2); reference (3) Anecdotal feedback from healthcare professionals. |
| 91 | **SCM1** | Key area for quality improvement 5 | The NG 158 only applies to PE and legs but the American guideline include upper limbs as well. I think we should reconsider this as the use of pic lines increase the number of upper limb DVT | Clearer guideline for patients and doctors. Doctors are very aware of dvt in legs but not in arms. I think the inclusion of this will improve the knowledge for the professional. |  |
| 92 | Royal College of Paediatrics and Child Health | Key area for quality improvement 1: increasing the scope of the QS | Several studies have shown that post pubertal children, especially those with complex medical needs, are at just as high a VTE risk as the 16-30 year population. |  | There is a strong need for guidance in adolescent patients and not just those over 16 years. |
| 93 | British Society of Interventional Radiology | Key area for quality improvement 4 | Early management and rehabilitation for active young people diagnosed with acute DVT | These patients are often active members of society and taxpayers. Thus, early return to ‘normal’ life is crucial. | Clear pathways should be put in place to ensure these patients are managed and able to return to work. The ‘leave alone till chronic’ approach I don’t believe is beneficial for such groups and the QoL scores are enough to suggest as push to treat active young people if diagnosed within the first two weeks to remove the clot and underlying cause. |
| 94 | British Thoracic Society | Additional developmental areas of emergent practice | Access to more complex therapies (including catheter-directed therapy, surgery and ECMO) |  |  |
| 95 | All Party Parliamentary Group on Vascular and Venous Disease | Post venous thromboembolism management. | Post thrombotic syndrome as an important complication of deep vein thrombosis, with potentially life-long impact on patients quality of life. Symptoms range from pain and swelling to ulceration. At present, there is little guidance for patients or healthcare staff on follow-up for post-thrombotic syndrome. Endovascular treatment has been shown to be an effective treatment option in appropriately selected patients. Effective management requires a multi-disciplinary approach with robust follow-up protocols. | Area of improvement. Significant geographical variability in patient assessment and availability of treatment for patients with post thrombotic syndrome, which needs to addressed. | Reference (1): Kahn SR et al., American Heart Association Council on Peripheral Vascular Disease, Council on Clinical Cardiology, and Council on Cardiovascular and Stroke Nursing. The post-thrombotic syndrome: evidence-based prevention, diagnosis, and treatment strategies: a scientific statement from the American Heart Association. Circulation. 2014;130(18):1636-1661; reference (2): Lichtenberg MKW et al., Venovo venous stent for treatment of non-thrombotic or post-thrombotic iliac vein lesions - long-term efficacy and safety results from the Arnsberg venous registry [published online ahead of print, 2020 Jul 22. Vasa.2020;1-7; reference (3): Black S et al., Two Year Outcome After Chronic Iliac Vein Occlusion Recanalisation Using the Vici Venous Stent®. Eur J Vasc Endovasc Surg. 2018;56(5):710-718; reference (4) Anecdotal feedback from healthcare professionals. |
| 96 | British Society of Interventional Radiology | Key area for quality improvement 1 | Clear pathway for the management of acute and chronic DVT | Both cases are seen, though chronic is more common in particular acute on chronic. Pathways should be developed so. Young patients with acute. DVT under 2 weeks receive adequate management and treatment, and not left till it becomes chronic. | Hospital sites deemed as vascular centres or DVT treatment centres should have in place clear pathways for both acute and chronic DVT (Upper and lower limb).  Clinical Governance, trials/research/Audits must also be kept up to date and sites must demonstrate that they continue to follow the latest evidence base medicine rather than what they may feel has worked for them. |
| 97 | **SCM2** | Coordination of key VTE services | Recommendations for diagnosis, treatment and longer term management potentially involve multiple services across primary and secondary care. Services should be coordinated in order to effectively and efficiently deliver care and manage this condition. | Pathways of care that span multiple services, professionals and care providers contain risk of variation in practice and disjointed care. Overarching patient safety issue. | Linked to Standard 3 – Patients experience in adult NHS services (QS15): “People using adult NHS services should experience coordinated care with clear and accurate information exchange between relevant health and social care professionals.” |
| 98 | **SCM2** | Anticoagulation assessment and reassessment. Agreed local protocols – coordination across service providers | Selection of anticoagulation type and dose represents the most complex variable within NICE recommendations and management of this condition alongside reassessment.  Variation in practice and communication between service providers leads to disjointed care/patient safety risk. | Standardised practice (locally, nationally), The NICE visual aid to the associated guidance provides an excellent reference tool to guide the use of anticoagulation – could a quality standard encapsulate promotion of this tool as method of variation reduction/improved patient safety? |  |
| 99 | LEO Pharma | Key area for quality improvement 2  **People undergoing chemotherapy should receive education via provision of written and verbal information on the risk of VTE and how to manage this risk.** | People with active cancer and those on chemotherapy are at increased risk of VTE. Education of people with cancer on this risk is beneficial in driving early detection as are written pathways for investigating for suspected VTE in these people.  Hospital Trusts would benefit from develop specific written policies for the management of suspected VTE in patients receiving chemotherapy; this should include the provision of written and verbal information for people with cancer on the risk of VTE and how to manage this risk | The All Party Parliamentary Thrombosis Group (APPTG) report on VTE in cancer patients (2016) reported that only one in three Hospital Trusts (35%) had a dedicated policy or pathway for the management of suspected VTE in people receiving chemotherapy, and only 44% were providing written and verbal information on the risk of VTE to these people, even though the average annual increase in cancer deaths linked to VTE, in the 4 years to 2015 was over four times higher than the average annual increase in overall cancer deaths. Example – a patient preference study (Noble et al. 2015 <https://doi.org/10.2147/PPA.S79373>, Patients’ Experiences of LIving with CANcer-associated thrombosis: the PELICAN study) reported that people with cancer had a lack of understanding/awareness of cancer associated thrombosis both before and after their diagnosis of cancer | Please see APPTG report (2016) which found variations in presence of written policies on management of suspected VTE in people with cancer - <http://apptg.org.uk/wp-content/uploads/2016/12/VTE-in-Cancer-Patients-2016.pdf> |
| 100 | All Party Parliamentary Group on Vascular and Venous Disease | A multidisciplinary approach | A multidisciplinary approach is fundamental to improve health outcomes in people with venous thromboembolic diseases. Vascular surgeons, interventional radiologists, haematologists, orthotics, tissue viability nurses and respiratory consultants all possess valuable expertise. | Inconsistency and variation in practice. | Reference (1): VVAPPG NHS Trust freedom of information request research. 2019. Data on file; reference (2) Anecdotal feedback from healthcare professionals. |
| 101 | British Society of Interventional Radiology | Key area for quality improvement 5 | Specialised vascular centres/ centralisation of services. | This method is currently in place for aneurysm management (EVAR/TEVAR). I feel the same should apply to DVT management to ensure best care is delivered. | Galway in Ireland for example takes most of the DVT cases in the region, and certain sites in London take on upper limb DVT requiring rib resection and clot removal. As the overall case numbers are not significant such work should be limited to be vascular centres with specialised IR consultants, and surgeons with interest in rib. |
| 102 | All Party Parliamentary Group on Vascular and Venous Disease | Availability of venous disease pathways. | The availability of clear venous disease pathways is fundamental to attenuate variation in practice. The pathways should be clear and differentiate for primary/community care, secondary and tertiary care domains. Pathways should clearly differentiate pulmonary embolism and deep vein thrombosis circumstances and context, separately. | Inconsistency and variation in practice. | ***Reference (1):*** VVAPPG NHS Trust freedom of information request research. 2019. Data on file; ***reference (2)*** Anecdotal feedback from healthcare professionals |
| 103 | All Party Parliamentary Group on Vascular and Venous Disease | Availability of multidisciplinary teams. | A multidisciplinary approach is fundamental to improve health outcomes in people with venous thromboembolic diseases. Vascular surgeons, interventional radiologists, haematologists, orthotics, tissue viability nurses and respiratory consultants all possess valuable expertise.  The development of regional venous networks should be incentivised. | Inconsistency and variation in practice. | ***Reference (1):*** VVAPPG NHS Trust freedom of information request research. 2019. Data on file; ***reference (2)*** Anecdotal feedback from healthcare professionals. |
| 104 | Bayer Plc | Key area for quality improvement 4  Hospitals should have a named VTE clinical lead/clinical team who should be consulted in all cases of suspected hospital-acquired venous thromboembolism (HAT). | Incidences of HAT can occur in many areas of a hospital. The presence of a designated clinical lead/clinical team with clear processes for referral, diagnosis and treatment will reduce variation for patients, optimise treatment whilst in hospital and ensure discharge planning meets the standards covered in QS3-Quality Statement 6 | Evidence of pathways in hospitals where all patients with suspected HAT are referred to a designated team for diagnosis, treatment and discharge planning. | Nana M, et al. Multidisciplinary, patient-centred approach to improving compliance with venous thromboembolism (VTE) prophylaxis in a district general hospital. BMJ Open Quality 2020;9:e000680. doi:10.1136/ bmjoq-2019-000680 <https://bmjopenquality.bmj.com/content/bmjqir/9/3/e000680.full.pdf>  Mauger C, et al. Impact of multidisciplinary team meetings on the management of venous thromboembolism. A clinical study of 142 cases. J Med Vasc 2020 Jul;45(4):192-197. doi: 10.1016/j.jdmv.2020.04.011. <https://www.sciencedirect.com/science/article/abs/pii/S2542451320302650>  McAuley H, Brij S, Calvert L. P179 Utilisation of respiratory and haematology multi-disciplinary team (mdt) meeting for effective follow-up and management of pulmonary embolism (pe) in a district general hospital. Thorax 2017;72:A179. <https://thorax.bmj.com/content/72/Suppl_3/A179.1.abstract> |
| 105 | British Society of Interventional Radiology | Key area for quality improvement 2 | The support of general anaesthesia in the endovascular treatment of chronic DVT | As it stands many sites do not have designated anaesthetic support for the management of DVT.  Chronic DVT treatment is both painful and long, thus the support of anaesthetics for an analgesia/sedation/G.A should be readily available. | Note work for Dr Gerry O’sullivan Galway Ireland, and other heavy DVT centres. |
| 106 | **SCM2** | Additional developmental areas of emergent practice | Primary care referral guidance would aid quality improvement in the management/treatment guideline |  |  |
| 107 | Society for Acute Medicine | Key area for quality improvement 3  Standardise the investigation/treatment of pregnant women with suspected VTE | Pregnant women ar eat risk of DVT /PE but their care often falls between medicine and obstetrics without any clear ownership and with guidelines again falling between two groups | Accepted guidelines and practice that can be used across the NHS so that all pregnant women are treated the same where ever they live | Need to work with RCOG as well as haematology/acute physicians |
| 108 | British Thoracic Society | Key area for quality improvement 4 | Identification of patients suitable for entry into a formal outpatient management pathway |  |  |
| 109 | Society for Acute Medicine | Key area for quality improvement 1  Use of Same Day Emergency Care (SDEC) for all | There is evidence that VTE (both DVT and PE) can safely be managed in an outpatient (-SDEC) setting and it should be recommended that every person with suspected VTE should be assessed and treated through SDEC unless contra indicated | We know through audit work (eg SAMBA) that the proportion of patients with VTE treated through SDEC varies greatly.  Anecdotal evidence also shows great differences in pathways of care for these conditions with varying degrees of responsibility between primary and secondary care | SAMBA data eg <https://www.acutemedicine.org.uk/guidelines-and-reports/samba-2019-national-report/> |
| 110 | All Party Parliamentary Group on Vascular and Venous Disease | Incentivisation of regional venous networks | The development of regional venous networks should be incentivised. | Area of improvement. | Reference (1): Streiff MB et al., The Johns Hopkins Venous Thromboembolism Collaborative: Multidisciplinary team approach to achieve perfect prophylaxis. J Hosp Med. 2016;11 Suppl 2:S8-S14; reference (2): Anecdotal feedback from healthcare professionals. |
| 111 | All Party Parliamentary Group on Vascular and Venous Disease | Post venous thromboembolism management. | This must include existing potential management options. The traditional (non-operative) option has been discussed in 3a above and there is no clear evidence to support their use. The surgical approach of deep venous stenting for ilio-femoral chronic venous disease has been demonstrated to be a safe intervention and an alternative approach. Additionally, there should be clear, defined protocols in place for patient follow-up when endovascular treatment of ilio-femoral deep venous thrombosis is undertaken. | Area of improvement. Inconsistency and variation in practice. | Reference (1): Maynard G et al., Multidisciplinary initiative to improve inpatient anticoagulation and management of venous thromboembolism. Am J Health Syst Pharm. 2014;71(4):305-310; reference (2): Kahn SR et al., Guidance for the prevention and treatment of the post-thrombotic syndrome. J Thromb Thrombolysis. 2016;41(1):144-153; reference (3) Anecdotal feedback from healthcare professionals. |
| 112 | Thrombosis UK | Key area for quality improvement 1 | Better education about the diagnosis of VTE so that it is considered in the diagnosis of anyone with leg or chest problems have prompt and timely investigation and diagnosis for venous thromboembolism (VTE) is vital. | Thrombosis UK receives a great many enquiries from individuals who have faced delay and misdiagnosis (please see attached summary case accounts).  As a result:  The VTE is often more severe, causing a PE as well as DVT.  Damage caused can be long-lasting and sometimes life changing.  Tragically delay in investigation and diagnosis leads to preventable deaths.  Recovery is slow and the impact from suffering a VTE is far greater on the individual physically and also the psychological impact. | Example case studies shared with Thrombosis UK which highlight this issue. We can provide further examples:   1. **Louis**   Aged 24, fit & healthy football coach. During lock-down became very sedentary.  Reported (111 and GP) leg pain, some swelling, shortness of breath and incident of blacking out.  Suggested he had food poisoning.  Follow up call but no investigation into why a previously fit and healthy young person had ongoing symptoms.  Louis died June 2020  Coroner reported cause: undiagnosed VTE   1. **Rachel**   Aged 16 yrs, fit & healthy, on combined oral contraceptive pill. Complained of breathlessness and general unwell.  October 2016 visited GP and diagnosed with chest infection. Did not improve, Breathlessness worse, struggled with stairs.  Early Jan returned to GP. Diagnosed asthma and given inhaler. No improvement, told using inhaler incorrectly.  Mid Jan, coughed up blood, taken to hospital and diagnosed with multiple PEs.  Told unprovoked and to remain on long-term anticoagulation. Patient self-stopped anticoagulation 2018 due to impact on periods.   1. **Becky**   Aged 27 yrs, fit & healthy, keen horse rider. May 2020, realised she was increasingly short of breath and had leg muscle pain. Called 111 suggested it might be COVID-19.  Woke in extreme pain and called 111, told COVID-19 can cause extreme pain.  Continued with increasing symptoms including pain, leg discolouration, breathless, cough, black-out and confusion.  Family took Becky to hospital, diagnosed with multiple PEs, admitted to critical care. June 2020.   1. **Brian**   Aged 46, had been on long distance car journey (13+ hours). Woke in intense pain. Struggled to walk but continued for 48 hours. Family took him to A&E. D-dimer showed positive but scan did not show a clot. No swelling so HCPs thought unlikely it was a clot.  Pain persisted, second scan, no clot found.  3 weeks later investigated again and clot detected. Told parts could break-off and travel round the blood. No information given and Brian spent weeks scared to move and unsure what to do. Every pain since has terrified him.   1. **Ben**   22 yrs old, keen walker. After a weekend walking developed back pain which quickly spread into his legs. Difficulty standing, saw GP. Suggested sciatica and prescribed pain killers.  No benefit, so returned to doctor, given stronger dose.  Week later returned still in a great deal of pain, and stronger dose prescribed.  Fourth visit, sent for DVT investigation. Given fragmin and sent home. No information.  Later went to A&E due to pain, DVT confirmed and admitted, no information shared.  24 hrs later discharged & sent to AMU where he was given information. This was to prove invaluable just a few months later when he developed swelling in his leg and sought urgent medical attention, knowing it could be a blood clot.   1. **Robert**   Active, healthy and fit.  December 2019 woke with sore calf. Visited out-of-hours Dr and asked, ‘Could this be a clot?’ Told no.  Feb 2020 returned with pain increasing and some swelling and told to use compression stockings.  Easter 2020, tried to go for a run, but struggled to breath. Visited GP. Agreed to send him for a private scan – DVT and PE diagnosed.  Struggling to come to terms with shock of the events. Had no previous health problems.  Challenge is now, “how to heal” and deal with the thought of how serious this could have been as well as find rehabilitation. |
| **General** | | | | | |
| 113 | NHSE&I | No comments |  |  |  |
| 114 | SCM8 | New international guidance from ASH and ESC should also be taken into account when considering key areas for quality improvement |  |  |  |
| 115 | **Royal College of Nursing** | No comments |  |  |  |
| 116 | **Royal of Physicians** | Endorses BTS and SAM comments |  |  |  |
| 117 | **Royal Pharmaceutical Society** | No comments |  |  |  |
| 118 | **British Geriatric Society** | The BGS feels that there is no area of this guideline that’s needs changing. |  |  |  |
| **Support for the QS merger proposal** | | | | | |
| 119 | **SCM2** | Do you support the proposal to update QS3 and QS29 into one quality standard? | Initial reaction without group discussion is not to combine. QS3, QS29 and the associated guidance appear very disparate with regard prevention in a very specific group versus diagnosis/management in a wider group. |  |  |
| 120 | All Party Parliamentary Group on Vascular and Venous Disease | Do you support the proposal to update QS3 and QS29 into one quality standard? | *I would support an overarching quality standards document pending review of its publication.* |  |  |
| 121 | Anticoagulation UK | Do you support the proposal to update QS3 and QS29 into one quality standard? | YES |  |  |
| 122 | Bayer Plc | Do you support the proposal to update QS3 and QS29 into one quality standard? | Yes, we believe combining these quality standards would simplify assessment and reduction of the risk of venous thromboembolism |  |  |
| 123 | Bristol Myers Squibb – Pfizer Alliance | Do you support the proposal to update QS3 and QS29 into one quality standard? | Yes. |  |  |
| 124 | British Society of Interventional Radiology | I strongly believe in supporting the quality standard to ensure both clinicians and patients are aware of developments and advancements in the management and care of DVT/P.E.  We promote this through our courses, congress work and social media.  We strongly collaborate with research and audit projects to ensure we are ‘on top’ of this disease. |  |  |  |
| 125 | British Society of Interventional Radiology | Do you support the proposal to update QS3 and QS29 into one quality standard? | Yes |  |  |
| 126 | British Thoracic Society | Do you support the proposal to update QS3 and QS29 into one quality standard? | Yes |  |  |
| 127 | Clinical Leaders of Thrombosis | Do you support the proposal to update QS3 and QS29 into one quality standard? | Yes would be sensible to have all guidance around thrombosis in one document |  |  |
| 128 | LEO Pharma | Do you support the proposal to update QS3 and QS29 into one quality standard? | Yes in principle as would make things simpler and easier to find. However it will be important to ensure that the new combined quality standard adequately & equally reflects key areas for improvement from both aspects i.e. prevention(reducing the risk in hospital) & diagnosis /management. | There are still gaps and areas of improvement required in the prevention and management of VTE & PE.  A new combined single QS will need to adequately reflect these to ensure the quality of care for people with VTE & PE is improved. |  |
| 129 | Thrombosis UK | Do you support the proposal to update QS3 and QS29 into one quality standard? | Yes |  |  |

# Appendix 4: Suggestions from stakeholder engagement exercise – respondents with links to the tobacco industry[[1]](#footnote-1)

| **ID** | **Stakeholder**  **Registration status and disclosed link.** | **Suggested key area for quality improvement** | **Why is this important?** | **Why is this a key area for quality improvement?** | **Supporting information** |
| --- | --- | --- | --- | --- | --- |
| 1 | Bayer plc | Patients should be routinely offered extended (post hospital) VTE prophylaxis as clinically appropriate in accordance with [NICE clinical guidelines](https://www.nice.org.uk/guidance/ng89).  [QS3 – Quality statement 7 - [Extended VTE prophylaxis](https://www.nice.org.uk/guidance/qs3/chapter/Quality-statement-7-Extended-VTE-prophylaxis)] | In 2018/19, 57 deaths recorded from venous thromboembolism (VTE) related events within 90 days post discharge from hospital per 100,000 adult hospital admissions. | A key patient safety priority for hospitals and an indicator within the NHS Outcomes Framework. By linking deaths from VTE to a recent hospitalisation, the indicator captures where an omission of prophylaxis or errors in diagnosis or treatment are likely to contribute to the outcome. | See NHS Outcomes Framework indicator 5.1, Deaths from venous thromboembolism (VTE) related events within 90 days post discharge from hospital.  <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-outcomes-framework/may-2020/domain-5-treating-and-caring-for-people-in-a-safe-environment-and-protecting-them-from-avoidable-harm-nof/5-1-deaths-from-venous-thromboembolism-vte-related-events-within-90-days-post-discharge-from-hospital>  <https://files.digital.nhs.uk/E3/5E254F/NHSOF_5.1_I00675_Q.pdf> |
| 2 |  | Patients/carers should be offered verbal and written information on VTE prevention as part of the discharge process, including advice on therapy where appropriate and importance of adherence.  [[QS3 - Quality statement 6](https://www.nice.org.uk/guidance/qs3/chapter/Quality-statement-6-Information-for-patients-and-carers) – information for patients and carers] | The All-Party Parliamentary Thrombosis Group Annual Survey of NHS Trusts has repeatedly highlighted patients experiencing “disjointed” and “fragmented” care after being discharged from hospital, putting them at risk of harm. | This quality statement should be retained.  In the most recent report from The All-Party Parliamentary Thrombosis Group Annual Survey of NHS Trusts, it highlighted that while the vast majority of trusts provide their own information leaflet to patients on VTE; less than half (48%) indicated that a documented discussion between an HCP and patient takes place at discharge regarding their ongoing management.  Discharge planning should be tailored to each person's needs and equip them with realistic strategies they can implement once discharged from hospital. This should include appropriate information and advice on VTE prevention which covers prescribed therapies, duration of treatment and possible side effects. | APPTG Annual Survey 2019: <https://thrombosisuk.org/downloads/APPTG%20Annual%20Review%202019%20100320.pdf> |
| 3 |  | Key area for quality improvement 3  Planned review of anticoagulation therapy to discuss the risks and benefits of continuing anticoagulation therapy  [[QS29 - Quality statement 8: Follow‑up for people without cancer](https://www.nice.org.uk/guidance/qs29/chapter/Quality-statement-8-Followup-for-people-without-cancer) and Quality statement 9: Follow‑up for people with cancer] | NICE clinical guidelines recommend that people who receive anticoagulation therapy have a review within 3 months of diagnosis of confirmed proximal DVT or PE.  Patients with VTE and cancer should be reviewed within 3 to 6 months (combine these recommendations into 1). | These quality statements should be retained. Many patients commence treatment for VTE in hospital and are discharged to ongoing care in the community. Throughout this phase of the pathway, maintaining adherence and persistence with extended anticoagulation therapy is a crucial.  Equally, as anticoagulation therapy carries potential risks such as bleeding there is a need to ensure the therapy remains beneficial.  Therefore, ensuring all patients are regularly reviewed to evaluate the clinical impact of anticoagulation therapy and consider any adjustments is critical. |  |
| 4 |  | Key area for quality improvement 4  Hospitals should have a named VTE clinical lead/clinical team who should be consulted in all cases of suspected hospital-acquired venous thromboembolism (HAT). | Incidences of HAT can occur in many areas of a hospital. The presence of a designated clinical lead/clinical team with clear processes for referral, diagnosis and treatment will reduce variation for patients, optimise treatment whilst in hospital and ensure discharge planning meets the standards covered in QS3-Quality Statement 6 | Evidence of pathways in hospitals where all patients with suspected HAT are referred to a designated team for diagnosis, treatment and discharge planning. | Nana M, et al. Multidisciplinary, patient-centred approach to improving compliance with venous thromboembolism (VTE) prophylaxis in a district general hospital. BMJ Open Quality 2020;9:e000680. doi:10.1136/ bmjoq-2019-000680 <https://bmjopenquality.bmj.com/content/bmjqir/9/3/e000680.full.pdf>  Mauger C, et al. Impact of multidisciplinary team meetings on the management of venous thromboembolism. A clinical study of 142 cases. J Med Vasc 2020 Jul;45(4):192-197. doi: 10.1016/j.jdmv.2020.04.011. <https://www.sciencedirect.com/science/article/abs/pii/S2542451320302650>  McAuley H, Brij S, Calvert L. P179 Utilisation of respiratory and haematology multi-disciplinary team (mdt) meeting for effective follow-up and management of pulmonary embolism (pe) in a district general hospital. Thorax 2017;72:A179. <https://thorax.bmj.com/content/72/Suppl_3/A179.1.abstract> |
| 5 |  | Consider outpatient treatment for suspected or confirmed low-risk PE, using a validated risk stratification tool to determine the suitability of outpatient treatment. | Outpatient treatment for people with PE who have a low risk of poor outcomes is increasingly being used in settings such as ambulatory care units.  People with low risk PE carry a low risk of mortality and patient experience and cost effectiveness is improved in the outpatient setting | Home Treatment of Patients with Low-Risk Pulmonary Embolism with the Oral Factor Xa Inhibitor Rivaroxaban (HoT-PE) trial, the aim was to investigate the efficacy and safety of early transition from hospital to ambulatory treatment in low-risk acute PE, using the oral factor Xa inhibitor rivaroxaban.  Conclusion: Early discharge and home treatment with rivaroxaban is effective and safe in carefully selected patients with acute low-risk PE. The results of the present trial support the selection of appropriate patients for ambulatory treatment of PE. | Barco S, et al. Early discharge and home treatment of patients with low-risk pulmonary embolism with the oral factor Xa inhibitor rivaroxaban: an international multicentre single-arm clinical trial, European Heart Journal, Volume 41, Issue 4, 21 January 2020, Pages 509–518  The committee agreed that outpatient care offers substantial benefits for people with PE and for hospital services and should be considered for those with suspected or confirmed low-risk PE. <https://www.nice.org.uk/guidance/ng158/chapter/Recommendations#outpatient-treatment-for-low-risk-pe> |
| 6 |  | Do you support the proposal to update QS3 and QS29 into one quality standard**?** | Yes, we believe combining these quality standards would simplify assessment and reduction of the risk of venous thromboembolism |  |  |

# Appendix 5: Suggestions from NHS England & Improvement Patient Safety

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| --- | --- | --- | --- | --- | --- |
| **ID** | **Stakeholder** | **Key area for quality improvement** | **Why is this important?** | **Why is it key area for quality improvement?** | **Supporting information** |
| 1 | NHS England & Improvement Patient Safety | Support to continue VTE prophylaxis and/or treatment across care setting boundaries | VTE prophylaxis and/or treatment often needs to continue after hospital discharge | Successful continuation relies on both practical and educational support and smooth transition of any heath or social care services needed to continue treatment | Incident reports describe situations where patients may not have recognised the importance of the treatment, or were less confident to self-inject than had been believed at discharge, or did not have dexterity or carer support to apply stockings, etc. |
| 2 | NHS England & Improvement Patient Safety | Patient awareness of unintended consequences of VTE prophylaxis and/or treatment | To ensure early minimisation of consequences | Whilst the benefits of approximately prescribed VTE prophylaxis and/or treatment will outweigh the risks, awareness of early signs of unintended effects of treatment and which need urgent medical advice (and how to seek it) means help can be sought to reduce the risk of severe harm | Incident reports describe situations where there have been delays in recognition |
| 3 | NHS England & Improvement Patient Safety | VTE risk assessment positioned clearly as a means to an end, not an end in itself | There is much more national monitoring of assessment than of appropriate intervention | The QS will provide a helpful balance in terms of greater emphasis on interventions in response to risk assessment | Example of how assessment data is more easily available than other aspects of VTE prophylaxis and/or treatment <https://www.england.nhs.uk/statistics/statistical-work-areas/vte/> |
| 4 | NHS England & Improvement Patient Safety | Links to pressure ulcer prevention/skin integrity/diabetic foot ulceration | Risk factors for VTE often overlap with risk factors for pressure ulcers or diabetic foot ulceration | Early reaction to any signs of pressure/ulceration/skin damage important to prevent more serious damage | Incident reports describe situations where patients have undertaken less skin care/skin checks because of anti-embolism stockings at home and even in care environments, the frequency with stockings are removed for skin checks is almost always less frequent than would be possible for bare feet/loose socks for patients who are nursed in bed. Heels are a common site for pressure damage <https://www.nice.org.uk/guidance/cg179/resources/pressure-ulcers-prevention-and-management-pdf-35109760631749> |
| 5 | NHS England & Improvement Patient Safety | Emphasis on consistent delivery of VTE prophylaxis and/or treatment | Prescribing the prophylaxis and/or treatment a less challenging quality area than delivering it | The nature of ongoing prophylaxis and/or treatment creates a high reliability challenge – ensuring no treatment doses are skipped, stockings always replaced after showers, mechanical devices always applied for the hours intended, etc. | We understand that local audit often identified issues with consistent implementation even in exemplar centres <http://www.vteengland.org.uk/audit-and-quality-improvement.php> |
| 6 |  | Do you support the proposal to update QS3 and QS29 into one quality standard? | Support if handled with care in relation to where any components of the final QS are and are not applicable. | - | We note in the past some confusion with hospital risk assessment attempted in other settings (e.g. the former Safety Thermometer asked community nurses to collect data on home many people living in their own homes had been assessed for risk of VTE) which CG does not recommend. |
| 7 | The new QS will need to be mindful of any special considerations for COVID-19 patients and associated VTE risk (including stroke alongside VTE in COVID-19 patients)  The QS needs to acknowledge the challenge that arises from the NICE CG in that there is no validated VTE risk assessment to recommend, as would normally be expected in the field of clinical evidence-based risk assessment, and common practice is to use one published in 2010 that does not fully reflect the current NICE CG recommendations.  There have been some oft-repeated statistics on healthcare-associated VTE deaths without a clear reference trail – note there is good and recent data here <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-outcomes-framework/may-2020/domain-5-treating-and-caring-for-people-in-a-safe-environment-and-protecting-them-from-avoidable-harm-nof/5-1-deaths-from-venous-thromboembolism-vte-related-events-within-90-days-post-discharge-from-hospital> | | | | |

1. Bayer plc it does not have direct or indirect links with, or funding from, manufacturers, distributors or sellers of smoking products but Bayer provides pesticides for crops, which would therefore include tobacco crops.

   Bayer is a member of the Cooperation Centre for Scientific Research Relative to Tobacco (CORESTA) (<http://www.coresta.org/>) within the scope of recommendations of pesticides used for protection of tobacco plants.

   It is also a member of country and EU business federations such as the Confederation of British Industry (CBI) and ‘Business Europe’, which include tobacco companies. [↑](#footnote-ref-1)