From prevention to treatment
deep vein thrombosis and pulmonary embolism

Taking the pulse of NHS services

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Venous thromboembolism (VTE) is the umbrella term for deep vein thrombosis (DVT) and pulmonary embolism (PE). A DVT is a thrombus, or a blood clot, in a vein (usually a leg vein). DVT blood clots can block the flow of blood partially or completely and this causes the symptoms of DVT. If the clot lodges in the lung a potentially serious and sometimes fatal condition, PE, occurs.

Estimates show that more than one in 1,000 adults could be affected by DVT in England in 2013, with 86 in 100,000 affected by PE. In recognition of this burden, the prevention of VTE - including DVT and PE - has become a priority for the NHS. However, despite new treatments offering improved patient experience and reduced pressures on the NHS, many patients with a DVT or PE are still being treated according to older models of care.

The historic pathway of care for patients has significant drawbacks – both in terms of safety and experience. Low molecular weight heparin (LMWH) and warfarin, which are the traditional treatments for DVT and PE, both come with challenges. LMWH is administered via injection, which can cause a problem for patients with needle phobia or poor dexterity. Both LMWH and warfarin require dose adjustment based on the weight. Patients taking warfarin require regular attendance at an anticoagulation clinic. The National Institute for Health and Care Excellence (NICE) set out that many people find taking warfarin to be stressful, because of the necessary regular monitoring with blood tests, dosing adjustments, and because people must be careful about their diet. Both LMWH and warfarin can lead to challenges both for the service in terms of resource management, and the patient in terms of experience and outcomes - understanding and remaining on their treatment.

New treatments emerging in this area hold promise to improve the quality of life and outcomes for patients with DVT and PE by simplifying the treatment pathway, bringing care closer to home and reducing the burden of hospital stays. However, despite positive national recommendations, there is evidence that patients are not being given access to the innovative new treatments that could improve their experience and health, as well as reducing demand on NHS resources. More needs to be done to provide patients with the treatments that will work for them.

1. Executive summary
2. Key recommendations

Data collection
NHS England should act immediately to improve the collection and analysis of data on the prevalence and management of DVT and PE. This should include a national audit of both acute and community settings, which should be included in the work of the new Cardiovascular Intelligence Network.

Patient experience
NHS England should collect data on the experiences of patients using anticoagulation therapy through the Cardiovascular Intelligence Network. Data collected should be made publically available and used by commissioners and providers to monitor and improve services.

Driving uptake of new treatments
NHS England should consider the levers at its disposal to drive uptake of new treatments, approved by NICE and SMC, for the treatment, management and prevention of DVT and PE:

- Including treatments for the treatment, management and prevention of DVT and PE in the innovation scorecard, so that progress on their uptake for different indications can be monitored
- Carrying out an annual audit of local formularies and protocols to ensure that all medicines with positive NICE Technology Appraisal guidance are included and are available to the people who need them. This should include ensuring that all local NHS organisations have access to protocols for the use of new medicines in line with their NICE Technology Appraisal
- Asking the NICE Implementation Collaborative to investigate the barriers to uptake for treatments for DVT and PE

Commissioning effective anticoagulation services
All commissioners should undertake an assessment of the anticoagulation services in their area, and the needs of their population. This should include consideration of how best to risk-assess and manage the occurrence of DVT and PE in their area. Commissioners should ensure that new treatments for DVT and PE have been included on local formularies.

Managing risk and improving outcomes
All commissioners should require providers in their area to collect information on the number of patients found to be at risk of DVT and PE who are receiving appropriate prophylaxis, in addition to the numbers of hospital admissions and the proportion of patients who have been risk-assessed. These data should be held by the Cardiovascular Intelligence Network, and reported on an annual basis by the NHS Information Centre.
3. The burden of deep vein thrombosis and pulmonary embolism

About DVT and PE

VTE is the umbrella term for DVT and PE. A DVT is a thrombus (blood clot) in deep veins of extremities (usually a leg vein). DVT blood clots can block the flow of blood partially or completely and this causes the symptoms of DVT. If the clot travels and lodges in the lung a serious and sometimes fatal condition, PE, occurs. Approximately two-thirds of cases of VTE present as DVT, while a third present as PE.

Patients may develop a DVT either in hospital or in the community. Effective risk-assessment and appropriate treatment can prevent many hospital-acquired DVTs. Community-acquired DVTs, though harder to prevent, are highly treatable.

VTEs can fall into three main categories:

- **Provoked**: Brought on by risk-factors including age, weight, genetic conditions, pregnancy, surgery, cancer, or cancer treatment, use of hormone replacement therapy, use of oestrogen containing contraceptive therapy, varicose veins with phlebitis and immobilisation
- **Unprovoked**: Where the cause is unknown or uncertain
- **Recurrent**: In 19.5% of cases a patient who presents with a VTE will have previously had a DVT

The incidence of DVT and PE

There have been concerns about the availability and usability of data on the incidence of DVT and PE and the services provided to manage them. Responding to an audit carried out by the All Party Parliamentary Thrombosis Group, some NHS providers suggested that a national database of hospital acquired VTE would be a useful resource. A database would allow providers to obtain and compare national and local statistics on incidence and performance, as well as to develop understanding on the assessment, treatment and outcomes in cases of expected and confirmed hospital-acquired VTE. This recommendation was taken up by the Group, and should be a priority for Government action in tackling the identification and treatment of DVT and PE.

Much of the data that is collected covers only cases of DVT and PE that are acquired or treated in hospital settings. It will therefore also be important to ensure that data on community acquired DVT and PE are also collected, so that the full extent of the burden of VTE can be recognised, and services put in place to effectively treat all people who develop DVT or PE, irrespective of where it is acquired.

The lack of publicly available local data on DVT and PE incidence and treatment may hamper the effective delivery of services, by making it difficult for commissioners to assess, and put services in place to address, patient need in their local area.

**NHS England should act immediately to improve the collection and analysis of data on the prevalence and management of DVT and PE. This should include a national audit of both acute and community settings, which should be included in the work of the new Cardiovascular Intelligence Network**

While collection and utilisation of data on incidence is poor, it is possible to develop a picture of the burden of DVT and PE, both at a national and local level. Estimates show that as many as one in 1,000 adults could be affected by DVT in England in 2013, with 86.3 in 100,000 affected by PE. Older people are at particularly high risk of developing VTE. Incidence rises significantly with age, reaching a peak of 1 in 100 in persons over 80 years. The number of VTE cases is expected to rise by over 8% in the next five years, due to the growing and ageing population.

As demonstrated in Figure 1, the number of cases of PE is expected to increase to over 50,000 cases per year by 2021, or a rate of 93.6 per 100,000 adults.
A similar picture exists for DVT, where incidence is expected to rise from 104.6 cases per 100,000 adults in 2013 to 112.1 cases per 100,000 adults in 2021. This means that by 2021 there will be an additional 7,843 cases of DVT per year, placing an additional burden on the NHS and on patients.

As Figure 2 and Figure 3 show, the burden on acute services is unevenly spread across England. In the case of DVT, the number of finished admission episodes varies more than five-fold from 34 per 100,000 population in Buckinghamshire to 175 per 100,000 in Wakefield.

For PE the variation is even greater - from 32 per 100,000 in Blackburn with Darwen to 107 per 100,000 in Oxfordshire. It is important to note that these data reflect only the burden on hospital services – they do not recognise the number of patients identified and treated with DVT and PE in the community.
There are a number of factors which increase risk and prevalence of DVT and PE. Around 60% of patients undergoing hip or knee replacement and around 30-40% undergoing major general surgery will suffer a DVT without preventative treatment\(^26\). VTE also occurs as a serious and frequent complication in patients with cancer. Up to 15% of patients with cancer develop symptomatic VTE that requires anticoagulation\(^27\).

The health impacts of DVT and PE

A DVT can have a devastating impact on an individual’s quality of life. A DVT can lead to long-term complications such as recurrent episodes of VTE and post-thrombotic syndrome (PTS), a chronic and debilitating disorder which can manifest itself in the form of milder symptoms such as pain and swelling or more serious symptoms such as varicose ulcers. Approximately 25-30% of patients who have in the past suffered from DVT go on to suffer severe PTS\(^28,29\).

Establishing the number of deaths caused by DVT and PE can provide a challenge, with some data sources including data only where they are the primary cause of death. The number of cases of DVT and PE being listed as the primary cause of death reached over 12,200 in 2010. As Figure 4 shows, this represents an increase of nearly 1,000 in the three years from 2007. The Health Select Committee estimated that hospital-acquired VTE alone is responsible for between 25,000 and 32,000 deaths every year in the UK\(^30\). The NHS Confederation estimated that hospital-associated VTE leads to about 40,000 deaths in England per year, of which 25,000 may be preventable through proper risk management and care\(^31\).

Unless deaths from DVT and PE are properly recorded and coded it will be impossible to develop a complete picture of the number of deaths where DVT and PE were the primary or secondary cause.
The costs of DVT and PE

Aside from the physical impact, there are significant costs associated with DVT and PE both for the NHS, the economy and individual patients and their families. The Health Select Committee estimated in 2005 that the total cost (both direct and indirect costs) to the UK for the management of VTE was approximately £640 million\(^3\). In addition, the total annual costs of treating venous leg ulcers, a consequence of VTE, in the UK were in the region of £400 million\(^4\).

The cost of treating complications associated with VTE is relatively high, particularly in comparison to the cost of risk-assessment and thromboprophylaxis which is relatively low. An American study in 2007 found that trauma patients who developed VTE had twice the length of stay of those without\(^5\). It is estimated that every bed day for a PE admission costs £213.16, compared to ongoing monitoring of International Normalised Ratio (INR) levels (how fast someone’s blood clots compared to the international average) which is estimated to cost £320 in the first full year of treatment and £248 thereafter\(^6\). Beyond these direct costs, there are societal costs to the economy of not effectively treating or preventing DVT and PE. Both regular INR monitoring or hospitalisation can be disruptive to an individual’s employment or routine activities.

Both prevention and effective treatment of DVTs and PEs are therefore vital.
4. Treatment of DVT and PE

The impacts of DVT and PE to patients and to the NHS are clear. Effectively treating DVT and PE, and preventing recurrent DVT, is essential to improving outcomes and experience for patients. While the risk-assessment and management of DVT and PE have rightly been a priority for the NHS, less focus has been given to the treatment of patients who contract a DVT or PE, whether in an acute setting or in the community.

People at risk of DVT and PE are treated with anticoagulation therapy. Treatment tends to be for three to six months, but in some cases can be for life. It is estimated that in the UK, there are approximately 1.25 million people currently prescribed oral anticoagulant drugs, with warfarin being the most frequently prescribed oral anticoagulant in the UK.

For people with DVT and PE the historic standard of care has been warfarin in conjunction with low weight molecular heparin (LMWH). The challenges of these treatments have been well reported, with the National Institute for Health and Care Excellence detailing the concerns of patients and clinicians in recent guidance.

**The challenges with the historic standard of care**

**Heparin**

LMWH is administered via injection. As most DVT patients are managed as outpatients, this requires self-administration, which can be a problem in patients with a needle phobia, elderly patients or patients with poor dexterity. For patients who require assistance with LMWH administration, this may require a daily visit to or from a healthcare professional. For patients who require longer term treatment, including patients with cancer, this can be particularly resource intensive. There is also the need to have services in place for the disposal of used syringes and needles. The Council Directive 2010/32/EU on sharp injuries in the hospital and healthcare sector set out that there are health and safety risks associated with needles and needle-stick injuries. The directive, which became UK law in May 2013, takes measures to strengthen the protection of healthcare workers from blood-borne infections due to needlesticks.

The dose of LMWH has to be prescribed based on the weight of the patient and renal function. Safety issues related to inappropriate dosing were the subject of a recent report by the National Patient Safety Agency (NPSA). Underdosing has an increased risk of a further thromboembolic event, while overdosing can increase the risk of bleeding. Between January 2005 and September 2009, the NPSA received 2,716 patient safety incident reports relating to dosing errors concerning LMWHs. These include one incident reported to have led to death. The NPSA has also raised concerns about the harm caused by warfarin which patients are prescribed in conjunction with LMWH.

**Warfarin**

Although warfarin is an appropriate treatment for many people who have DVT or PE, its use has a number of significant limitations – it can be difficult to ensure treatment adherence and good management is not straightforward for some people.

Warfarin has a narrow therapeutic range which means that there is a fine balance between decreasing the risk of thrombosis and increasing the risk of haemorrhage. The right dose varies from patient to patient and from time to time. As a result, patients taking warfarin require regular attendance at an anticoagulation clinic to monitor their International Normalised Ratio (INR) (how fast their blood clots compared to the international average) and adjust their treatment dose.

NICE has set out that “many people find taking warfarin to be stressful, because of the necessary regular monitoring with blood tests, dosing adjustments, and because people must be careful about their diet because of warfarin’s interaction with certain foods.”

The frequency of monitoring will depend on the individual patient; however, regular attendance at anticoagulation clinics can be problematic for people in full-time employment (who can find it hard to take time off work) and the elderly (who might find it difficult to get to the clinic without support). Some patients may also
find the fluctuating doses confusing and difficult to manage.

The NPSA raised concerns about the potential harm caused by inappropriate warfarin dosing in a patient safety alert published in 2007. A study in the Journal of the American Medical Association found that anticoagulants accounted for 4% of preventable adverse drug events (ADEs) and 10% of potential ADEs. This is backed up by a recent study by the General Medical Council (GMC) on the prevalence and causes of prescribing errors in general practice. The study found that a number of the severe prescribing errors related to GPs prescribing warfarin to elderly patients who had not had their INR monitored for more than two years. The intensive monitoring required for patients on warfarin has financial implications for the NHS; an anticoagulation clinic visit costs £22 for a first appointment and £21 for each subsequent visit. Furthermore, the management of ADEs contributes to significant additional costs for the NHS.

Delivering improvements in treatment of patients with DVT and PE

There has been an unmet need in treatment for patients with DVT and PE. It is important that patients with DVT and PE are supported to manage their anticoagulation treatment in a way that reduces the impact on their quality of life, and the pressures on the NHS. New treatments emerging in this area hold the promise of improving the quality of life and outcomes for patients with DVT and PE, by simplifying the treatment pathway and bringing care closer to home, thus reducing the need for patients to be treated in hospitals. Importantly, they offer improved treatment satisfaction for patients and reduce the length of time that patients have to stay in hospital.

NHS England should collect data on the experiences of patients using anticoagulation therapy through the Cardiovascular Intelligence Network. Data collected should be made publically available and used by commissioners and providers to monitor and improve services.

Providing services based on what matters to patients

Effective anticoagulation treatment can significantly improve the outcomes of patients at risk of blood clots. However, good management is not always easy to achieve, and the impact on patients’ quality of life can be significant.

The need to put patients at the centre of service design and delivery in anticoagulation services is clear. We hope that the forthcoming Cardiovascular Disease Patient Experience Survey will do this – collecting data that could be critical to driving necessary improvements in the outcomes of patients on anticoagulation treatment. We’ve been working with other charities to consider the best way to do that, and have identified the issues that we think most affect patient experience, including:

- Access to services that meet patients and carers needs
- Not a one-size-fits-all approach
- Waiting too long
- Lack of access to full range of anticoagulants frustrates patients
- Adapting to warfarin is challenging
- Not enough information or education

These issues should be at the centre of development of a Cardiovascular Disease Patient Experience Survey.

NICE set out clearly the benefits that new alternatives to warfarin and heparin could have, including:

- removing the need for constant monitoring, frequent blood tests and visits to an anticoagulation clinic
- benefiting people who are needle phobic or who want to resume normal patterns of life without having to worry about the disruption associated with attending clinics
- relieving the concern that people may have about not being on the correct warfarin dose to keep their INR well controlled
• reducing the need for support services
• providing cost savings in the short term, and remaining cost effective in the longer term

Despite national guidance from NICE setting out that patients and clinicians should have the option of new treatment, there is evidence to suggest that this has not translated to local implementation. In some areas new treatment will not be attempted until a patient has been tried on warfarin, and in others it is being offered only to limited patient populations. Research by the charity Lifeblood has highlighted these restrictions. A survey by the charity found that 64% of GPs had been prevented from giving patients novel oral anticoagulants (NOACS) by their own practice managers. The same research found that while 97% of hospitals have a protocol in place for the management of suspected VTE, 61% have still not updated it to include noacs nor have they issued any prescribing advice for the new treatments.

What patients tell us about access
As a charity we hear from many patients about the challenges they face when seeking access to the treatments that will work best for them. Patients tell us that they have been refused access to new treatments, or that they have not had all of their options fully explained to them.

One barrier can be the disconnect between primary and secondary care – with patients being prescribed on medicine when in hospital, but having their prescription changed when they see their GP. In the worst cases, patients are left without treatment for periods of time, or feel forced to buy their treatment privately.

We want patients across the country to have access to the treatments that are best for them, and that will help them to most effectively manage their condition.

Delays and barriers to access of new treatments for the prevention of DVT and the treatment of DVT and PE could have significant impacts on patients and the health service. Failure to implement the guidance would mean that patients do not have access to what has been confirmed as “a cost-effective option for treating DVT and preventing recurrent VTE in adults”.

The need to secure greater compliance with NICE guidance was identified as a key theme of the innovation review carried out by the Chief Executive of NHS England. As set out in the NICE Implementation Collaborative concordat, NICE produces authoritative evidence-based guidance on the use of specific medicines and technologies, and yet there is considerable variation in the implementation of its guidance. The innovation review made a number of recommendations to drive uptake of NICE approved treatments, including:

• Introducing the requirement that all NICE Technology Appraisals are incorporated into local formularies
• Establish the NICE Implementation Collaborative
• Publishing an innovation scorecard to track adoption of NICE Technology Appraisals

The first iteration of the NHS Innovation Scorecard highlighted the variations in uptake of new treatments across England – with some local NHS organisations quicker to adopt technologies than others. The need to ensure compliance with NICE technology appraisals on DVT or PE is therefore as important as ever.

NHS England should consider the levers at its disposal to drive uptake of new treatments, approved by NICE and SMC, for the treatment, management and prevention of DVT and PE:

• Including treatments for the treatment, management and prevention of DVT and PE in the innovation scorecard, so that progress on their uptake for different indications can be monitored
• Carrying out an annual audit of local formularies and protocols to ensure that all medicines with positive NICE Technology Appraisal guidance are included and are available to the people who need them. This should include ensuring that all local NHS organisations have access to protocols for the use of new medicines in line with their NICE Technology Appraisal
• Asking the NICE Implementation Collaborative to investigate the barriers to uptake for treatments for DVT and PE

Commissioning excellence in anticoagulation services

Uptake of new treatments, and the redesign of services to support access and choice of those treatments, is ultimately the responsibility of local organisations and commissioners. Health and wellbeing boards and clinical commissioning groups should be concerned about any barriers to access in their area, and work together to effectively commission services.

NICE has recently updated its commissioning guidance on anticoagulation therapy services to take account of recent guidance on the new oral anticoagulants. This update sets out the opportunities for service redesign in anticoagulation services in light of new treatment options. The guidance sets out how commissioners should ensure that services are implementing recommendations on relevant NICE clinical guidelines and technical appraisals, which have the potential to change the way that services for VTE are commissioned and provided. It also notes that commissioners should also specify local arrangements for auditing compliance with NICE technology appraisal guidance.

Commissioning resource pack

The charity AntiCoagulation Europe has developed a resource pack for commissioners considering the design of anticoagulation services in their area. It suggests five steps to assist commissioners in designing appropriate anticoagulation services for people who require long term treatment:

• Identifying need and understanding the patient population
• Understanding current services
• Developing the business case
• Designing the service and implementation
• Monitoring and incentivising quality

All commissioners should undertake an assessment of the anticoagulation services in their area, and the needs of their population. This should include consideration of how best to risk-assess and manage the occurrence of DVT and PE in their area. Commissioners should ensure that new treatments for DVT and PE have been included on local formularies.

Policy levers for the treatment, management and prevention of DVT and PE

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6. Risk-assessment and management

Unlike the treatment of DVT and PE, risk-assessment of VTE has been a patient safety priority for the NHS in recent years. Following a report by the Health Select Committee in 2005, which highlighted the scale of preventable deaths from hospital-acquired VTE, and campaigning from patient groups, VTE risk-assessment and prevention has been prioritised by the NHS. Measures have included:

- Development of a NICE quality standard on VTE prevention
- Introduction of a Commissioning for Quality and Innovation (CQUIN) indicator to prioritise risk-assessment of VTE
- Incentivisation of data collection through the NHS Safety Thermometer
- Publication of NICE Clinical Guideline 92 on reducing the risk of VTE

These measures have set out the steps that should be taken in acute settings to manage the risk of VTE. The NICE quality standard on VTE prevention identified seven markers of quality for acute care. These are that:

- All patients, on admission, receive an assessment of VTE and bleeding risk using the clinical risk assessment criteria described in the national tool
- Patients/carers are offered verbal and written information on VTE prevention as part of the admission process
- Patients provided with anti-embolism stockings have them fitted and monitored in accordance with NICE guidance
- Patients are re-assessed within 24 hours of admission for risk of VTE and bleeding
- Patients assessed to be at risk of VTE are offered VTE prophylaxis in accordance with NICE guidance
- Patients/carers are offered verbal and written information on VTE prevention as part of the discharge process
- Patients are offered extended (post hospital) VTE prophylaxis in accordance with NICE guidance

Assessing risk

Prioritisation and identification of quality markers has seen improvement in the risk-assessment and management of DVT and PE. The introduction of a financial incentive through the CQUIN framework, for acute providers able to demonstrate they have undertaken a VTE risk-assessment of 90% of patients on admission, has had a significant impact on behaviour.

Since the introduction of the CQUIN indicator, the number of patients risk-assessed for VTE has risen significantly. In July 2010, the median percentage of patients risk-assessed for VTE at acute trusts was 50%. Between April and June 2012 the same figure was 93.7%. This improvement demonstrates the impact that national prioritisation has had on service delivery at a local level. However, variations remain in the percentage of patients who are risk-assessed, and many patients are missing out on a VTE risk-assessment across the country. Figure 5 shows the percentage of eligible patients risk-assessed on admission to hospital. Some providers fell below the minimum standards required. At Croydon Health Services NHS Trust only 84.6% of patients were risk-assessed between October and December 2012 – meaning that nearly one in six patients were left at potential risk.
Across NHS providers, only a small number of patients are missing out on a VTE risk assessment, and there are now only 4 providers failing to risk assess one in ten of patients admitted\(^6\). However, there should be no excuse for falling below the minimum standard of 90%. As some providers show, it is possible to risk-assess all patients; South Essex Partnership University NHS Foundation Trust risk-assessed 100% of patients on admission\(^6\). The threshold for the financial incentive should be increased to incentivise all providers to continue to improve. Hospitals should also be encouraged to focus on re-assessment of patients 24 hours after admission, as recommended in NICE Clinical Guideline 92. A recent audit by the All-Party Parliamentary Thrombosis Group found that more than two thirds of trusts do not monitor whether patients are re-assessed within 24 hours of admission for risk of VTE and bleeding\(^6\).

**NHS England should consider raising the threshold in order to further incentivise providers to risk-assess all patients for VTE. The national CQUIN incentive for risk-assessment should remain in place for 2013/14, with the requirement strengthened so that 100% of patients are assessed for their risk of acquiring DVT and PE, and where necessary, have that risk managed. Trusts should also be held to account on whether or not they re-assess patients 24 hours after admission, in line with national guidance.**

Managing risk and improving outcomes

While assessing patient risk has been rightly prioritised, it is not enough. It is also necessary that those patients identified as at risk are given the appropriate prophylaxis, and that patients diagnosed with DVT or PE are treated as quickly and effectively as possible, as set out in NICE guidance.

In 2012/13 the CQUIN indicator on risk-assessment was supplemented by an additional CQUIN payment for those trusts that can demonstrate that they submit data on patient safety issues, including VTE\(^7\). The NHS Safety Thermometer, an improvement tool that allows NHS organisations to measure harm in four key areas, asked providers to input information on the proportion of patients with a VTE risk assessment, the proportion of patients with appropriate prophylaxis and the proportion of patients being treated clinically for a new VTE\(^7\).

The data provided in the first year give a more detailed picture of the management of DVT and PE in hospitals. Figure 6 shows some early data from the NHS Safety Thermometer, looking at the proportion of patients identified at risk who have been started on appropriate VTE prophylaxis\(^7\).
While these data are experimental, and not collected across all providers, it is extremely worrying that they indicate that prophylaxis was not given in more than three out of ten cases where patients had been identified as at risk. The results also suggest that there is a particularly concerning picture in community settings, with fewer than 5% of patients identified as at risk in the community receiving prophylaxis.

In the absence of better data it is clear that action needs to be taken to ensure that all patients are having their risk of DVT and PE managed effectively. It is important that commissioners use the data included in the NHS Safety Thermometer to ensure that patients in their area are appropriately protected.

The latest guidance on the NHS Safety Thermometer sets out that completion of the VTE indicator data will no longer be required, to avoid confusion with the VTE risk assessment data. This change will place the emphasis on process (assessing risk) rather than outcome (managing that risk). A joint indicator should be determined at the soonest opportunity to realign this emphasis on the issues that matter to patients. This indicator should include data on:

- The proportion of patients risk-assessed
- Actions that are taken as a result of risk-assessment
- The impact of those actions

All commissioners should require providers in their area to collect information on the number of patients found to be at risk of DVT and PE who are receiving appropriate prophylaxis, in addition to the numbers who have been risk-assessed. These data should be held by the Cardiovascular Intelligence Network, and reported on an annual basis by the NHS Information Centre.
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