



briefing

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Reducing deaths from blood clots in hospitals

The role of NHS boards

Key points

- Blood clots, or venous thromboembolism (VTE), are a major cause of deaths – an estimated 40,000 hospital patients a year will die from them, of which about 25,000 deaths may be preventable.
- VTE leads to increased costs for both hospitals and commissioners.
- There are cost-effective preventative measures that could reduce the VTE death toll but there is variability in how they are implemented.
- Boards could take a stronger lead in implementing safer care, including publishing quality data and nominating a lead non-executive board member.
- Commissioners could also work with providers to encourage compliance with good practice.

Blood clots, or venous thromboembolism (VTE), are a major risk to hospitalised patients. VTE leads to pain, swelling and potential death. While the full scale of the problem is not known, it is estimated that hospital-associated VTE leads to about 40,000 deaths in England per year, 25,000 of which may be preventable through proper risk management and care. This is about five times as many healthcare-associated deaths as from methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile* combined. There is a strong quality and financial imperative for hospitals to prioritise VTE prevention.

This *Briefing* summarises the issue, sets out the policy context and clinical practice, and provides suggestions for how boards can provide leadership and challenge to reduce mortality and improve efficiency.

Background

NHS hospitals have made strides in tackling infections, with MRSA cases halving since 2003/4. However, there has been less publicity about the problem of hospital-associated blood clots where there are opportunities for many more lives to be saved.

Venous thromboembolism (VTE) occurs when clots form in blood

vessels. These are often in deep veins, such as in the legs and pelvis, and are known as deep vein thrombosis (DVT), which can restrict blood supply and cause pain and swelling. In some cases, these clots break off and travel around the body and lodge in the lungs, causing a potentially fatal pulmonary embolism (PE). VTE sufferers can also have long-lasting complications, such as post-thrombotic syndrome, and need further medical treatment.

This is part of a series of briefings for commissioners and providers looking at opportunities for improving quality and safety through the implementation of policies or service models which are tried and tested. Some of these offer significant efficiency savings; others represent opportunities to prevent significant risks to patients.

Hospital-acquired VTE is often preventable, but a 2005 Health Select Committee (HSC) report said that it was “struck forcibly by the very variable use of prophylaxis”.

More recently, a survey by the All Party Parliamentary Thrombosis Group found that 70 per cent of acute trusts which responded were carrying out risk assessments for all inpatients and 86 per cent had a multidisciplinary team looking at thrombosis. It identified this as a considerable improvement on the previous year, when two-thirds of trusts were not risk assessing.

This improved situation may be due to growing political and clinical interest in VTE. The Government accepted the HSC recommendation of risk assessment for all patients and the use of prophylaxis where appropriate. Whilst it set up an expert working group that has produced guidelines on prevention, the focus has now turned to implementation. Surgical specialties – where VTE has been recognised as an issue for some time – may be more advanced than medical ones. However, there is still some way to go before all patients are appropriately assessed and treated.

Why should board members be concerned about VTE?

- VTE is a major cause of deaths in hospital – around 40,000 hospital patients a year will die from it in England; about 25,000 of these deaths may be preventable (based on international estimates by the VTE Impact Assessment Group in Europe).
- There is growing political, press and public interest in VTE.
- There are additional costs of treatment and extended length of

stay of patients with VTE.

- While VTE prevention is not currently included in any assessment of trusts, this could be introduced in the future.
- There are possible reputational and litigation risks – could VTE become the ‘next MRSA’ in the media and political debate?

What causes VTE?

Risk factors for developing VTE include long periods of inactivity in bed, such as while an inpatient is in hospital. Certain procedures, such as hip fracture surgery, also carry particularly high risks of developing VTE. Many cases of VTE will only manifest themselves after discharge and many cases of PE will only be diagnosed after death, if at all.

Lifeblood, the thrombosis charity, says that one in three surgical patients can develop DVT if no preventative measures are taken. However, medical patients are at risk as well. The impact of immobilisation can move people who would be seen as low risk for VTE in their ‘normal’ lives into higher risk groups, requiring prophylactic treatment.

Other risk factors affecting individuals include increasing age, previous occurrence, other illnesses such as cancers or heart failure, medicines which may increase the tendency of the blood to clot, obesity and long-distance travel with immobility. Pregnancy is also a factor: PE is a major cause of maternal death in the UK.

Prevention

A number of interventions can reduce the risk of a patient suffering VTE while in hospital, and

appropriate preventative measures can significantly reduce – but not eliminate – deaths from VTE. It is hard to quantify the number of lives which could be saved if all settings adopted optimal practice, but the 2005 HSC report cited evidence that as many as seven out of eight patient deaths from PE after major surgery could be avoided.

Preventative measures

National Institute for Health and Clinical Excellence (NICE) guidelines are currently available and are being revised in 2009. Good practice recommendations include:

- risk assessment of all medical and surgical inpatients on a regular basis
- blood-thinning drugs like Heparin and Fondaparinux, administered in hospital and post-discharge where appropriate
- graduated compression stockings – these are usually used for surgical patients at risk of bleeding
- other mechanical methods aimed at providing compression to the lower body
- early mobilisation, exercises and positioning.

As with hand hygiene compliance, there may be a gap between what is happening and what is being recorded. Dr Roopen Arya, director of King’s Thrombosis Centre, points out that this will require a cultural change. Junior doctors may be happy with the idea of prescribing Heparin but may not be writing up risk assessments. “Monitoring risk assessments and monitoring outcomes are the big challenges,” he says.

Health Minister Ann Keen recently said that the Government expected VTE risk assessment to be adopted throughout the NHS, the position with

VTE would be monitored closely, and the Government would review its policy by the end of the year.

Implications of VTE for the health service

The NHS treats many patients with VTE who have developed it in the community. The NHS has a role in raising awareness of VTE, its diagnosis, treatment and prevention, and encouraging people to minimise their individual risk factors, where possible, and take preventative measures if appropriate.

However, the NHS also needs to do all it can to minimise preventable cases of VTE in hospital or other healthcare settings. It is estimated that there are five times as many avoidable deaths from VTE in hospital as there are from healthcare acquired infections (HCAs).

Minimising the number of cases means assessing both the patient's individual risk factors and those associated with a hospital stay or particular procedure; reassessment may be necessary as a patient's risk may change. Patients will need to be informed about the possible risks of VTE as a result of surgery or a stay in hospital, and be encouraged to continue preventative measures at home if appropriate.

Costs

Risk assessing all patients and treating them with appropriate prophylaxis will have cost implications for individual organisations. But these are likely to be minor when compared with the costs of treating post-surgical DVT and PE patients, and the burden of avoidable mortality and morbidity. The 2005 HSC report put the costs of VTE at £640 million a year. Research for the NICE guidelines for some

Case study: Salisbury NHS Foundation Trust

Clinical engagement and leadership

Implementing VTE prophylaxis at Salisbury has involved getting sign-up from all the professional groups involved, organising educational sessions for staff and getting high-level board support.

A local expert group was formed to work on pathways for each specialty and consultants were required to sign up to the guidance for their department. A part-time VTE project nurse has been appointed and VTE is now included in the junior doctors' induction programme.

Medical director Alistair Flowerdew and consultant haematologist Dr Tamara Everington, have also ensured that VTE is on everyone's agenda – from the staff who attend educational sessions to board members who see the audit results. The VTE working group reports to the clinical governance committee and the board; it has been supported by the chief executive, Matthew Kershaw.

Internal governance

Alistair Flowerdew stresses the role of internal systems to ensure that patients are assessed, given prophylaxis if appropriate, and also reassessed. The trust is now regularly auditing compliance and a VTE working group meets monthly.

Reports on this go to the clinical governance committee. The percentage of patients risk-assessed is also on the 'quality dashboard', and the trust also monitors any incidents of VTE.

Standardised processes

A standardised form has dramatically increased the percentage of patients being risk-assessed for VTE.

Dr Everington says that before the risk assessment tool was introduced, many departments were using prophylaxis but not risk-assessing patients. A simple, standardised tool was designed and compliance audited every quarter.

Learning from VTE cases and educating patients

Each case of VTE following admission is reviewed and the results presented to a departmental meeting to learn from any mistakes. Cases of VTE, and subsequent deaths from PE, are less than would be expected from the number of patients treated by the trust. The trust is also addressing patient and public education, highlighting the need for exercise and good hydration to minimise individual patient's risks. Risk assessments increased from 16 per cent in June 2008 to 57 per cent in January this year.

surgical patients in 2007 suggested additional treatment costs of £476 for symptomatic DVT and £2,498 for symptomatic but non-fatal PE. A number of studies have demonstrated

that prophylaxis for patients is cost effective.

There is evidence that patients with VTE will spend longer in hospital.

An American study in 2007 found that trauma patients who developed VTE had twice the length of stay of those without. VTE may also lead to readmission.

This would suggest that appropriate prophylaxis – and the consequent avoidance of VTE – should lead to reduced lengths of stay and fewer readmissions. This would have benefits for the NHS but it may be hard to demonstrate in individual organisations as VTE is spread across many specialties and length of stay is affected by many variables.

According to the independent expert working party, VTE accounts for just under 2 per cent of clinical negligence payments. As awareness rises this could be expected to increase.

The importance of board member involvement

VTE is a clinical issue that boards should not ignore. Other clinical issues – such as HCAs – have become board issues, sometimes leading to the departure of both executives and non-executives and causing enormous damage to the reputation of the trusts involved and the NHS in general. Lack of VTE risk assessment was highlighted in the recent report into clinical and managerial failings at Stafford Hospital.

One simple action which boards could take would be putting a VTE measurement on their ‘quality dashboard.’ This would ensure regular reporting which should raise the profile of the issue throughout the organisation. It may also ensure boards are in a good position should any VTE measures be introduced as part of the Care Quality Commission’s (CQC) assessment and monitoring of healthcare organisations.

Suitable measures could include:

- the percentage of patients who are risk-assessed for VTE on admission
- the percentage of patients considered appropriate for prophylaxis who receive it.

Boards may also like to request indicators on reassessment of patients.

What are boards doing already and what other measures could they take?

‘Clinical champions’ can drive forward change but may need allocated time and resources to make an impact. Champions could be doctors, specialist nurses or pharmacists. Boards could also nominate a lead non-executive on VTE, as they do for HCAs.

A baseline assessment can be a useful way of establishing where a trust is on VTE – such as the percentage of patients who are being assessed on admission for preventative measures. NHS South West is encouraging all trusts to carry out self-assessments and is then offering the help of an expert team to improve compliance. Trusts using the global trigger tool, promoted by the NHS Institute, may already be picking up issues caused by not risk assessing for VTE. This tool involves a small sample of case notes being examined to look at potential harm caused by poor management of patients.

Ideally, assessment needs to be embedded in staff habits so that every patient admitted is automatically considered for VTE risk. Appropriate paperwork or electronic prompts can assist in this. Some trusts have found compliance has soared once assessment forms are automatically included in admission papers and Connecting for Health will be embedding risk assessment into

NHS IT tools later this year. Board safety walk-rounds could also look for evidence that assessment and prophylaxis is taking place and that patients feel well-informed about the issue.

Boards can ask for root cause analysis to be carried out whenever there is a death from VTE in hospital after discharge or at readmission. This can be an effective way of uncovering failings, as with deaths from HCAI.

Some liaison with primary and community care may be needed to get the full benefits of preventing VTE. Some preventative regimes need to continue after discharge and many cases of hospital-related VTE will be identified after discharge. Boards may want to ask how VTE is being addressed as a whole system issue.

Boards can ask whether VTE prevention is covered in staff training – educational needs were highlighted by the expert working party (see ‘Further information’ on page 6 for more details).

Primary care trusts could include VTE risk assessment and appropriate prophylaxis targets in their contracts with trusts and other providers, including the independent sector.

Patient and carer awareness can be improved, including what to ask. Information leaflets are available from the Lifeblood charity at www.thrombosis-charity.org.uk.

Effective and sustainable change

Where changes need to be introduced, boards should ensure they are done in an effective and sustainable way which is likely to encourage compliance and reliability. Murray Anderson-Wallace of the Patient Safety First campaign suggests that changes could be introduced

in one area initially using a 'plan-do-study-act' cycle and then spread throughout the trust once they have been shown to be working reliably. He advises against a 'spray and pray' approach to implementation of safety policies.

Significant change will take time – a year or more – and there may be 'pinch points' where compliance comes under pressure, such as when new junior doctors move to the trust.

Sources of help

A simple two-page assessment tool which is suitable for all medical and surgical patients is available on the Department of Health website (see 'Further information' for details). The new World Health Organisation Surgical Safety Checklist, issued as an alert by the National Patient Safety Agency in January 2009, also requires VTE risk assessment to be carried out before surgery begins.

Trusts with no protocols or incomplete implementation of risk assessment are likely to be referred to exemplar thrombosis centres – trusts which have got to grips with the process. Some of these are large teaching trusts but others are smaller district general hospitals. Talking to them can help spread best practice and save other trusts from 'reinventing the wheel.'

Dr Anita Thomas, who chairs the VTE implementation group, and Tim Brown, national VTE policy adviser, are happy to visit NHS organisations and can be contacted on vteimplementation@btinternet.com

Strategic health authority (SHA) medical directors can also offer help as some SHAs continue to promote the implementation of risk assessment.

Case study: The commissioning perspective

North Lancashire PCT (NLPCT) is planning to include VTE prevention as a local quality indicator in its contracts with acute trusts. Trusts which assess a high percentage of patients for VTE risk would receive incentive payments. These would be increased if a high percentage of patients requiring prophylaxis are then given it.

Details of the scheme are still to be agreed with its secondary care providers but PCT chief executive, Ian Cumming, says they have responded enthusiastically – helped by the PCT devising an incentive scheme rather than making risk assessment just one more thing which has to be done within tariff.

However, the aim is not to reward mediocre performance but to encourage providers to strive to meet tough targets and to then improve on them in the following year. While the money involved is unlikely to be massive, it could provide funding for a specialist nurse in each trust to drive forward compliance and help with education of other staff.

Mr Cumming also calls for root cause analysis of every death from VTE – just as many trusts do with HCAs.

A list of quality indicators used in NLPCT's contracts is available at www.nhsconfed.org/vte

Confederation viewpoint

The NHS Confederation believes VTE is an issue that no NHS organisation should ignore and that it should have the same focus as infection to prevent it becoming the 'next MRSA'. Current media and public interest adds weight to the drive to reduce significantly the morbidity and mortality associated with VTE. It is also a chance for the NHS to show that it can bring about transformations in quality and patient outcomes, and have a positive effect on public confidence in the health service.

NICE guidelines are available and are currently being updated. There is political and patient group pressure for VTE risk assessment to become a mandatory requirement. Whatever the policy, there is a clear and compelling clinical and financial argument for trust boards to ensure that prevention of VTE becomes as standard a practice

in the NHS as hand hygiene. Many trusts have addressed VTE successfully; spreading good practice throughout the NHS offers a 'bottom up' and empowering way of improving performance. The recent improvement in the percentage of trusts risk assessing patients shows that the NHS can respond appropriately without waiting for formal targets.

Boards can pre-empt demands for regulation by acting on the information in this *Briefing* and assuring themselves that their organisations are assessing patients and taking appropriate preventative measures. A baseline assessment and regular reports to boards offer a simple way of doing this.

Collaboration and information sharing between commissioners, trusts and community services, including coding VTE cases with a recent hospital history, could also



ensure that cases of VTE linked to hospital admission are traced and the reasons for them analysed.

The probability of saving lives and reducing long-term complications for patients are, in themselves, sufficient reasons for NHS organisations to take these steps. But both providers and commissions could also see financial benefits if cases of VTE decrease – preventing VTE could improve productivity for providers, potentially shortening average lengths of stay whilst reducing future admissions and costs of ongoing care for commissioners.

The NHS Confederation would like to thank Alison Moore and all members and stakeholders who contributed to this *Briefing*.

For more information on the issues covered in this *Briefing*, including North Lancashire PCT's quality indicators and details about relevant education and training, contact joe.farrington-douglas@nhsconfed.org or visit www.nhsconfed.org/vte

Further information

Report of independent expert working party on the prevention of VTE in hospitalised patients. Department of Health, March 2007.

www.dh.gov.uk/en/PublicHealth/Healthprotection/Bloodsafety/VenousThromboembolismVTE/DH_073963

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Two-page assessment tool www.dh.gov.uk/en/publicationsandstatistics/publications/publicationspolicyandguidance/DH_088215

National Patient Safety Agency Alert. WHO Surgical Safety Checklist, January 2009. www.npsa.nhs.uk/nrls/alerts-and-directives/alerts/safer-surgery-alert/

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