

## **Health and Social Care Committee**

### **HSC(4)-15-12 paper 18**

#### **One-day inquiry into venous thrombo-embolism prevention - Evidence from Welsh Government**

1. This paper provides evidence for the Health and Social Care Committee's one-day inquiry into venous thromboembolism (VTE) prevention in hospitalised patients in Wales.
2. The evidence paper:
  - summarises all guidance from the National Institute for Health and Clinical Excellence (NICE) in relation to the prevention of VTE.
  - examines the implementation of the NICE guidance;
  - examines the 1000 Lives Plus risk assessment tool across Wales and its adequacy and effectiveness in preventing VTE in hospitalised patients.

#### **Summary**

3. There is considerable published evidence on the actions needed to prevent hospital acquired VTE. This includes systematic assessment of at risk patients, prophylactic treatment where required, as well as patient involvement and education. The NHS in Wales, with the support of the 1000 Lives Plus programme has taken considerable steps to ensure the delivery of evidence-based care and improve patient safety. This has been challenging but remains a priority in our efforts to ensure the highest quality, safe care to hospitalised patients in Wales.

#### **Venous Thromboembolism**

4. VTE is a condition in which a blood clot (thrombus) forms in a vein. It most commonly occurs in the deep veins of the legs; this is called deep vein thrombosis. The thrombus may dislodge from its site of origin to travel in the blood – a phenomenon called embolism.
5. VTE encompasses a range of clinical presentations. Venous thrombosis is often asymptomatic; less frequently it causes pain and swelling in the leg. Part or all of the thrombus can come free and travel to the lung as a potentially fatal pulmonary embolism. Symptomatic venous thrombosis carries a considerable burden of morbidity, including long-term morbidity because of chronic venous insufficiency. This in turn can cause venous ulceration and development of a post-thrombotic limb (characterised by chronic pain, swelling and skin changes).
6. VTE is an important cause of death in hospital patients, and treatment of non-fatal symptomatic VTE and related long-term morbidities is associated with considerable cost to the health service.

7. The risk of developing VTE depends on the condition and/or procedure for which the patient is admitted and on any predisposing risk factors (such as age, obesity and concomitant conditions).
8. The House of Commons Health Committee reported in 2005 that an estimated 25,000 people in the UK die from preventable hospital-acquired VTE every year. This includes patients admitted to hospital for medical care and surgery. The inconsistent use of prophylactic measures for VTE in hospital patients has been widely reported. A UK survey suggested that 71% of patients assessed to be at medium or high risk of developing deep vein thrombosis did not receive any form of mechanical or pharmacological VTE prophylaxis.

### **NICE Clinical Guideline**

9. In January 2010, NICE published a clinical guideline “Reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital”. The guideline updated and replaced earlier guidance published by NICE in 2007. All NHS organisations in Wales are expected to provide care in line with NICE guidance.
10. The guideline makes recommendations on assessing and reducing the risk of VTE in patients in hospital. It offers guidance on the most clinically and cost-effective measures for VTE prophylaxis in these patients.
11. The ‘Key Priorities for Implementation’ of the guideline is reproduced below:

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

- Assess all patients on admission to identify those who are at increased risk of VTE.
- Regard medical patients as being at increased risk of VTE if they:
  - have had or are expected to have significantly reduced mobility for 3 days or more **or**
  - are expected to have ongoing reduced mobility relative to their normal state and have one or more of the risk factors shown in box 1.
- Regard surgical patients and patients with trauma as being at increased risk of VTE if they meet one of the following criteria:
  - surgical procedure with a total anaesthetic and surgical time of more than 90 minutes, or 60 minutes if the surgery involves the pelvis or lower limb
  - acute surgical admission with inflammatory or intra-abdominal condition

- expected significant reduction in mobility
- one or more of the risk factors shown in box 1.
- Assess all patients for risk of bleeding before offering pharmacological VTE prophylaxis. Do not offer pharmacological VTE prophylaxis to patients with any of the risk factors for bleeding shown in box 2, unless the risk of VTE outweighs the risk of bleeding.
- Reassess patients' risks of bleeding and VTE within 24 hours of admission and whenever the clinical situation changes, to:
  - ensure that the methods of VTE prophylaxis being used are suitable
  - ensure that VTE prophylaxis is being used correctly
  - identify adverse events resulting from VTE prophylaxis.

### **Reducing the risk of VTE**

- Encourage patients to mobilise as soon as possible.
- Offer pharmacological VTE prophylaxis to general medical patients assessed to be at increased risk of VTE. Choose any one of:
  - fondaparinux sodium
  - low molecular weight heparin (LMWH)
  - unfractionated heparin (UFH) (for patients with renal failure).

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

### **Patient information and planning for discharge**

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

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

### **Box 1 Risk factors for VTE**

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

### **Box 2 Risk factors for bleeding**

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

## Other relevant NICE guidance

12. In addition to the Clinical Guideline, NICE has undertaken the following technology appraisals of medicines in connection with VTE:

### Published

- Dabigatran etexilate, is recommended as an option for the primary prevention of venous thromboembolic events in adults who have undergone elective total hip replacement surgery or elective total knee replacement surgery. (TA157 published September 2008);
- Rivaroxaban is recommended as an option for the prevention of venous thromboembolism in adults having elective total hip replacement surgery or elective total knee replacement surgery (TA170 published April 2009);
- Apixaban is recommended as an option for the prevention of venous thromboembolism in adults after elective hip or knee replacement surgery (TA245 published January 2012).

The NHS in Wales is under a statutory duty to fund implementation of these medicines, in accordance with the NICE guidance.

### In development

- Rivaroxaban for the treatment and secondary prevention of venous thromboembolism (Expected publication date July 2012);
- Dabigatran etexilate for the treatment of acute venous thromboembolic events (publication date to be confirmed);
- Apixaban for the prevention of venous thromboembolism in acute medical illness (publication date to be confirmed);
- Rivaroxaban for the prevention of venous thromboembolism in people hospitalised for acute medical conditions (publication date to be confirmed).

### Quality Standard

NICE also published a VTE Prevention Quality Standard in 2010, which contained the following 7 Quality Statements:

| No. | Quality statements   |
|-----|--|
| 1   | All patients, on admission, receive an assessment of VTE and bleeding risk using the clinical risk assessment criteria described in the national tool. |
| 2   | Patients/carers are offered verbal and written information on VTE  |

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|---|---|
|   | prevention as part of the admission process.  |
| 3 | Patients provided with anti-embolism stockings have them fitted and monitored in accordance with NICE guidance. |
| 4 | Patients are re-assessed within 24 hours of admission for risk of VTE and bleeding.                             |
| 5 | Patients assessed to be at risk of VTE are offered VTE prophylaxis in accordance with NICE guidance.            |
| 6 | Patients/carers are offered verbal and written information on VTE prevention as part of the discharge process.  |
| 7 | Patients are offered extended (post hospital) VTE prophylaxis in accordance with NICE guidance.                 |

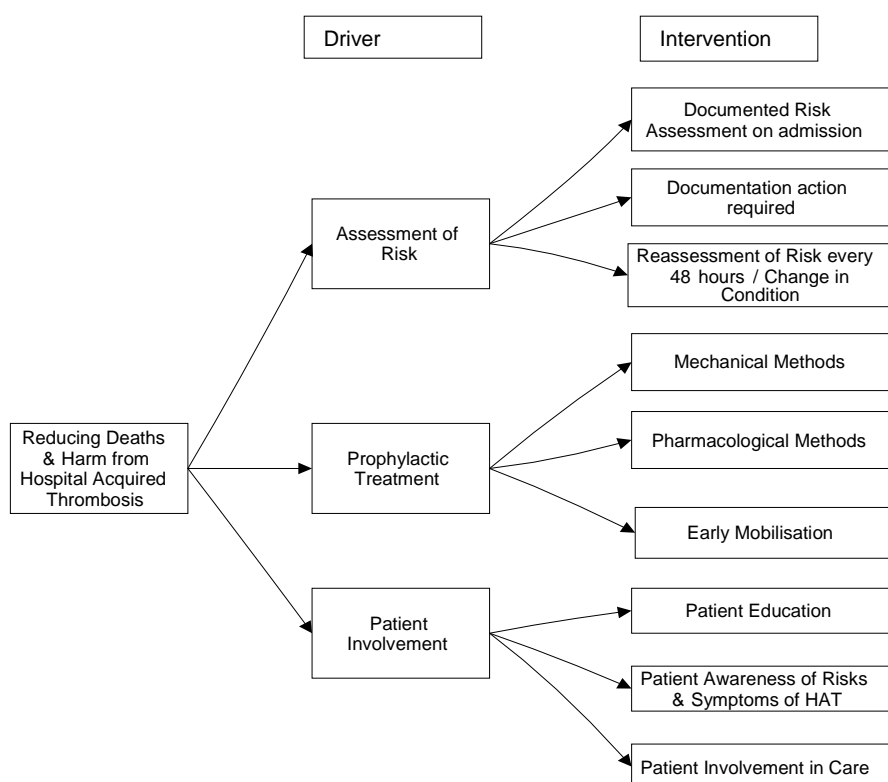
A further Quality Standard “Management of venous thromboembolic diseases” is also in development with an anticipated publication date of April 2013.

### **Actions to prevent VTE for hospitalised patients in Wales**

13. The NHS in Wales has been supported to take forward the actions required to help prevent hospital acquired VTE through the work of the former 1000 Lives Campaign and now the 1000 Lives Plus Programme, the national improvement programme for NHS Wales. The 1000 Lives work has introduced a standardised improvement methodology within NHS Wales to support the reliable and consistent implementation of evidence based interventions. Its aim is to facilitate the delivery of the highest quality and safest healthcare.
14. The 1000 Lives Campaign was launched in April 2008 with its aim of saving an additional 1000 lives and avoiding up to 50,000 episodes of harm in Welsh healthcare in two years. It included a small number of evidence- based content (clinical) areas, following an appraisal of evidence by the then National Public Health Service. This was based on international work previously designed and implemented by the Institute of Healthcare Improvement in the States. As a result the Welsh campaign included a content area for ‘preventing and reducing surgical complications’. Within this one of the interventions included identifying patients at risk and then providing appropriate DVT prophylaxis.
15. The 1000 Lives Campaign produced resources and supported NHS organisations, through a collaborative programme to take forward implementation. At the time this way of working was new to NHS Wales, bringing together clinical teams from across Wales to share ideas, knowledge and challenges and develop methods to implement the various interventions needed, including the development of an all Wales risk assessment tool.
16. During the period of the 1000 Lives Campaign more evidence emerged and the NICE guidance was updated. Therefore in January 2010, following a review by the 1000 Lives Plus team of the evidence available by

regarding VTE and progress made by organisations, it was agreed with the then Chief Executive of NHS Wales to deliver a 12 month mini-collaborative specifically around VTE prevention as part of the new 1000 Lives Plus Programme.

17. The 1000 Lives Plus team worked in partnership with others, including Lifeblood, the thrombosis charity to develop a 'how to guide' and 'driver diagram' as set out below. This simple methodology sets out the various actions, including assessment, treatment and patient involvement, needing to be carried out in a systematic way for each at risk patient in order to try to prevent a hospital-acquired VTE.



18. This approach is underpinned by number of process measures to test reliability in implementing the interventions. With highly reliable processes, changes and improvements should then be seen when measuring outcomes.

19. 1000 Lives Plus continues to support NHS Wales organisations with this work and the many challenges that it has posed. In addition to implementation of the risk assessment work continues to ensure patients are re-assessed an ongoing basis and receive appropriate prophylaxis. For surgical patients this is now being taken forward through the Enhanced Recovery after Surgery Programme (ERAS).

20. The 1000 Lives Plus team are currently working with NHS organisations VTE leads to develop an outcome measure for the hospital acquired thrombosis (HAT) rate. This builds on pioneering work undertaken by Betsi Cadwalader University Health Board. By March 2012, six out of eight

organisations had a process in place for achieving this and the other two are working towards this. This is an important step forward in the overall work to tackle VTE as the precise incidence of HAT is difficult to assess reliably from existing data collection/coding systems. Wales may become the first country to achieve a national HAT rate.

## **Transforming Maternity Care and Preventing VTE**

21. 1000 Lives Plus launched its Transforming Maternity Services collaborative in March 2011. This picked up the specific elements for preventing VTE in pregnancy. The overall aim of this programme area is to improve the experience and outcomes for women, babies and their families within Maternity Services. One of the drivers in achieving this aim is to reduce the risk of venous thromboembolism in pregnancy.
22. A universal VTE risk assessment for pregnant women has been agreed. This followed consultation with experts from within Wales and the relevant endorsement committees. Consensus has been reached on agreeing two exemplar DVT Risk Assessment Templates – one relating to the initial 'Booking' visit, which is to be included in the National Hand-Held records and one relating to Antenatal Admission and the puerperium (postnatal period). This has been a significant achievement for the mini-collaborative in a short period of time. This demonstrates the strong clinical leadership and engagement as well as commitment evident in this important area of practice.
23. All maternity units are currently implementing these risk assessments following localisation and agreement within their scrutiny committees. Work is also underway to implement a combined antenatal booking and admission risk assessment within gynaecological wards alongside the general DVT risk assessment.