

Health and Social Care Committee
HSC(4)–15–12 paper 1
One–day inquiry into venous thrombo–embolism prevention
– Evidence from Dr Simon Noble



**SUBMISSION TO THE NATIONAL ASSEMBLY FOR WALES HEALTH
AND SOCIAL COMMITTEE INQUIRY INTO VENOUS
THROMBOEMBOLISM PREVENTION IN WALES BY DR SIMON
NOBLE**

As Medical Director for Wales of Lifeblood: The Thrombosis Charity I am pleased to submit written evidence to the National Assembly for Wales' Health and Social Care Committee Inquiry into venous thromboembolism (VTE) prevention in Wales. I also present this evidence having chaired the All Wales Thrombosis Group, which developed the All Wales Risk Assessment Tools and as 1000 Lives Plus Faculty Lead for the Prevention of Hospital Acquired Thrombosis (HAT). I was also a member of the NICE Guideline Development Group for Clinical Guideline 92: Reducing the Risk of Venous Thromboembolism in Hospitalised Patients.

About VTE

VTE – blood clots – includes both deep vein thrombosis (DVT) and pulmonary embolism (PE). Blood clots form in the veins deep in the leg, usually in the calf or thigh, although occasionally DVT can occur in other veins of the body. A DVT may cause no symptoms at all or it may cause swelling, redness and pain. The majority of deaths from VTE are caused by part of the clot breaking off, travelling around the body and eventually blocking the pulmonary arteries (arteries in the lungs). This is known as a pulmonary embolism (PE). PE can occur suddenly, without warning, and of course can be fatal, though symptoms can include coughing (with blood stained phlegm), chest pain and breathlessness. Patients who survive their PEs are associated with long-term morbidities which can reduce quality of life. In addition up to 30% of people who have suffered a DVT will develop a chronic condition called Post Thrombotic Syndrome (PTS) requiring life long treatment.

Estimates of Hospital Acquired VTE in Wales

In 2005, England's Health Select Committee conducted a similar, one day Inquiry into the prevention of VTE in hospitalised patients¹. Based on evidence submitted to the Inquiry, the report estimated that without risk assessment and prophylaxis 25,000 avoidable deaths occur every year across the UK. This figure was based on data published in the VITAE study

¹ Available here <http://www.publications.parliament.uk/pa/cm200405/cmselect/cmhealth/99/99.pdf>

which analysed healthcare databases and published research, across six EU countries². From data across a total population of 618 million people, they identified 465,715 cases of DVT, 295,982 cases of PE and 370,012 VTE related deaths. Of these deaths, an estimated 27,473 (7%) were diagnosed as antemortem, 126,145 (34%) were sudden fatal PE and 217,394 (59%) followed undiagnosed PE. All most three quarters of deaths were from Hospital acquired VTE. In addition to these figures highlighting the scope of the problem, it is of interest to note that of all the VTE related deaths, only 7% were identified prior to death. If as these figures suggest, fatal PE is largely asymptomatic (34%) or undiagnosed by clinicians (59%) a strategy to prevent VTE related deaths should focus on their prevention. BAsed on this data, the number of preventable deaths due to hospital acquired thrombosis would be 1250 per annum if risk assessment and thromboprophylaxis were not carries out.

According to data from the Office of National Statistics, the number of deaths due to pulmonary embolus directly or where it is mentioned as an underlying cause are approximately 400 and 800 per annum respectively. However these figures are for all VTE related deaths and not just hospital acquired VTE. Based on Cohen's data where three quarters of all VTE deaths are hospital acquired one could calculate that there are over 300 deaths due to HAT and a further 600 associated with HAT.

Table 1: Number of deaths where deep vein thrombosis or pulmonary embolism was mentioned on the death certificate, Wales, 2006-2010

Cause of death	Deaths (persons)				
	2006	2007	2008	2009	2010
Underlying cause	384	350	367	405	428
Mentioned as underlying or contributory cause	703	697	681	743	799

Even if one were to use these figures to suggest a HAT death rate of 900 per year, this is much lower than the 1250 suggested.

There are several reasons for this:

1. VTE is an under reported phenomenon since death due to VTE is a diagnosis that needs to be made by post mortem. Since Alder Hey, there has been reluctance to request and consent to post mortems and HAT related deaths are likely to be missed.
2. The ICD coding system for diseases does not specify hospital acquired thrombosis and there may be a coding bias which leads to an under reporting.
3. Death due to VTE can only be recorded on the death certificate and hence ONS data, if the cause of death is correctly identified and documented. If only 7% of deaths due to VTE are identified prior to death, it is likely that there is an under reporting of death due to VTE.

² Cohen AT et al. Venous thromboembolism (VTE) in Europe. The number of VTE events and associated morbidity and mortality. *Thromb Haemost.* 2007 Oct;98(4):756-64.

The Cost of Hospital Acquired VTE

The cost of Hospital Acquired VTE can be viewed in financial, physical and psychological terms. Lifeblood is contacted on a daily basis by people who have lost loved ones to thromboembolism and those whose lives have been changed by sustaining an thrombosis. It is impossible to quantify the psychological impact VTE has on patients and their families but in addition to recognising the financial cost of VTE we need to appreciate other ways this preventable condition can impact on lives.

Data presented to England's Health Select Committee in 2005 estimated that the hospital acquired VTE costs the NHS in England, Wales and Scotland £640 million per annum.

To view the cost of VTE within Wales one needs to recognise the cost of treating VTE.

The costs of treating DVT range from £499-£1941 depending upon complication and place of management.

The cost of treating a PE is £349-£3618 depending on the level of emergency and complications.

Assuming an incidence of VTE of 1 in 1000, this could lead to an estimated cost of between £1.04 – 1.85 million per annum.

In addition up to 30% of patients experiencing DVT will develop a chronic condition called Post Thrombotic Syndrome (PTS) which requires life long treatment at a current cost of £653 per annum.

Over the past five years there has been an increase in litigation regarding the prevention and diagnosis of VTE. Data from the NHS litigation authority in England shows that £25 million was paid to patients in 2005 and this figure rose to £26 million in 2010. It is estimated that the litigation costs for VTE will have totalled £250 million by 2015.

A cost modelling exercise by NICE calculated that implementing thromboprophylaxis is not only cost effective but also results in net cost savings to the NHS. For every 100,000 risk assessed and given appropriate prophylaxis, this would result in a saving of £12,000. This figure does not take into account the cost of treating PTS or litigation costs.

About Lifeblood

Lifeblood is a UK based charity whose mission statement is to increase awareness of thrombosis among the public and health professionals, and to raise research funds to improve patient care through improved prevention and treatment of venous thromboembolic disease.

Alongside our active efforts to support research in thrombosis and raise awareness of the condition through our annual public awareness-raising campaign, National Thrombosis Week, we campaign vigorously for Governments across the UK to prioritise VTE prevention in the NHS ('Stop the Clots'), as well as more recently to improve the clinical diagnosis of VTE in the community ('Spot the Clots').

Lifeblood's 'Stop the Clots' campaign

Our 'Stop the Clots' campaign aims to ensure that every adult patient admitted to hospital across the UK receives a VTE risk assessment and appropriate prophylaxis in line with national clinical guidelines (SIGN Clinical Guideline 122 in Scotland, and NICE Clinical Guideline 92 in England, Wales and Northern Ireland). The campaign has always been outcomes-focussed. That is, ensuring patients' risk of VTE, once admitted to hospital, is reduced by receiving appropriate prophylactic treatment if they have been identified as being at risk of VTE through their risk assessment; risk assessment for VTE alone is not enough to prevent hospital acquired VTE.

Lifeblood recognises that each country in the UK presents a different challenge for the national prioritisation of an outcomes-focussed approach to VTE prevention. Lifeblood is determined to continue campaigning vigorously to support each devolved nation implement its own approach to prioritising VTE prevention in a way that suits their health system, which addresses their individual challenges, and builds on their individual strengths.

Submission

As Medical Director of Lifeblood Wales and Chair of the All-Wales Thrombosis Group (AWTG), I have promoted HAT prevention – Hospital Acquired Thrombosis (the preferred term in Wales) alongside the '1000 Lives Campaign', a national patient safety initiative launched in 2008 aimed at avoiding 1000 avoidable deaths across NHS Wales. This campaign continues under the auspices of '1000 Lives Plus' and Dr Noble remains Faculty Lead for prevention of HAT.

The 1000 Lives campaign comfortably achieved its aim of preventing 1000 avoidable deaths and continues to lead the patient safety agenda in Wales. Many of the successes of 1000 Lives and 1000 Lives plus are clearly evident with marked improvement in safer drugs management, reducing infection rates, pressure sores etc. It is to be congratulated for its achievements in improving patient care and the progress made in VTE prevention. However, the complexity of HAT prevention and the many challenges faced in implementing a sustainable HAT prevention programme means that the successes seen in other health improvement areas have not been realised to the same extent in HAT prevention.

The work of the 1000 Lives and 1000 Lives plus has taken HAT prevention to a point where with appropriate WG support and leadership, a standardised HAT prevention strategy and monitoring programme could be implemented with a system to demonstrate measurable patient benefit.

Lifeblood therefore views this Inquiry as a critical opportunity help shape the national agenda and drive the prioritisation of VTE prevention forward across Wales to ensure all patients receive appropriate prophylaxis when assessed as being at risk of VTE. We recognise that the Health Select Committee Inquiry in England from 2005 acted as a game-changer at the time and continues to be an authoritative source about the scale of avoidable VTE and the simple steps that can be taken to prevent it.

At the end of this submission, Lifeblood lists a number of calls for the Committee which we believe support national leadership on VTE prevention across Wales, with a call for a national focus on outcomes (that is, risk assessment and appropriate prophylaxis), supported by long-term, system-wide structures and approaches to achieve this.

The current status of HAT prevention in Wales

In April 2011 on behalf of the All Wales Thrombosis Group I wrote to the 7 Health Boards and 1 NHS Hospital Trust across Wales asking them to complete the VTE prevention

awareness survey under the provisions of the Freedom of Information Act. We enjoyed a 100% response rate, receiving completed responses from 7 Health Boards and 1 NHS Trust.

Given the impressive response rate, we are confident that we have presented a full account of the challenges faced, and the support required by organisations in implementing best practice guidance at that time. However, one must be mindful that this data reflects the state of play 12 months ago and the evidence submitted by the 7 Health Boards and 1 NHS Trust in Wales will give an up to date overview of progress.

The headline findings are listed below:

Awareness

- **100%** of Health Boards / NHS Trust responded (8 of 8).
- **88%** of organisations were aware of the Welsh Assembly Government's / 1000 Live-Plus monitoring tool for acute stroke (published in June 2010), which includes the requirement to risk assess patients for VTE / HAT?
- **100%** of organisations were aware of the NICE Guideline (published in Jan. 2010) on VTE prevention in patients admitted to hospital.
- **100%** of organisations were aware of the All-Wales Thrombosis Group / 1000 Lives-Plus HAT risk assessment tools, published in September 2010.
- **88%** of organisations had a formal written VTE prevention policy(s) or protocol in place.

Managing HAT Risk

- **100%** of organisations had in place multidisciplinary thrombosis committees, with involvement from doctors and nurses.
- **50%** of organisation's Board members were involved in HAT prevention and management through safety 'walk-rounds', the most common form of involvement.

HAT Risk Assessment

- **88%** of organisations undertook a documented risk assessment for VTE of all hospital inpatients.
- **75%** of organisations routinely reassessed patients for their risk of VTE.

Method and Audit

- **63%** of organisations regularly audited the uptake of risk-assessment for HAT and levels of prescribing of thromboprophylaxis.
- No organisations were able to provide data on the number of patients that were risk assessed for HAT on admission or the level of thromboprophylaxis administered from 2007 to 2009. Only one organisation was able to provide this data from 2009 to 2010.

Education and Information

- **38%** of organisations DID NOT offer patients any information on the risks of HAT on admission.
- **63%** of organisations DID NOT offer patients any information on the risks of HAT on discharge.
- **88%** of organisations DID NOT record instances of HAT on a registry.

Assistance Required

- **88%** of organisations are called for HAT risk assessment to be mandated by Government, with targets set for both documented risk assessment and thromboprophylaxis.
- **63%** of organisations called for mandatory education or training.

Two clear calls for government action emerged from the survey.

1. **88%** of organisations called for the Welsh Assembly Government to take steps to **mandate VTE risk assessment**, with Intelligent Targets set for both documented risk assessment and thromboprophylaxis.
A system of national targets has been introduced successfully in England through the Commissioning for Quality and Innovation (CQUIN) payment framework, following calls from clinicians themselves for national goals. The fact that clinicians in Wales are also calling for national VTE targets evidences further the significance of VTE prevention to patient safety.
2. Two-thirds of organisations called for the Government to **mandate VTE education and training**, stating it would increase consistent levels of VTE risk assessment and administration of thromboprophylaxis. Increasing professional awareness will be crucial to ensure Board-wide VTE policies are implemented at the ward level.

The challenges of preventing HAT

1. Complexity of HAT

Many of the health improvements bundles that have enjoyed success over the past few years have been in discreet areas of health care where there are clear points of assessment, intervention and evaluation. However, HAT prevention is more complex because:

- i. Patients at risk of HAT will enter the healthcare system through different points of entry (elective surgery, emergency surgery, acute medicine, accident and emergency etc)
- ii. Different specialties require different interventions; for example surgical patients will need pharmacological and mechanical prophylaxis whilst medical patients only require pharmacological. In addition, elective orthopaedic surgery has the option of using new oral agents to prevent VTE. In short, one size does not fit all.
- iii. The risk of HAT may change as the patients condition changes.

As a result, the risk of practice becoming inconsistent across the Principality is significant.

2. Challenges of buy in from all stakeholders

Whilst every health care profession will recognise the importance of handwashing to reduce hospital acquired infection, not everyone fully recognises the importance of HAT prevention. There are several reasons for this:

- i. HAT may occur to ninety days after hospital discharge. Therefore the majority will present in the community and not to the hospital team that looked after the patient originally
- ii. The majority of HATs will be managed as outpatients and the few that are readmitted to hospital are rarely looked after by their original team (HAT from a surgical procedure will be managed by physicians). Thus there is no formal way to feedback to professionals that their patient has developed HAT. As a result there is a perception amongst some clinician that HAT is not a major problem since they “never see it”.
- iii. There is concern within orthopaedic surgery in particular, that by using blood thinning medicines such as heparin or low molecular weight heparin (LMWH) to prevent HAT increases bleeding complications post operatively. The use of anticoagulants has been studied extensively and NICE concluded the side effects of using them are outweighed by the complications of not preventing HAT.

3. Patient empowerment

The success of the national hand washing campaign bears testament to the impact of patient empowerment and buy-in to a health improvement strategy. It is not uncommon for patients to challenge healthcare professionals who have not washed their hands; they have been encouraged to do so and the concept of infections being spread from patient to patient is easily understood. The concept of why HAT occurs is a more complex one to understand since there are many factors which puts someone at risk. Thus it is harder to explain to the public and for them to buy into the importance. In keeping with this, it is more challenging for the media to deliver a successful patient awareness campaign.

4. Prioritisation

Through working with colleagues involved in HAT prevention, there is a strong will to deliver a robust measurable HAT prevention strategy. However there is anecdotal evidence that unless HAT is recognised as priority by the Welsh Government, it is unlikely to have the dedicated attention it needs within each Health Board and Trust.

Data from Betsi Cadwalader University Health Board shows that there is a direct correlation between HAT risk assessment and HAT rates. Interestingly when the risk assessment rate drops off, there is a consequential rise in HAT rate.

Work in England has shown that when risk assessment is prioritised, the risk assessment rate has increased. However, within Wales we have an opportunity to better. Just because someone fills in a risk assessment form does not mean they will get appropriate thromboprophylaxis. Neither can one show in England that the increase in risk assessments has improved patients care. There is an opportunity in Wales to mandate risk assessment PLUS appropriate thromboprophylaxis and directly observe the impact on patient mortality/morbidity through monitoring the HAT rate for each Health Board.

Further more a HAT rate would allow Health Boards to target patients who have experienced HAT and perform root cause analysis on each case, thereby allowing for learning and improvement.

Conclusion

I am grateful for the opportunity to provide evidence to the committee and would welcome any opportunity to participate in future work within the Principality aimed at the prevention of HAT.

I respectfully request the Committee for the following in the published Report:

- To recognise the importance of preventing of avoidable hospital acquired VTE in Wales;
- To recognise the cost effective nature of preventing hospital acquired VTE, over and above managing VTE once diagnosed;
- To recognise the comprehensive and up to date nature of NICE Clinical Guideline 92 which sets out best practice in the risk assessment and prevention of hospital acquired VTE;
- To recommend that all adult patients, on admission to hospital, receive a risk assessment for VTE and appropriate prophylaxis in line with NICE Clinical Guideline 92;
- To recommend that the Welsh Assembly recognises VTE prevention as a priority for Welsh Health Boards;
- To recommend that the Welsh Assembly develops an outcomes-focussed approach to preventing VTE across Wales; by developing *Intelligent Targets* for Health Boards across Wales. These could include monthly sample data of a specified size, on both the percentage of adult patients who have received a risk assessment on admission to hospitals, **AND** the percentage of adult patients who have received the appropriate prophylaxis once they have been identified as being at risk
- To recommend that the Welsh Assembly requests all Health Boards and Trust provide an ongoing measure of their HAT rate
- To call on Health Boards to implement a robust system of root cause (RCA) of confirmed cases of hospital acquired VTE, to identify where mistakes have been made in leading to a preventable case of VTE; to recommend that HAT Steering Group shares systems for implementing RCA; and to urge that any learnings from cases of hospital acquired VTE which have been identified as preventable through the RCA are fed back to the responsible clinician and forwarded to the Health Board Medical Director.
- To recognise that professional awareness of hospital acquired VTE remains a challenge; and to recommend that steps are taken across Wales to improve education about preventing VTE amongst health professionals across the disciplines;



Dr Simon Noble
Medical Director (Wales), Lifeblood the Thrombosis Charity
Chair All Wales Thrombosis Group
Faculty Lead for HAT prevention 1000 Lives and 1000 Lives Plus