



House of Commons
Health Committee

The Prevention of Venous Thromboembolism in Hospitalised Patients

Second Report of Session 2004–05



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written evidence*

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Contacts

All correspondence should be addressed to the Clerk of the Health Committee, House of Commons, 7 Millbank, London SW1P 3JA. The telephone number for general enquiries is 020 7219 6182. The Committee's email address is healthcom@parliament.uk.

Footnotes

In the footnotes of this Report, references to oral evidence are indicated by 'Q' followed by the question number. Written evidence is cited by reference in the form 'Ev' followed by the page number.

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Summary

Each year over 25,000 people in England die from venous thromboembolism (VTE) contracted in hospital. This is more than the combined total of deaths from breast cancer, AIDS and traffic accidents, and more than twenty-five times the number who die from MRSA. The figures are alarmingly high. Even more alarming is the fact that many of these deaths are preventable. There is a safe, efficacious and cost effective method of preventing venous thrombosis which is not being as widely administered as it should be.

There are various reasons for this situation. Witnesses told us that many physicians and surgeons were not aware of the extent of VTE. A substantial number of patients who develop VTE first show signs that they have the disease after they have been discharged from hospital. As a result the original physician or surgeon who treated the patient in hospital is often not informed that their patient suffered from the condition after leaving their care. Moreover, there are no national guidelines which would ensure that doctors consider the risk of VTE and the availability of prophylaxis.

The Department of Health has now commissioned the National Institute of Clinical Excellence to produce a set of guidelines for the administration of preventative measures which are expected to be published in May 2007. This is a remarkably tardy response to a serious situation and, moreover, the scope of the guidelines commissioned by the Department is limited to a subset of surgical patients, while the majority of sufferers are non-surgical patients. In contrast, in the United States the American College of Chest Physicians has recently published the 7th revision of their guidelines which were first produced in 1986. Based upon the effectiveness of the intervention and the cost-effectiveness of applying that intervention, routine thromboprophylaxis for appropriate potential groups in hospital was ranked the number one most important safety practice in that country by the US Health Agency for Research and Quality.

We recommend that the NICE VTE guidelines be extended in scope to cover the majority of hospital patients. We further recommend that on admission to hospital all patients, both medical and surgical, be counselled about the risks of VTE and undergo a risk assessment to determine if prophylaxis, to help prevent the onset of venous thrombosis, should be administered. To raise awareness among medical practitioners of the extent of the problem we recommend that all physicians and surgeons are informed if their patients contract VTE after they have been discharged from hospital.

During the inquiry we heard serious doubts as to the extent to which the guidelines will be implemented when they finally become available. This is a recurring problem which the Committee has come across in several inquiries. Accordingly, our report makes recommendations to ensure their effective implementation. The Department, NICE and the Royal Colleges should work together to raise awareness of the extent of VTE and to audit the use of the guidelines. Our most important recommendation is that thrombosis committees and thrombosis teams should be established in each hospital to promote best practice now, using accepted guidelines adapted for local practice, and to be a source of education and training for all staff dealing with patients at risk of VTE. When NICE guidelines are published the committees and teams will be in place to ensure adherence.

They should be modelled on the effective teams and committees dedicated to improving the use of blood transfusion. Finally we recommend that the Healthcare Commission audit the availability and use of venous thrombosis prophylaxis in hospitals.

Glossary of terms

Venous Thrombosis (VT): A condition in which a blood clot (thrombus) forms in a vein.

Deep Vein Thrombosis (DVT): venous thrombosis that occurs in the “deep veins” in the legs, thighs, or pelvis.

Pulmonary Embolism (PE): A blood clot that breaks off from the deep veins and travels round the circulation to block the pulmonary arteries (arteries in the lung). Most deaths arising from DVT are caused by PE.

Venous Thromboembolism (VTE): The blocking of a blood vessel by a blood clot dislodged from its site of origin. It includes both DVT and PE.

Prophylaxis: A measure taken for the prevention of a disease.

Thromboprophylaxis: A measure taken to prevent thrombosis.

Post-thrombotic (Post-phlebotic) Syndrome: Chronic pain, swelling, and occasional ulceration of the skin of the leg that occur as a consequence of previous venous thrombosis.

1 Introduction

1. In the UK Pulmonary Embolism (PE) following Deep Vein Thrombosis (DVT) in hospitalised patients causes between 25,000 and 32,000 deaths each year.¹ It is the immediate cause of death in 10% of all patients who die in hospital.² The figure exceeds the combined total of deaths from breast cancer, AIDS and traffic accidents.³ It is over twenty-five times greater than the 955⁴ annual deaths from MRSA and more than five times the total of all hospital acquired infections. The total cost (direct and indirect) to the UK of managing VTE is estimated at £640 million.⁵ Even more alarming than the scale of the problem is the fact that VTE in hospitalised patients is largely preventable through the use of thromboprophylaxis during the hospital stay of the patient and, in some cases, continuing after discharge. A study in over 4,000 patients who died of PE following major surgery, demonstrated that the use of perioperative⁶ low dose heparin⁷ reduced the frequency of fatal PE from 8 per 1000 to 1 per 1000 patients operated on — saving 7 lives per 1000 patients operated on.⁸ Thus thousands of lives could readily be saved by the use of a tried and tested treatment.

2. In view of the number of deaths from VTE and the apparent failure to apply the remedy on an appropriate scale, we decided in November 2004 to hold an inquiry with the following terms of reference:

The Committee will undertake a short inquiry into the prevention of venous thromboembolism in hospitalised patients.

We deliberately excluded from our terms of reference consideration of DVT in long haul air passengers, which has been the subject of considerable concern and attention recently.

3. On 9 December 2004 we took oral evidence from Mrs Linda de Cossart and Mr David Warwick, both representing the Royal College of Surgeons; Professor Ajay Kakkar, Barts and the London Medical School; Dr David Keeling, representing the Royal College of Physicians; Dr Beverley Hunt, representing Lifeblood: the Thrombosis Charity; Dr Roger Boyle, Department of Health (hereafter 'the Department'); Professor Sir Michael Rawlins and Professor David Barnett, both of the National Institute of Clinical Excellence; and Professor David Cousins, National Patient Safety Agency. In addition we received written memoranda from a variety of professional bodies, companies, charities and clinicians. We are most grateful to all who provided written or oral evidence.

¹ Ev 14

² Ev 9, Ev14, Ev 55 and Ev 70

³ Ev 66

⁴ Health Statistics Quarterly Spring 2005, National Statistics, 24 February 2005

⁵ Ev 69

⁶ Perioperative - Around the time of surgery; usually lasts from the time of going into the hospital or doctor's office for surgery until the time the patient goes home.

⁷ Low dose heparin – 5,000 international units given by subcutaneous injection three times daily

⁸ Ev 10

4. Our specialist adviser in this inquiry was Professor K John Pasi, Professor of Haemostasis and Thrombosis and Honorary Consultant Haematologist at Barts and the London, Queen Mary's School of Medicine, University of London. We wish to express our gratitude to Professor Pasi for his help on technical matters, for giving us the benefit of his knowledge of the treatment of venous thromboembolism, and for the enthusiasm and expertise with which he assisted us at the evidence session.

2 The problem

What is venous thromboembolism?

5. Venous thrombosis is a condition in which a blood clot (thrombus) forms in a vein. Blood flow through the affected vein can be limited by the clot, causing swelling and pain. Venous thrombosis most commonly occurs in the “deep veins” in the legs, thighs, or pelvis. This is known as a deep vein thrombosis. An embolism is created if a part or all of the blood clot in the deep vein breaks off from the site where it is created and travels through the venous system. If the clot lodges in the lung a very serious condition, pulmonary embolism (PE), arises. Untreated PE has a mortality rate of 30%, treated the mortality rate is reduced to 2%.⁹ Venous thrombosis can form in any part of the venous system. However, deep vein thrombosis (DVT) and PE are the most common manifestations of venous thrombosis. DVT and PE are known as venous thromboembolism (VTE).

6. VTE is common and a cause of many deaths in hospitalised patients. Table One presents some remarkable and shocking information about the incidence of DVT. For example, 45 to 51% of patients undergoing orthopaedic surgery develop DVT if they are not provided with thromboprophylaxis. Until the recent introduction of guidelines produced by the Royal College of Obstetricians and Gynaecologists (RCOG), thromboembolism was the single biggest killer of pregnant women.¹⁰

Table 1: Incidence of DVT by specialities

Speciality	DVT % (weighted mean)
General Surgery	25
Orthopaedic surgery	45-51
Urology	9-32
Gynaecological surgery	14-22
Neurosurgery. including strokes	22-56
Multiple trauma	50
General medicine	17 ¹¹

Data - International Consensus Statement 1997/2002¹²

⁹ www.surgical-tutor.org.uk/system/vascular/venous_thromb.htm

¹⁰ “Why Mothers Die 2000-2002”, *CEMACH*, November 2004

¹¹ Average of all medical cases

¹² Ev 55

7. VTE is recognised internationally to be a serious health issue. Research in Australia has found that the incidence of VTE is 135 times greater in hospitalised patients than the community. The Australian National Institute for Clinical Studies has identified the under use of preventative measures as a clinical priority.¹³ In France all patients who undergo a joint replacement receive preventative treatment¹⁴ and the French Government has set a target to reduce the incidence of VTE by 15%.¹⁵

Causes of venous thrombosis

8. There are many reasons for people to be at an increased risk of developing a blood clot. Inherited thrombophilia refers to a genetic problem affecting 1 in 20 of the population¹⁶ that causes the blood to clot more easily than it should. There are a number of other acquired conditions which can cause a person to be at increased risk of developing a venous thrombosis. The risk factors — typically, there is more than one factor affecting any given patient — can now be identified in over 80% of patients with venous thrombosis. The acquired risk factors for VTE are well-defined and include:

- previous surgery (especially orthopaedic surgery and neurosurgery) trauma
- pregnancy
- obesity
- use of certain medications, including birth control pills, hormone replacement therapy, or tamoxifen
- immobilisation
- cancer
- heart failure
- elevated blood levels of homocysteine (partially genetic)
- certain disorders of the blood, such as polycythemia vera or essential thrombocythemia
- kidney problems, such as nephrotic syndrome
- antiphospholipid antibodies (antibodies in the blood that can affect the clotting process)
- a previous episode of thromboembolism, such as a clot in the leg (deep vein thrombosis) or lung (pulmonary embolism).

We were told that smoking and increased age may also increase the risk of venous thromboembolism, but it is uncertain what role these factors play.

¹³ "Preventing venous thromboembolism in hospitalised patients", *National Institute of Clinical Studies*, 2003

¹⁴ Q14 (Mr Warwick)

¹⁵ Ev 15

¹⁶ "Investigation and Management of Heritable Thrombophilia", *British Journal of Haemophilia*, Vol 114 (2001), pp 512-528 and "World distribution of factor V Leiden", *Lancet*, Vol 346 (1995), pp 1133-34

Risk of venous thrombosis during surgery

9. Before the introduction of specific preventative measures almost one third of all surgical patients developed a DVT.¹⁷ Without prophylaxis the rate of fatality from a PE after hip and knee replacement is approximately 0.4%. While this may appear to be a low figure, with 1.25 million hip and knee replacements in Europe each year this represents 5,000 fatalities annually.¹⁸

Other risk areas for venous thrombosis in hospitalised patients

10. There has been more emphasis on the occurrence and prevention of VTE in surgical, especially orthopaedic, patients, but the majority of hospitalised patients who experience VTE are medical patients. The risk of developing DVT in certain patients immobilised with a medical illness is high. We were informed that patients at particular risk for the development of VTE in an acute medical illness include those with severe heart failure, chronic respiratory disease, sepsis and cancer.¹⁹ Historically, approximately 40-50% of patients admitted with stroke or myocardial infarction²⁰ developed detectable venous thrombosis without prophylaxis. Professor David Barnett, Chair of the Appraisals Committee of NICE, told us that “70 to 80 per cent of...venous thrombosis may be in non-surgical cases.”²¹ A recent trial has shown that even ‘moderate risk’ medical patients admitted to hospital have a 15% chance of developing detectable venous thrombosis after 14 days.

11. Cancer patients are at particular risk. Those who develop a thrombosis are at three times greater risk than a non-cancer patient of getting a recurrent thrombosis and are more susceptible to significant bleeding complications while receiving treatment for thrombosis. Professor Kakkar, Professor of Surgical Science and Consultant Surgeon, stated that this: “has a devastating impact on their quality of life.”²²

Cost of VTE to the nation

12. Estimates of the number of deaths in the UK due to VTE vary. The evidence we received put the figures at between 24,000²³ and 32,000²⁴ per year. Precise numbers are difficult to gauge because many deaths are not followed up by a post-mortem.²⁵ As a result the number of deaths resulting from VTE is probably underestimated. Deaths caused by VTE are recorded as having another cause, such as acute respiratory problem or a heart attack. A consequence is that it would be difficult to monitor the progress made through any initiatives to decrease the number of deaths from VTE.

¹⁷ Ev 14

¹⁸ Ev 1

¹⁹ Ev 11

²⁰ Myocardial infarction - destruction of heart tissue resulting from obstruction of the blood supply to the heart muscle

²¹ Q86 (Professor Barnett)

²² Q 46

²³ Ev 66

²⁴ Ev 14

²⁵ Qq 4, 5, 6 (Mrs de Cossart), 59, 60

13. We were told that the problem has been caused in part by the fall in the number of post-mortems undertaken since the Alder Hey scandal. Hospital post-mortem rates have declined and coroners are no longer demanding such thorough investigation of deaths. **We are concerned that the number of post-mortems being performed has decreased since Alder Hey. As a result the true cause of death is not being determined in many cases. We recommend that the Department encourage the increased use of post-mortems where appropriate. This would enable accurate identification of the cause of death in more patients and more reliable assessment of the current incidence of death through VTE, thereby providing a base from which to monitor progress.**

14. VTE is very costly. Most patients with VTE require one or more diagnostic tests, treatment with the anticoagulant heparin (low molecular weight heparin [LMWH] or unfractionated heparin) and a variable or prolonged hospital stay (if already an inpatient) and then subsequent oral anticoagulation with attendant regular hospital visits and blood tests.²⁶

15. The Office for Healthcare Economics estimated in 1993 that the annual cost in the UK of treating patients who developed post-surgical DVT and PE was in the region of £204.7 to £222.8 million.²⁷ The total cost (direct and indirect costs) to the UK for the management of VTE is currently estimated at approximately £640 million.²⁸

16. In addition to the cost associated with the initial treatment of VTE there are significant costs to the NHS for the long-term treatment of patients who develop the disease. The International Consensus Statement stated that approximately 25% of patients who have in the past suffered from deep vein thrombosis would later in life develop the debilitating condition of venous leg ulceration.²⁹ They estimated that the annual costs of the treating venous leg ulcers in the UK were in the region of £400 million.³⁰

²⁶ "Low Weight Molecular Heparin in Preventing and Treating DVT", *American Family Physician*, 15 March 1999

²⁷ Ev 61 and see Alexander Cohen comments about costs (Ev 69)

²⁸ Ev 69

²⁹ "Prevention of Venous Thromboembolism. International Consensus Statement. (Guidelines According to Scientific Evidence)", *Int Angiol*, 1997, 16(1), pp 3-38

³⁰ Ev 61

3 Availability of prophylaxis and current guidelines

Available prophylaxis

17. Lifeblood informed us: “There is a huge body of research showing that use of specific treatments to prevent clots (thromboprophylaxis) reduces the frequency of death and post phlebotic syndrome³¹ substantially if given at times of high risk such as after surgery or during an in-patient stay.”³² Thromboprophylaxis is available in both mechanical and pharmacological form.

18. For patients with moderate to low risk of blood clots mechanical prophylaxis may be used instead of, or in combination with, pharmacological prophylaxis. For example, some surgical and medical patients may be treated with special plastic devices that fit around the legs and fill with air, exerting gentle pressure, which boost circulation and helps prevent clots. Mechanical methods of thromboprophylaxis include pneumatic calf compression and compression stockings. A systematic review of trials using such methods indicated that mechanical thromboprophylaxis did reduce the frequency of DVT, but these methods have not been as extensively investigated as pharmacological thromboprophylaxis and have not been shown to reduce the frequency of fatal pulmonary embolism.³³

19. Mechanical prophylaxis may also be considered in general surgical patients at high risk for bleeding.³⁴ However Mr David Warwick, Consultant Hand and Orthopaedic Surgeon at Southampton University Hospital NHS Trust, in his written evidence stated:

The advantages of mechanical prophylaxis such as the Foot Pump (no bleeding side effects, no interactions, reasonable efficacy) must be weighed against the disadvantages (compliance, refitting when mobilising, impracticality of extended use). A sensible approach would be to use the Foot Pump as soon as possible after injury or surgery and then to switch to chemical prophylaxis once the risk of bleeding has subsided and for as long as the risk of thromboembolism pertains.³⁵

20. The most common form of prophylaxis used in England is pharmacological. Surgical patients (especially those undergoing orthopaedic surgery) and medical patients classified as medium or high risk may be given anticoagulants to decrease the risk of blood clots. Anticoagulants may also be given to pregnant women at high risk of venous thrombosis during and after their pregnancy. Pharmacological agents for thromboprophylaxis include unfractionated heparin, LMWH, thrombin inhibitors, oral anticoagulants, and specific factor Xa inhibitors. Studies have shown that low-dose unfractionated heparin and LMWHs are an effective and safe prophylaxis for deep vein thrombosis. They have proven safe and cheap, and do not require laboratory monitoring and their cost is low.

³¹ The Post Phlebotic Syndrome occurs following a blood clot in the vein to the leg (Deep Vein Thrombosis).

³² Ev 14

³³ Ev 11

³⁴ Ev 11

³⁵ Ev 3

Efficacy of prophylaxis

21. Most importantly, the use of prophylaxis for VTE is efficacious. As we have seen, the risk of developing DVT after hip replacement surgery has been estimated to be as high as 50% of patients when thromboprophylaxis is not used. The use of appropriate thromboprophylaxis can reduce this risk to between 10 and 15% of patients. The risk of developing DVT in certain patients immobilised with a medical illness is also high. There is now evidence that combining mechanical and pharmacological thromboprophylaxis in some situations can reduce death and morbidity rates, and increase efficacy without increasing the risk of bleeding.³⁶ In general medical patients, including heart failure and respiratory failure patients, both unfractionated heparin and LMWH have been shown to be effective in reducing the risk of venous thromboembolism. Low dose heparin has been shown to be effective in acute myocardial infarction.³⁷ The administration of a thromboprophylaxis before general or orthopaedic surgery, or during medical treatment is also very cost-effective.³⁸

22. Many surgeons now advocate that prophylaxis after joint replacement should continue after the patient is discharged from hospital (extended prophylaxis), especially now that patients often leave hospital before regaining full mobility. The duration of extended prophylaxis depends on the risk category of the patient and the treatment that is undertaken. Extended prophylaxis normally lasts for five weeks but in high risk patients, or in those who have previously experienced DVT, prophylaxis can be administered for a significantly longer period.

23. While our witnesses agreed that thromboprophylaxis for patients while in hospital was cost-effective, there was some dispute as to whether this was true of prophylaxis for patients after they had been discharged. Apart from the cost of the drugs, concerns were expressed about its administration, because it has to be injected. Some discharged patients cannot, or will not, self-inject subcutaneous LMWH. Additional costs, and demands on scarce resources, may be incurred through the use of district nurses to visit and administer the drug to those patients who will not self-administer.³⁹

24. Despite this uncertainty, there is little doubt about the efficacy of thromboprophylaxis. The United States Agency for Health Care Research and Quality recently undertook a process that ranked 79 safety practices in hospitals. Based upon the effectiveness of the intervention and the cost-effectiveness of applying that intervention, routine thromboprophylaxis for appropriate patient groups in hospital was ranked the number one most important safety practice.⁴⁰

Current guidelines

25. For some specialities in the UK and in other countries, effective VTE guidelines already exist. A number of professional bodies have analysed results from clinical trials and

³⁶ Ev 70

³⁷ "Venous Thromboembolism: pathophysiology, clinical features, and prevention", *BMJ* 2002; 325, pp 887-890

³⁸ Q 15

³⁹ Q 37

⁴⁰ Q 12

produced guidelines that make recommendations for the prevention of VTE. The guidelines consider which groups of hospital patients should receive thromboprophylaxis, how it should be administered and the type of drug or other methods that should be used. An assessment of the level of risk for specific patient groups forms a basis for each recommendation and a grading based on the strength of the clinical evidence that supports it is supplied.

26. The Royal College of Obstetricians and Gynaecologists have drawn up and successfully implemented a series of guidelines for different types of thromboprophylaxis and for the treatment of venous thromboembolism during pregnancy. These include:

- Venous Thrombosis and Hormonal Contraception
- Hormone Replacement Therapy and Venous Thrombosis
- Thromboprophylaxis during Pregnancy, Labour and after Vaginal Delivery

An essential element in the wide-acceptance of these guidelines within the obstetric community was that they were introduced and supported by obstetricians themselves.⁴¹

27. Other guidelines have been introduced outside England and Wales. The most comprehensive on the prevention of VTE currently available are the seventh American College of Chest Physicians (ACCP) guidelines.⁴² These provide multiple recommendations based on evidence drawn from about 800 references. They are considered by many as “state of the art” within the field. Guidelines were also developed in Scotland after the Scottish Intercollegiate Guidelines Network (SIGN) identified the need for a national guidance on prophylaxis following a study of fatal PE in surgical patients up to 1995. The study showed that 56% of patients who died of PE did not receive thromboprophylaxis, despite having major risk factors and no contraindications to standard thromboprophylaxis.⁴³ Some hospitals and Strategic Health Authorities have also developed local protocols based upon existing guidelines, in particular those of SIGN and ACCP.

28. A key part of any guidelines is the incorporation of risk factors. Those for VTE are well defined — immobility, acute illness, major surgery (especially long operations) and orthopaedic surgery, malignancy, pregnancy, increasing age and obesity. The overall risk is increased further where the patient has several risk factors.⁴⁴ Risk assessment has been identified in the guidelines as an important process for administration of thromboprophylaxis. When determining if patients require thromboprophylaxis physicians and surgeons classify patients into risk factor groups to determine their potential susceptibility to VTE and then establish if thromboprophylaxis is recommended for the patient. Patients can be classified into one of three (or four — depending on which guidelines are being followed) risk factor groups, low, medium or high (highest). The

⁴¹ Q 87 (Sir Michael Rawlins)

⁴² “The Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy: Evidence-Based Guidelines”, *Chest*, 2004, Vol:126, Supplement 3, pp 3385-4005. i.e. these are the 7th revision; the first guidelines were issued in 1986

⁴³ Prophylaxis of Venous Thromboembolism, <http://www.sign.ac.uk/guidelines/fulltext/62/index.html>

⁴⁴ Ev 14

resultant categorisation is used to determine the relevant prophylaxis to be administered to the patient. An example of the type of categorisation is given below.

- Low risk
 - Minor surgery (<30 min⁴⁵) + no risk factors other than age
 - Major surgery (> 30 min), age <40 yrs + no other risk factors
 - Minor trauma or medical illness

- Moderate risk
 - Major general, urological, gynaecological, cardiothoracic, vascular or neurological surgery + age >40 yrs or other risk factor
 - Major medical illness or malignancy
 - Major trauma or burn
 - Minor surgery, trauma or illness in patients with previous DVT, PE or thrombophilia

- High risk
 - Fracture or major orthopaedic surgery of pelvis, hip or lower limb
 - Major pelvic or abdominal surgery for cancer
 - Major surgery, trauma or illness in patient with previous DVT, PE or thrombophilia
 - Major lower limb amputation⁴⁶

In the absence of a nationally recognised set of guidelines risk assessment remains variable and prophylactic regimes continue to be inconsistent.

⁴⁵ i.e. surgery lasting less than 30 minutes.

⁴⁶ www.surgical-tutor.org.uk/system/vascular/venous_thromb.htm

4 The current use of prophylaxis

29. During the inquiry we were struck forcibly by the very variable use of prophylaxis. There are variations between regions and between hospitals. Within some hospitals the application of thromboprophylaxis may vary between individual surgeons and physicians. Professor David Barnett, of NICE, pointed out that the application of thromboprophylaxis in “the whole hospital environment is very patchy and it is particularly true within the medical framework(i.e. in non-surgical cases).”⁴⁷

30. Despite the high risk of VTE in patients undergoing major surgery, some 40% or more of patients still do not receive an effective form of thromboprophylaxis. Indeed last year the Department estimated that 4 out of every 10 orthopaedic patients do not receive any thromboprophylaxis at all — where the risks of DVT are in the order of 1 in 2.⁴⁸ Only 40% of medical at risk patients eligible for preventive treatment (approx 25% of all those in hospital for an acute medical condition) receive an effective thromboprophylactic agent.⁴⁹ Most do not receive any form of risk assessment either.

31. This variability is caused by a number of factors: the lack of awareness of the problem; concerns about bleeding when thromboprophylaxis is administered; funding issues; the inaction of the Department; the lack of a nationally recognised set of thromboprophylactic guidelines, which we have already noted; and the failure to implement what guidelines there are. These factors are considered in detail below.

Lack of awareness of the problem

32. Although there is much evidence for the high incidence rate of VTE and the availability of thromboprophylaxis, a number of submissions stressed that many surgeons and physicians were not aware that their patients suffered from this condition. A hospitalised patient who has contracted a DVT will often have no outward signs that show that they have developed the condition. The manifestation of the condition often occurs when the patient has been discharged from hospital. The first indication may be chest pain from a pulmonary embolus or even sudden death if the embolus is massive. Professor Kakkar told us that: “The problem is that the silent disease can still be deadly and it is bridging that gap between the silence of the disease and the low frequency of the clinical symptoms that I think has been the great problem in persuading large numbers of clinicians about the seriousness of the disease.”⁵⁰ Mr David Warwick, a Consultant Orthopaedic Surgeon representing the Royal College of Surgeons (RCS), told us:

..if you are an orthopaedic surgeon about four in a thousand hip replacement patients will die from a pulmonary embolism if you do not use prophylaxis. That, I suppose is quite a small number in as much as if you are a busy hip surgeon and you do a hundred hip replacements a year you will not see a pulmonary embolism for

⁴⁷ Q 72

⁴⁸ Ev 15

⁴⁹ Ev 67

⁵⁰ Q 4

three or four years and when you do it may have happened at home. So for you individually it is not a problem, but the thing is that we do 90,000 hip and knee replacements per annum in the United Kingdom, so 90,000 times 0.4% is 360 deaths per year.⁵¹

Dr Beverley Hunt, Medical Director of Lifeblood, said: “the surgeons do not see the consequences the patients have, the problems after they have been discharged or when they are admitted to another unit. I think that there is a lack of education generally about this area.”⁵²

33. Many surgeons and physicians are not aware of the incidence of VTE, especially in recently discharged patients and, therefore, are not administering thromboprophylaxis. We recommend that when a patient who has recently been discharged from hospital develops VTE the original surgeon and/or physician should be notified by letter of the incident. Notification should be made by either the primary care physician treating the recently discharged patient, or if the patient is re-admitted to hospital, by the secondary care physician. Notification should also be made in the case of death through PE of a recently discharged patient.

Concerns about bleeding

34. One reason often cited for not using pharmacological prophylaxis is the increased risk of bleeding in patients undergoing surgery. A postal survey carried out to determine the attitudes to the use of LMWH in joint replacement among two groups of orthopaedic surgeons practising in the UK found that 72% of hip surgeons and 51% of knee surgeons replying had used LMWHs for thromboprophylaxis. Of these, 48% had discontinued LMWH use due to bleeding complications. A conclusion of the survey was that although LMWHs had been shown to reduce post-operative thromboembolism in these groups, clinical experience had revealed an increased incidence of bleeding complications associated with their use.⁵³

35. Countering the argument of the perception of a higher risk of bleeding Dr Keeling, representing the RCP, quoted from the 7th ACCP guidelines the following: “Abundant data for an analysis and placebo controlled blinded randomised clinical trials have demonstrated little or no increase in the rates of clinically important bleeding with a low dose heparin or LMWH.” He continued by telling us: “I think the problem is that if someone is using prophylaxis and the patient bleeds, they will automatically say, ‘Oh this patient is bleeding because they are on heparin, I wish I hadn’t used it’ but in fact they may well have bled anyway.”⁵⁴ Mr Warwick, representing the Royal College of Surgeons, added:

..there is a substantial body of UK orthopaedic surgeons who do value the problem of bleeding more than they value the problem of thrombosis and I think a lot of that is

⁵¹ Q 7 (Mr Warwick)

⁵² Q 2

⁵³ “Attitudes to, and utilization of, low molecular weight heparins in joint replacement surgery”, *J. R. Coll. Surg. Edinb.*, Vol 42, December 1997, pp 407—409

⁵⁴ Q 44 (Dr Keeling)

due to a perception bias, in fact they attribute bleeding to a drug if you can because it is easier than blaming yourself.⁵⁵

Belief that VTE is no longer a problem

36. The concern about bleeding is compounded by the fact that many doctors believe that the incidence of VTE has declined in recent years. They frequently site retrospective surveys of their own experience. It may be true that VTE has declined recently due to more widespread use of prophylaxis as well as improved operative and perioperative management but the rate is still high. Moreover, demographic considerations indicate that there are now more extensive operations being performed on older patients, more cancer operations and more patients with obesity than in the past. These would suggest an increasing risk for thrombosis in contemporary general surgical populations.⁵⁶

Inconsistent guidelines

37. Another problem is that the guidelines are inconsistent. We were told that the SIGN guidelines consider aspirin a reasonable prophylactic agent, but the ACCP guidelines specifically state: “we recommend against the use of aspirin alone as thromboprophylaxis for any patient group”.⁵⁷ There still exists some disagreement between the producers of guidelines as to the most effective and efficacious treatment for the prevention of VTE. The introduction of a nationally agreed set of guidelines for use in English NHS hospitals would eliminate some of this confusion.

Problems of funding

38. Dr Keeling told us that thromboprophylaxis is not being administered in some instances because of the allocation of costs throughout the NHS. He told us:

..you ... have a problem where an individual is not allowed to prescribe the drug because he is spending his money but saving money somewhere else. This is a common thing in the Health Service which is a real problem. A simple example: there is a blood test called a D-dimer when you investigate these people for DVT which costs £2.50. My department does hundreds of them and our budget has gone up; people have got very cross about that. However, doing that test saves a lot of money because you do not have to do different investigations; you do not have to do tests in the radiology department. It costs my department money but the radiology department is saving money. No one can look at the bigger picture; no one can get round the bureaucracy of people telling me off for doing D-dimer tests or telling him off for trying to prescribe thromboprophylaxis. The message should be clear: it may cost money to actually write the drug prescription but overall proper implementation would save money; it maybe somebody else's money, but it will save money.⁵⁸

⁵⁵ Q 44 (Mr Warwick)

⁵⁶ Ev 10

⁵⁷ Ev 13

⁵⁸ Q 40 (Dr Keeling)

Dr Beverley Hunt agreed that funding was an issue in the amount of thromboprophylaxis administered. She stated:

A number of factors have been identified to the under use of thromboprophylaxis, including the perception that VTE was not a significant problem or that prophylaxis was ineffective; physicians lack of awareness of guidelines, concerns about possible side-effects and a lack of funding and infrastructure to adhere to recommendations.⁵⁹

39. A further obstacle to the use of prophylaxis is the operation of the common tariff, which does not include anti-DVT products. When we inquired further into the subject of tariffs Mrs de Cossart informed us that: “The tariff is cut to the bone in what it actually covers. Certainly for the extended treatments you would have to look at re-negotiating the tariff in order to introduce this...”⁶⁰ **We recommend a review of the tariffs to ensure that they do not act as a barrier to the appropriate use of thromboprophylaxis.**

Department of Health

40. The Department now sees VTE as a major public health problem. Dr Roger Boyle, National Director of Heart Disease at the Department of Health, told us that “the numbers that die from this condition are sufficient for us to take note of this and this is one reason why we have joined in the commissioning process to commission a guideline within the NICE framework...to try to make it clearer and more explicit to the NHS at large as to what action should be taken”, adding that patients’ safety “needs to be improved”.⁶¹ We welcome Dr Boyle’s statement, but we are astonished that the Department waited until 2004 before commissioning NICE to develop limited guidelines. We wholeheartedly agree with Dr Boyle that this situation is to be regretted.⁶² **We note that the ACCP has recently produced its seventh revision of guidelines and SIGN introduced their guidelines in 1995. It is astonishing that there has been no development of national guidelines in England and Wales.**

What should be done to improve the situation?

Education and awareness

41. The evidence we heard during the inquiry was clear: **the current variations in the administration of thromboprophylaxis indicate that surgeons and physicians are unaware of the extent of VTE and how readily and safely it can be prevented.** As we have seen, despite convincing scientific evidence fewer than 50% of surgeons routinely assess their patients for this condition and apply adequate prophylaxis. Education can play a part in remedying this situation. Dr Beverley Hunt, of Lifeblood told us that “It is not

⁵⁹ Ev 15

⁶⁰ Q 36

⁶¹ Q 58

⁶² Q 63

considered to be an important issue because of the lack of education among the junior staff in particular.”⁶³ We were also advised that the Royal Colleges should ensure that awareness of VTE is made apparent to their members through education and Continuing Professional Development (CPD). Mrs Linda de Cossart, representing the Royal College of Surgeons, told us that “I think it is a matter of priorities and I do not think that DVT prophylaxis is a priority but it should be.”⁶⁴ A joint exercise might be held between the Department, NICE and the Royal Colleges to raise awareness of the problem and the effectiveness of thromboprophylaxis. The specialist thrombosis teams we discuss below would also have an educational role.

42. The Royal Colleges can also bring different disciplines together to discuss the risks of VTE and its prevention. Dr Beverley Hunt told us that in hospitals specialities such as obstetrics, general surgery and orthopaedics each operate in an environment similar to a village and that these “villages” do not often communicate with each other. Dr Hunt continued: “What we really need is for someone from outside to say here is the issue and to remind everybody of the size of the issue and the need for patients’ safety and to produce some guidance to the trust on how to take it forward.”⁶⁵

43. We recommend that VTE and its prevention, including the implementation of, and adherence to, guidelines relating to thromboprophylaxis, counselling and risk assessment, be given more prominence in undergraduate medical education, Continuing Professional Development (CPD), and other relevant aspects of medical and paramedical training. We further recommend that the Royal Colleges bring forward proposals to this end as well as to raise awareness of the problems of VTE. In addition, NHS Trusts should ensure that all physicians and surgeons receive training about the subject. We make recommendations about the role of the Healthcare Commission in audit and implementation below.

Establishing guidelines

44. Improving medical education will help, but by itself is not sufficient. A key ingredient for ensuring the better treatment of VTE has to be national guidelines. As we have seen, the Department of Health has finally commissioned NICE to develop such guidelines. The draft remit is as follows:

Groups that will be covered

Adults (age 18 and older) undergoing:

- orthopaedic surgery (including total hip or knee replacement, surgery for hip fracture, knee arthroscopy)
- major general surgery
- major gynaecological surgery
- urological surgery (including major or open urological procedures)

⁶³ Q13 (Dr Hunt)

⁶⁴ Q14 (Mrs de Cossart)

⁶⁵ Q 13 (Dr Hunt)

- cardiothoracic surgery
- major peripheral vascular surgery.

Groups that will not be covered

Patients under the age of 18

Adult patients who are at a high risk of developing venous thromboembolism but are not undergoing surgery will not be covered. For example, the following circumstances will be excluded from the guideline:

- acute myocardial infarction
- acute stroke
- cancer, including patients being treated with chemotherapy
- pregnancy and the puerperium⁶⁶
- use of oral contraceptives and hormone replacement therapy
- long-distance travel

The guidelines will offer guidance for use in secondary and tertiary care.⁶⁷ The guidelines currently being prepared by NICE will be published in May 2007.⁶⁸

45. Unsurprisingly, witnesses welcomed the fact that the Department had commissioned NICE to establish guidelines. However, they were disappointed that the guidelines would take over two years to agree even though the procedures for preventing VTE are well-established and there are well regarded existing guidelines such as those issued by the ACCP. They also thought that the scope of the proposed guidelines was too limited: medical patients, who make up the majority of those patients at risk of developing VTE, are excluded. NICE is considering a single risk factor (the surgical procedure itself) rather than the multifactorial aspects of risk for VTE; for instance the current NICE scope does not include those who might be having low risk procedures but who are themselves at high risk of VTE, such as those who have experienced VTE before, have one or more inherited or acquired thrombophilia traits or are on hormone treatments.

46. Professor Sir Michael Rawlins, the chairman of NICE, explained the reasons for the length of the study: “We need our own guidelines to accommodate our own particular circumstances, to accommodate the patterns of medical practice and surgical practice in the UK.”⁶⁹ He added that there were a number of limitations to the existing guidelines – that none of them took into account cost-effectiveness; that the duration of the application of the prophylaxis is also not addressed; that different patient risk categories are not

⁶⁶ Puerperium - the 6 week period following birth

⁶⁷ *Venous thrombo-embolism - Scope*, National Institute of Clinical Excellence, 2005, www.nice.org.uk/page.aspx?o=231773

⁶⁸ *Venous Thrombo-embolism*, National Institute of Clinical Excellence, 2005, www.nice.org.uk/page.aspx?o=235874

⁶⁹ Q 68

considered; and that they are weak on medical prophylaxis.⁷⁰ While we accept some of these arguments for not immediately adopting existing guidelines and for NICE to develop guidelines we are concerned about the time that will be taken to develop and implement them. Furthermore, the current scope of the NICE guidelines will not remedy many of Sir Michael's own criticisms of the existing guidelines.

47. However, Professor Rawlins did agree that the scope ought to be expanded. "I would very much hope we would get a referral soon for medical patients because the issues are somewhat different and I think we need to address them."⁷¹ The problem is that expanding the scope of the existing study might further delay the publication of guidelines. One way of dealing with this conundrum is would be if NICE were to set up a separate study in parallel to establish guidelines in respect of the excluded groups.

48. The scope of the guidelines for VTE which NICE is preparing are too limited. Many groups of patients who are at considerable risk of VTE are excluded. We recommend that NICE extend the scope of the current project to include both medical patients and patients undergoing low risk procedures who are themselves at high risk from VTE. If NICE considers that surgical and other patients should not be covered by the same set of guidelines, we recommend that the Department commission NICE to develop guidelines for the excluded groups in parallel with its current work.

49. **In view of the urgency of the situation that leads to more than 25,000 deaths, many of them avoidable, it is unacceptable to wait until 2007 for any attempts to reduce deaths from VTE. We therefore recommend that the currently accepted consensus guidelines are circulated by the relevant bodies including the Royal Colleges, the British Orthopaedic Association, hospital specialist thrombosis teams and Trust Drug and Therapeutics Committees to clinicians so that they can seriously consider whether to implement them immediately.**

Counselling and risk assessment

50. Witnesses argued that guidelines must address two important issues: counselling about the risk of VTE and risk assessment. Lifeblood compared the counselling a patient receives about blood transfusion before an operation, and the counselling provided about the risks of VTE. For a patient undergoing a hip replacement — a standard and common operation in the NHS — when the patient is admitted they will be counselled on, and be asked to consent to, the risks of the operation. They will probably also receive counselling about the risks of blood transfusion. These are small nowadays. The risk of contracting a major infection through a blood transfusion is about 1 in 500,000.⁷² In contrast, the patient is unlikely to be counselled about the risks of venous thromboembolism although they are far greater. Dr David Keeling, representing the RCP, told us:

⁷⁰ For example, "British Thoracic Society guidelines for the management of suspected acute pulmonary embolism", *Thorax*, 2003, Vol 58, pp 470-484 and "Suspected Acute Pulmonary Embolism", *Thorax*, 1997, Vol 52, Supp 3 pp s2-s24, "The Seventh ACCP Conference on Antithrombotic and Thrombolytic Therapy: Evidence-Based Guidelines", *Chest*, 2004, Vol:126, Supplement 3, pp 338S-400S and Prophylaxis of Venous Thromboembolism, <http://www.sign.ac.uk/guidelines/fulltext/62/index.html>

⁷¹ Q 64

⁷² Ev 15

We live in a society where people are scared of travelling by train but not by car and I receive hundreds of phone calls from GPs about patients who are going on long haul air flights and are worried about getting a DVT. These are the same patients coming into hospital where the risk is vastly greater. When people are consented for operations they are informed of all sorts of very small risks, especially with regard to blood transfusions. However, I am not sure how patients are informed of the risks of venous thromboembolism when they are consented for their operation. I think there is an issue of informing the public about this.⁷³

51. Dr Roger Boyle, of the Department, acknowledged the deficiencies in the current system:

I think that it is an area that needs to be improved very substantially. I think it needs to be improved in the context of the policy of choice for patients so that they fully understand what they are letting themselves in for. I think it requires closer attention. It is certainly in the interests of the Department of Health to improve those processes...I think there should be more consultant involvement in the process because it may be a routine event for the surgeon but it is certainly not a routine event for the patient.⁷⁴

52. Many of the hospital patients who suffer from VTE are medical patients who are not required to give written consent to treatment, as those who undergo surgery do. Often the risk of thrombosis is not communicated to this, the largest group of patients within hospitals. **We recommend that procedures for counselling both medical and surgical patients be supported by hospital specialist thrombosis teams and included in the VTE guidelines developed by NICE.**

53. Risk assessment is another key component in combating the high incidence of VTE. Although not all patients who are admitted to hospital will require prophylaxis for VTE, many patients in the medium to high risk categories are currently not being identified and, therefore, are being exposed to unnecessary risk of VTE. By identifying those patients most at risk, preventative measures can be used to reduce the incidence of VTE. As Mr Warwick pointed out: “Every patient must have his risk factors ticked off on a box as they come in because only at that point can you judge if this is low risk, medium risk or high risk.”⁷⁵ **We recommend that all patients, both medical and surgical, who are admitted to hospital undergo a risk assessment for venous thrombosis.**

Implementation of the guidelines

54. Witnesses stressed the importance of putting in place systems to ensure that the NICE guidelines will be followed. Sir Michael Rawlins informed us that: “there is about a 50% uptake for full implementation. That is not good enough.”⁷⁶ Professor David Cousins, Head of Safe Medication Practice at the National Patient Safety Agency (NPSA), also highlighted the problem:

⁷³ Q 19 (Dr Keeling)

⁷⁴ Q 94 (Dr Boyle)

⁷⁵ Q 53 (Mr Warwick)

⁷⁶ Q 87 (Sir Michael Rawlins)

We are finding through all our work that we are encountering patient harm because of the failure of the NHS to implement effectively, so often times there are plenty of guidelines out there but because of the volume of traffic, the business that everyone is facing, they have difficulties implementing. Actually trusts and the NHS desperately need methodology given to them to implement effectively.⁷⁷

55. Various proposals were made for better implementation. Sir Michael noted how effectively the guidance about VTE from the Royal College of Obstetricians and Gynaecologists had been implemented. Mr Warwick thought that this was, as we have discussed above, because the practitioners had been involved in the preparation of, and support for, the guidelines: “I think the Colleges or the British Orthopaedic Association is the correct sort of level to promulgate that so people feel they are being supported by their own rather than it being imposed from above.”⁷⁸

56. Professor Cousins emphasised that systems and safeguards should be built into protocols to make it easier for physicians and surgeons to follow agreed guidelines. Computer reminders can be a useful aid. Their use, during electronic prescribing, combined with the guidelines of the ACCP had a significant impact on the prescribing of anticoagulants in the United States. When the computer reminders were removed physicians “went back to the original poor rates of compliance”.⁷⁹

57. Witnesses also pointed to the importance of clinical governance and audit in ensuring that guidelines are implemented. We were told that there needs to be a person at each trust responsible for clinical governance, a recommendation we had made in our report into NICE in 2002. As Sir Michael Rawlins told us, chief executives of trusts have a legal responsibility for clinical governance, similar to corporate governance. He proposed that the Healthcare Commission be asked to “look at practices for prophylaxis and DVT and ask trusts what arrangements they have in place, ask trusts what figures they are getting in terms of in-patient mortality and so on.”⁸⁰ Dr Roger Boyle added that the Healthcare Commission should be inspecting organisations on clinical excellence and that VTE “is a high risk area with a major impact on mortality and morbidity and should therefore be high up their list of priorities.”⁸¹

58. Systems must be put in place to ensure that the NICE VTE guidelines are implemented. We reiterate the recommendations we made in our inquiry into the National Institute of Clinical Excellence in 2001-02 that the Government should: a) institute practical systems and structures to improve the NHS’s capacity to implement NICE guidance, including the possibility of designated individuals within the NHS trusts and strategic health authorities to liaise with NICE to facilitate implementation of the guidelines; and b) ensure the systematic monitoring of the implementation of NICE guidance. We also recommend that computer reminders are built into the electronic prescribing system of the National Programme for Information Technology to aid physicians in the prescription of thromboprophylaxis and to remind them of

⁷⁷ Q 78

⁷⁸ Q 14 (Mr Warwick)

⁷⁹ Q 78

⁸⁰ Q 77

⁸¹ Q 62

guidelines for the prevention of VTE. We further recommend that the Healthcare Commission undertake, as part of its audit process, an investigation into the availability and use of venous thromboembolism prevention protocols in each hospital, including appropriate counselling and risk assessment. It should also audit the training for and awareness of thromboprophylaxis and venous thrombosis in hospitals.

Thrombosis committees and thrombosis teams

59. In addition to the publication of NICE guidelines and the establishment of systems to ensure their implementation, our witnesses' other main recommendation was that each hospital trust establish a Thrombosis Committee and a Thrombosis Team. Dr Boyle, of the Department, supported their introduction: "having specialist skills available to run and fund hospital programmes would be a very useful way forward."⁸² So did Professor David Barnett, of NICE: "a senior champion is a good idea... you do need a senior champion and I think the idea of a protocol driven but appropriately constructed team to run and make sure that these processes are put in place."⁸³ Dr Hunt thought that the teams would "reduce mortality and morbidity from VTE at very little cost when compared with both the economic and health costs of the consequences."⁸⁴ The model would be the blood transfusion teams and committees, which were set under two Departmental directives issued in 1998⁸⁵ and 2002⁸⁶ entitled "*Better Blood Transfusion*".

60. Lifeblood told us that since the introduction of teams the use of blood is more considered; practices have improved and changed; and healthcare professionals have been educated about the use of blood. It argued that the establishment of similar teams would have similar success in ensuring effective implementation and monitoring adherence to protocols for the prevention of thrombosis in hospitalised patients.

61. The Thrombosis Committee in each trust should include representatives from all interested parties, including haematologists, surgeons, physicians, anaesthetists, obstetricians, nursing staff and pharmacists. It would ensure clinical governance and provide a local audit of thromboprophylactic procedures in each hospital.

62. A potential draft remit of such a committee would be to:

- promote best practice through local protocols based on national guidelines
- lead multi-professional audit of the use of thromboprophylaxis within the NHS Trust, focusing on specialties where risk is high
- promote the education and training of all clinical and support staff
- have the authority to modify existing VTE and risk assessment protocols and to introduce appropriate changes to practice

⁸² Q 88 (Dr Boyle)

⁸³ Q 90 (Professor Barnett)

⁸⁴ Ev 15

⁸⁵ Department of Health, *Better Blood Transfusion*, HSC 1998/224, December 1998

⁸⁶ Department of Health, *Better Blood Transfusion: appropriate use of blood*, HSC 2002/009, July 2002

- consult with local patient representative groups where appropriate
- contribute to the development of clinical governance

A remit for the thrombosis teams would be to:

- assist in the implementation of the Thrombosis Committee's objectives
- promote and provide advice and support to clinical teams on the appropriate thromboprophylaxis and risk assessment
- actively promote the implementation of good thromboprophylaxis practice
- be a source for training all hospital staff involved in the dealing with patients at risk of VTE

63. We recommend that a thrombosis committee be established in each hospital, with a specialist thrombosis team. They should be modelled on the existing Blood Transfusion teams and committees. So that these teams are established and operate effectively a basic standard of expectation (skeleton) should be issued by the Department pending the publication of NICE guidelines.

Conclusions and recommendations

1. We are concerned that the number of post-mortems being performed has decreased since Alder Hey. As a result the true cause of death is not being determined in many cases. We recommend that the Department encourage the increased use of post-mortems where appropriate. This would enable accurate identification of the cause of death in more patients and more reliable assessment of the current incidence of death through VTE, thereby providing a base from which to monitor progress. (Paragraph 13)
2. Many surgeons and physicians are not aware of the incidence of VTE, especially in recently discharged patients and, therefore, are not administering thromboprophylaxis. We recommend that when a patient who has recently been discharged from hospital develops VTE the original surgeon and/or physician should be notified by letter of the incident. Notification should be made by either the primary care physician treating the recently discharged patient, or if the patient is re-admitted to hospital, by the secondary care physician. Notification should also be made in the case of death through PE of a recently discharged patient.. (Paragraph 33)
3. We recommend a review of the tariffs to ensure that they do not act as a barrier to the appropriate use of thromboprophylaxis. (Paragraph 39)
4. We note that the ACCP has recently produced its seventh revision of guidelines and SIGN introduced their guidelines in 1995. It is astonishing that there has been no development of national guidelines in England and Wales. (Paragraph 40)
5. The current variations in the administration of thromboprophylaxis indicate that surgeons and physicians are unaware of the extent of VTE and how readily and safely it can be prevented. (Paragraph 41)
6. We recommend that VTE and its prevention, including the implementation of, and adherence to, guidelines relating to thromboprophylaxis, counselling and risk assessment, be given more prominence in undergraduate medical education, Continuing Professional Development (CPD), and other relevant aspects of medical and paramedical training. We further recommend that the Royal Colleges bring forward proposals to this end as well as to raise awareness of the problems of VTE. In addition, NHS Trusts should ensure that all physicians and surgeons receive training about the subject. We make recommendations about the role of the Healthcare Commission in audit and implementation below. (Paragraph 43)
7. The scope of the guidelines for VTE which NICE is preparing are too limited. Many groups of patients who are at considerable risk of VTE are excluded. We recommend that NICE extend the scope of the current project to include both medical patients and patients undergoing low risk procedures who are themselves at high risk from VTE. If NICE considers that surgical and other patients should not be covered by the same set of guidelines, we recommend that the Department commission NICE to

develop guidelines for the excluded groups in parallel with its current work.. (Paragraph 48)

8. In view of the urgency of the situation that leads to more than 25,000 deaths, many of them avoidable, it is unacceptable to wait until 2007 for any attempts to reduce deaths from VTE. We therefore recommend that the currently accepted consensus guidelines are circulated by the relevant bodies including the Royal Colleges, the British Orthopaedic Association, hospital specialist thrombosis teams and Trust Drug and Therapeutics Committees to clinicians so that they can seriously consider whether to implement them immediately. (Paragraph 49)
9. We recommend that procedures for counselling both medical and surgical patients be supported by hospital specialist thrombosis teams and included in the VTE guidelines developed by NICE. (Paragraph 52)
10. We recommend that all patients, both medical and surgical, who are admitted to hospital undergo a risk assessment for venous thrombosis. (Paragraph 53)
11. Systems must be put in place to ensure that the NICE VTE guidelines are implemented. We reiterate the recommendations we made in our inquiry into the National Institute of Clinical Excellence in 2001-02 that the Government should: a) institute practical systems and structures to improve the NHS's capacity to implement NICE guidance, including the possibility of designated individuals within the NHS trusts and strategic health authorities to liaise with NICE to facilitate implementation of the guidelines; and b) ensure the systematic monitoring of the implementation of NICE guidance. We also recommend that computer reminders are built into the electronic prescribing system of the National Programme for Information Technology to aid physicians in the prescription of thromboprophylaxis and to remind them of guidelines for the prevention of VTE. We further recommend that the Healthcare Commission undertake, as part of its audit process, an investigation into the availability and use of venous thromboembolism prevention protocols in each hospital, including appropriate counselling and risk assessment. It should also audit the training for and awareness of thromboprophylaxis and venous thrombosis in hospitals. (Paragraph 58)
12. We recommend that a thrombosis committee be established in each hospital, with a specialist thrombosis team. They should be modelled on the existing Blood Transfusion teams and committees. So that these teams are established and operate effectively a basic standard of expectation (skeleton) should be issued by the Department pending the publication of NICE guidelines. (Paragraph 63)

List of abbreviations used in the report

ACCP	American College of Chest Physicians
CPD	Continuing Professional Development
DVT	Deep Vein Thrombosis
LDUH	Low dose unfractionated heparin
LMWH	Low molecular weight heparin
MRSA	Methicillin-Resistant Staphylococcus Aureus
NICE	National Institute of Clinical Excellence
NPSA	National Patient Safety Agency
PE	Pulmonary Embolism
RCOG	Royal College of Obstetricians and Gynaecologists
RCP	Royal College of Physicians
RCS	Royal College of Surgeons
SIGN	Scottish Intercollegiate Guidelines Network
VT	Venous Thrombosis
VTE	Venous Thromboembolism

Formal Minutes

Wednesday 23 February 2005

Members present:

Mr David Hinchliffe, in the Chair

John Austin

Mr Keith Bradley

Mr Jon Owen Jones

Dr Doug Naysmith

Dr Richard Taylor

The Committee deliberated.

Draft Report (The Prevention of Venous Thromboembolism in Hospitalised Patients), proposed by the Chairman, brought up and read.

Ordered, That the Chairman's draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 63 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Second Report of the Committee to the House.

Ordered, That the Chairman do make the Report to the House.

Ordered, That the Provisions of Standing Order No. 134 (Select Committee (Reports)) be applied to the Report.

Ordered, That the Appendices to the Minutes of Evidence taken before the Committee be reported to the House.

Several Memoranda were ordered to be reported to the House. — (*The Chairman*)

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[Adjourned till Thursday 3 March at 10.00 am.]

Witnesses

Thursday 9 December 2004

Mrs Linda de Cossart, Royal College of Surgeons; **Mr David Warwick**, Royal College of Surgeons; **Professor Ajay Kakkar**, Professor of Surgical Science and Consultant Surgeon, Barts and the London Medical School; **Dr David Keeling**, Royal College of Physicians; **Dr Beverley Hunt**, Lifeblood: the Thrombosis Charity

Ev 1

Dr Roger Boyle, National Director of Heart Disease, Department of Health; **Professor Sir Michael Rawlins**, Chair, National Institute of Clinical Excellence; **Professor David Barnett**, Chair of Appraisals Committee, National Institute of Clinical Excellence; **Professor David Cousins**, Head of Safe Medication Practice, National Patient Safety Agency.

Ev 31

List of Written evidence

1	Mr David Warwick (VT 1)	Ev 1
2	Professor Ajay Kakkar (VT 13)	Ev 9
3	Royal College of Physicians (VT 15)	Ev 12
4	Lifeblood: the Thrombosis Charity (VT 6)	Ev 14
5	Mrs Linda de Cossart (VT17)	Ev 16
6	Department of Health (VT 14)	Ev 31
7	National Patient Safety Agency (AL58)	Ev 33
8	National Institute of Clinical Excellence (VT 16)	Ev 41
9	Dr Ricky Autar (VT 2)	Ev 55
10	Mr J H Scurr (VT 3)	Ev 58
11	Huntleigh Healthcare PLC (VT 5)	Ev 59
12	Tyco Healthcare (UK) Commercial Ltd (VT 7)	Ev 60
13	sanofi-avetis (VT8)	Ev 65
14	Alexander T Cohen (VT 9)	Ev 68
15	DR S K Kakkos and Mr G Geroulakos (VT 10)	Ev 70

List of unprinted written evidence

Additional papers have been received from the following and have been reported to the House but to save printing costs they have not been printed and copies have been placed in the House of Commons library where they may be inspected by members. Other copies are in the Record Office, House of Lords and are available to the public for inspection. Requests for inspection should be addressed to the Record Office, House of Lords, London SW1. (Tel 020 7219 3074) hours of inspection are from 9:30am to 5:00pm on Mondays to Fridays.

Orthofix Vascular Novamedix (VT 4)

Royal College of Physicians of Edinburgh (VT 12)

Reports from the Health Committee since 2001

The following reports have been produced by the Committee since the start of the 2001 Parliament. The reference number of the Government's response to the Report is printed in brackets after the HC printing number.

Session 2004-05

First Report	The Work of the Health Committee	HC 284
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Session 2003-04

First Report	The Work of the Health Committee	HC 95
Second Report	Elder Abuse	HC 111 (Cm 6270)
Third Report	Obesity	HC 23 (Cm 6438)
Fourth Report	Palliative Care	HC 454 (Cm 6327)
Fifth Report	GP Out-of-Hours Services	HC 697 (Cm 6352)
Sixth Report	The Provision of Allergy Services	HC 696 (Cm 6433)

Session 2002-03

First Report	The Work of the Health Committee	HC 261
Second Report	Foundation Trusts	HC 395 (Cm 5876)
Third Report	Sexual Health	HC 69 (Cm 5959)
Fourth Report	Provision of Maternity Services	HC 464 (Cm 6140)
Fifth Report	The Control of Entry Regulations and Retail Pharmacy Services in the UK	HC 571 (Cm 5896)
Sixth Report	The Victoria Climbié Inquiry Report	HC 570 (Cm 5992)
Seventh Report	Patient and Public Involvement in the NHS	HC 697 (Cm 6005)
Eight Report	Inequalities in Access to Maternity Services	HC 696 (Cm 6140)
Ninth Report	Choice in Maternity Services	HC 796 (Cm 6140)

Session 2001-02

First Report	The Role of the Private Sector in the NHS	HC 308 (Cm 5567)
Second Report	National Institute for Clinical Excellence	HC 515 (Cm 5611)
Third Report	Delayed Discharges	HC 617 (Cm 5645)