# Preventing Blood Clots in Hospitals

## Executive Summary of Improvement Collaborative Report National Recommendations and Improvement Toolkit

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National Medication Safety Improvement Programme

HSE Quality Improvement Division

Seirbhís Sláinte Níos Fearr á Forbairt | Building a Better Health Service

# Executive summary

## Background

Venous thromboembolism (VTE) refers to a blood clot or thrombus occurring in the deep veins, usually of a leg (deep vein thrombosis, DVT) and/or which has fragmented and travelled to the lungs (pulmonary embolism, PE). Approximately 11,000 Irish people may be affected by VTE every year and 9% of all deaths are VTE-related. Recurrence affects approximately 30% of survivors and post-thrombotic complications are common.

63% of all VTE is hospital-acquired, occurring during or in the 90 days after hospitalisation. 70% of hospital-acquired VTE is potentially preventable with appropriate VTE prophylaxis.

Optimum prevention of VTE requires risk assessment of every in-patient early after the decision to admit them to hospital and the choice of the appropriate VTE prophylaxis for that patient. VTE prophylaxis can consist of one, both or neither of injections or tablets of blood thinners (anticoagulants), compression stockings and compression devices. Approximately 60-80% of hospital in-patients will need VTE prophylaxis while they are in hospital, with the choice of prophylaxis dependent on their VTE risk, bleeding risk, weight, renal function and any contra-indications to prophylaxis. Following discharge, patients are at risk for a further 90 days and need to be informed about the signs and symptoms and what to do if they occur.

Previous research suggests wide variation in rates of appropriate VTE prophylaxis (i.e. where the patient receives the VTE prophylaxis indicated in guidelines) in Ireland ranging from 29.7% of adult medical in-patients in one study to 92% in another study following improvement initiatives. The OECD has rated VTE prevention protocols as the patient safety intervention with the most favourable impact/cost ratio.

## The Improvement Collaborative

This collaborative invited all public acute and maternity hospitals providing care to adult patients to nominate a project team (typically a doctor, nurse and pharmacist) to participate in four one-day learning sessions and to undertake a quality improvement project in their hospital to identify, test and implement initiatives to optimise VTE prophylaxis for in-patients. 27 hospitals participated fully,

with attendance at learning sessions from a further 6 hospitals. Data from 22 hospitals (n=2260) and from a post-collaborative survey (27 hospitals) was analysed centrally.

**What We Learned**

This report shares learning from the collaborative, including which factors contributed to high levels of appropriate prophylaxis and to improvement.

There was a higher level of appropriateness observed in orthopaedic and post-partum patients than in medical and surgical non-orthopaedic patients at baseline.

**The primary outcome of the collaborative was to increase the percentage of patients with appropriate prophylaxis. Appropriateness increased from a median of 61% to 81%, a one-third increase. This equates to 34,000 more patients receiving the appropriate prevention annually in these hospitals.**

Achieving and sustaining high appropriateness of VTE prophylaxis requires the presence of multiple measures to support VTE prophylaxis. Factors associated with improvement include having a VTE prevention protocol, patient, nurse and pharmacist education about VTE, processes where nurses/midwives and/or pharmacists routinely check VTE prophylaxis, clinical pharmacy services and nurse practice development support. Having the VTE protocol in an accessible location is likely to be helpful, along with pre-printed prescriptions.

Improvement is aided by trueness to the quality improvement method (Model for Improvement), particularly to the use of PDSA cycles.

This report summarises the learning from the collaborative and provides a toolkit to facilitate hospitals with further improvement, including patient alert cards which have been piloted in seven hospitals.

Hospitals Must Ensure that:

- Oversight for monitoring and improving VTE prevention is assigned to the appropriate governance committee and is an agenda item at meetings at least twice a year.

- An adequately resourced multi-disciplinary team is supported to carry out quality improvement to reduce hospital-acquired VTE.

- A VTE prevention protocol is in place, accessible and staff are aware of it.

- The protocol is followed for each in-patient as soon as possible after the decision to admit is made, and correct prophylaxis received asap and within 24 hours.

- Tools and processes which have been found to be effective are in place, e.g. independent check(s) of prophylaxis, education for staff and patients and prompts/alerts, e.g. pre-printed prescriptions.

- Each in-patient receives information about any VTE prophylaxis they are receiving, their risk of VTE for 90 days after hospitalisation, the signs and symptoms of VTE and what to do if they occur, facilitated by providing the Patient Alert Card.

- Responsibilities are assigned for following the VTE prevention protocol and prescribing prophylaxis, independently checking prophylaxis and ensuring patients receive information prior to discharge.

- Monitoring of key metrics takes place at least quarterly and is reviewed at the appropriate governance committee. This includes a new national key performance indicator, together with measuring the percentage of patients with appropriate prophylaxis and monitoring whether patients are receiving alert cards.

- Hospital-acquired VTE is reported and managed in accordance with the HSE Incident Management Framework, including open disclosure.

- Hospital-acquired VTE is listed as a risk on the hospital's risk register.