VENEROUS THROMBOEMBOLISM PREVENTION

Getting Started Kit

Section 5: VTE Prophylaxis Improvement Guide
Abbreviations

ACCP  American College of Chest Physicians
AHRQ  Agency for Healthcare Research and Quality
CMPA  Canadian Medical Protective Association
CoP   Communities of Practice
CPOE  Computerized Prescriber Order Entry
CPSI  Canadian Patient Safety Institute
CQUIN Commissioning for Quality and Innovation Payment Framework
CRS   Computerized Reminder System
DVT   Deep Vein Thrombosis
ED    Emergency Department
GCS   Graduated Compression ("Antiembolic") Stockings
HA-VTE Hospital-Associated Venous Thromboembolism
INR   International Normalized Ratio
IPC   Intermittent Pneumatic Compression
      (also referred to as SCDs or Sequential Compression Devices)
LDUH  Low-Dose Unfractionated Heparin
LMWH  Low-Molecular-Weight Heparin
MAR   Medication Administration Record
PE    Pulmonary Embolism
QI    Quality Improvement
RAM   Risk Assessment Model
ROP   Required Organizational Practice
SHN   Safer Healthcare Now!
SSCL  Surgical Safety Checklist
TfC   Test for Compliance
VFP   Venous Foot Pump
VTE   Venous Thromboembolism (DVT and/or PE)
5. VTE Prophylaxis Improvement Guide

This section of the Safer Healthcare Now! VTE Prevention Getting Started Kit is a practical guide to assist organizations in ensuring that patients receive appropriate VTE prophylaxis.

Safer Healthcare Now! strongly supports the use of optimal thromboprophylaxis for hospital patients at risk. This position has also been supported by Accreditation Canada which has added VTE Prophylaxis to its Required Organizational Practices, and included it in their hospital accreditation reviews since January, 2011 (see Appendix E). The main goal of this ROP is: “the team identifies medical and surgical clients at risk of venous thromboembolism (DVT and PE) and provides appropriate thromboprophylaxis.” By following the Safer Healthcare Now! recommended approaches to prevention of VTE, not only will you ensure that your patients receive appropriate thromboprophylaxis, but you will also satisfy the Accreditation Canada VTE ROP.

The following interconnected elements are recommended to ensure patients receive appropriate, evidence-based VTE prophylaxis (and are discussed based on the Accreditation Canada Tests of Compliance):

1) An Organization-Wide, Written Thromboprophylaxis Policy or Guideline is in Place.

The cornerstone of effective thromboprophylaxis use in hospitals is the development of a written policy on thromboprophylaxis for the entire organization. A written protocol is essential to standardize VTE risk assessment and prophylaxis across the organization and to help embed this in the flow of normal patient care.

Step 1: Development: It is important to gain consensus of the key stakeholders and ensure that they are supportive of the organizational policy. Provider inconsistency is a strong barrier to appropriate VTE prophylaxis. Studies have also shown that policies designed to change established practices (e.g. using anticoagulant thromboprophylaxis when only mechanical was used previously) are more difficult to implement than recommending new behaviour.

Well-designed protocols:

- define what is considered «appropriate prophylaxis»;
- define the contraindications to mechanical and anticoagulant methods of thromboprophylaxis and identify alternative methods if these occur;
- are efficient and user-friendly; and
- still allow prescribers to use professional judgement for special patient circumstances.

Where possible, it is best to construct a single, relatively simple VTE protocol that can be applied to most patients. This leverages the power of standardization and makes it easier to initialize the protocol and to assess its implementation.
Step 2: Field-testing of one or more advanced drafts of the VTE protocol is important to ensure that it will be useful in routine care.\textsuperscript{5} It is recommended to:

- Conduct focus groups with staff physicians, hospitalists, residents, pharmacists, and nurses for feedback on advanced drafts of the VTE protocol.
- Obtain feedback in order to optimize both clarity and usability of the protocol.
- Have the protocol reviewed by all services and specialties involved.
- Conduct pilot testing of the protocol on a small scale before attempting wide implementation.\textsuperscript{5}

These steps encourage greater hospital staff involvement and ownership which will lead to better integration of the protocol. An example of hospital policies and guidelines on VTE prevention is found in Appendix F.

Step 3: Implementation: The protocol should be written and readily accessible to all healthcare providers. A study in the UK confirmed that reliance on spoken recommendations for thromboprophylaxis by staff physicians to medical residents led to poor adoption of measures and policy failure.\textsuperscript{4} Observations have shown that a VTE prevention protocol is most effective when embedded within routinely used admission, transfer, and perioperative order sets.\textsuperscript{2} This serves as a reinforcing strategy and prompts prescribers to “do the right thing at the right time” in routine patient care.\textsuperscript{3} The VTE protocol is so fundamental that it must not just exist; it must be embedded in the process of care.\textsuperscript{3} The institution should also make a commitment to support the implementation of the policy/protocol.

Step 4: Evaluate, review, and adjust as needed. As discussed below, adherence with the organization’s thromboprophylaxis guideline must be assessed periodically as part of ongoing quality improvement. When new evidence becomes available, either from the published literature or as a result of local experience or review of hospital-acquired VTE events, the organization’s thromboprophylaxis guideline should be revised.
Components of the Ideal VTE Prevention Protocol

- Agreed upon by all relevant stakeholders and applicable across all patients in the target group(s).
- Easy to access and to implement. Simplicity is very important. Limit thromboprophylaxis options and exceptions to as few as possible.
- Reliability is built into the process. The desired action is:
  - prompted by a reminder or decision aid
  - the default action (not doing it requires active opting out)
  - standardized into the process of patient care (take advantage of habits or patterns of behaviour so deviation feels awkward)
  - the responsibility of all members of the multidisciplinary patient care team
- Patient VTE risk is linked to evidence-based choices for prevention - this may be a simple “yes/no” decision or various levels of risk (e.g. low or high or a formal, multicomponent risk assessment model). The VTE risk is then linked to the relevant organizational thromboprophylaxis recommendation.
- Identifies contraindications to thromboprophylaxis and provides alternatives, if appropriate.
- Embedded into the workflow / process of providing patient care. A VTE prophylaxis module embedded in standardized order sets is the most effective option.
- Does not rely on traditional methods such as chart stickers or placing risk assessment sheets in patient charts, as this will lead to disappointing results.

2) Clients at Risk for VTE are Identified and Receive Appropriate, Evidence-Based VTE Prophylaxis.

Step 1: Risk Assessment of Patients
There are two general approaches to determine the risk of thromboembolism in hospitalized patients, the individual risk assessment/thromboprophylaxis approach and the group thromboprophylaxis approach.

A. Individual risk assessment/thromboprophylaxis approach. The first approach is to use a formal scoring system to estimate the risk of VTE in each patient. The risk is determined based on individual predisposing factors and the risk associated with the patient’s current illness or procedure. The risk of bleeding is also assessed to decide on the appropriate thromboprophylaxis for the individual patient. Although a number of formal risk assessment models (RAMs) have been developed to aid in this process, there is no consensus regarding the preferred VTE risk assessment tool.
This section will summarize two formal, score-based RAMs – the Caprini score and the Padua Prediction Score (for medical patients). These models are provided as examples as they have been recommended by guidelines, have been partially validated and have been used in some organizations. A third model, the “3-Bucket Model” is a more qualitative approach to risk assessment and primarily categorizes patients based on the risk associated with the procedure they are undergoing or on their current illness. An institution may also decide to develop its own risk assessment model that complements their institutional policy or protocol.

The Caprini score is a quantitative model developed in surgical patients but sometimes also used in medical patients. It has been recommended in the ACCP 9th edition guidelines as a RAM for nonorthopedic surgical patients. The model consists of more than 35 weighted risk factors.

**Table 5 - Caprini risk assessment model**

<table>
<thead>
<tr>
<th>1 Point</th>
<th>2 Points</th>
<th>3 Points</th>
<th>5 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Age 41-60&lt;br&gt;• Minor surgery&lt;br&gt;• BMI &gt;25 kg/m²&lt;br&gt;• Swollen legs&lt;br&gt;• Varicose veins&lt;br&gt;• Pregnancy or postpartum&lt;br&gt;• History of unexplained or recurrent spontaneous abortion&lt;br&gt;• Oral contraceptives or hormone replacement&lt;br&gt;• Sepsis (&lt;1 mo)&lt;br&gt;• Serious lung disease, including pneumonia (&lt;1 mo)&lt;br&gt;• Abnormal pulmonary function&lt;br&gt;• Acute myocardial infarction&lt;br&gt;• Congestive heart failure (&lt;1 mo)&lt;br&gt;• History of inflammatory bowel disease&lt;br&gt;• Medical patient at bed rest</td>
<td>• Age 61-74&lt;br&gt;• Arthroscopic surgery&lt;br&gt;• Major open surgery (&gt;45 min)&lt;br&gt;• Laparoscopic surgery (&gt;45 min)&lt;br&gt;• Malignancy&lt;br&gt;• Confined to bed (&gt;72 hrs)&lt;br&gt;• Immobilizing plaster cast&lt;br&gt;• Central venous access</td>
<td>• Age ≥75 y&lt;br&gt;• History of VTE&lt;br&gt;• Family history of VTE&lt;br&gt;• Factor V Leiden&lt;br&gt;• Prothrombin 20210A&lt;br&gt;• Lupus anticoagulant&lt;br&gt;• Anticardiolipin antibodies&lt;br&gt;• Elevated serum homocysteine&lt;br&gt;• Heparin-induced thrombocytopenia&lt;br&gt;• Other congenital or acquired thrombophilia</td>
<td>• Stroke (&lt;1 mo)&lt;br&gt;• Elective arthroplasty&lt;br&gt;• Hip, pelvis or leg fracture&lt;br&gt;• Acute spinal cord injury (&lt;1 mo)</td>
</tr>
</tbody>
</table>
A total risk factor score is calculated:

- 0-2: very low to low risk; VTE incidence of <1.5%
- 3-4: moderate risk; VTE incidence 3%
- 5-8: high risk; VTE incidence 6%
- >8: very high risk; VTE incidence 6.5-18.3%

The Padua Prediction Score\textsuperscript{11,12} is designed for medical inpatients. The Padua score is based on a cohort of 1,180 patients admitted to an internal medicine ward. In this model, risk factors are given a score of 1, 2 or 3.

**Table 6 - Padua Prediction Score\textsuperscript{11,12}**

<table>
<thead>
<tr>
<th>Baseline Features</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active cancer\textsuperscript{a}</td>
<td>3</td>
</tr>
<tr>
<td>Previous VTE (excluding superficial thrombosis)</td>
<td>3</td>
</tr>
<tr>
<td>Reduced mobility\textsuperscript{b}</td>
<td>3</td>
</tr>
<tr>
<td>Known thrombophilic condition\textsuperscript{c}</td>
<td>3</td>
</tr>
<tr>
<td>Recent (≤1 month) trauma and/or surgery</td>
<td>2</td>
</tr>
<tr>
<td>Age ≥70 years</td>
<td>1</td>
</tr>
<tr>
<td>Heart and/or respiratory failure</td>
<td>1</td>
</tr>
<tr>
<td>Acute myocardial infarction or ischemic stroke</td>
<td>1</td>
</tr>
<tr>
<td>Acute infection and/or rheumatologic disorder</td>
<td>1</td>
</tr>
<tr>
<td>Obesity (BMI ≥30)</td>
<td>1</td>
</tr>
<tr>
<td>Ongoing hormonal treatment</td>
<td>1</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Patients with local or distant metastases and/or in whom chemotherapy or radiotherapy had been performed in the previous 6 months

\textsuperscript{b}Anticipated bed rest with bathroom privileges (either because of patient limitations or on physician’s order) for at least 3 days

\textsuperscript{c}Presence of defects of antithrombin, protein C or S, factor V Leiden, G20210A prothrombin mutation, or antiphospholipid syndrome

A total score of ≥4 is considered high risk. In the cohort from which this RAM was derived, VTE developed in 2.2 per cent of high-risk patients who received thromboprophylaxis and in 11 per cent high-risk patients who did not receive thromboprophylaxis.\textsuperscript{11} VTE developed in 0.3 per cent of the low-risk patient who did not receive thromboprophylaxis.\textsuperscript{11} However, four RAMs in hospitalized medical patients have been shown to have poor predictive utility for VTE risk.\textsuperscript{13}
Although the strategy of formal risk assessment has been utilized in a number of hospitals, there are several limitations to this approach. The point system is somewhat arbitrary, and has not been well validated in the literature. Individual patient RAMs require considerable effort to be completed consistently. Hurried clinicians may not accurately assign points in the RAM or may defer this process until they have more time. In addition, the point-based systems are often too long and cumbersome to be used in order sets. Finally, the use of a formal RAM may complicate a process which can be simplified, particularly since there are few thromboprophylaxis options from which to choose.

A compromise is to use a qualitative approach to risk assessment such as the “3 Bucket” Model developed at the University of California (UC) San Diego and derived from the recommendations in the pre-2012 ACCP guidelines. In the 9th edition of the ACCP guidelines, the “3 Bucket Model” has been replaced, although this approach continues to be used in many hospitals.

**Table 7 - Updated “3 Bucket” Model In Use at UC San Diego**

<table>
<thead>
<tr>
<th><strong>Low risk:</strong> Observation status, expected LOS &lt; 48 hours. Minor ambulatory surgery unless multiple strong risk factors. Medical patients ambulatory in hall and not moderate or high risk. Ambulatory cancer patients admitted for short chemotherapy infusion.</th>
<th>No prophylaxis; reassess periodically, ambulate.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Moderate risk (most general medical/surgical patients):</strong> Most general, thoracic, open gynecologic, or urologic surgery patients. Active cancer or past VTE/known thrombophilia in medical patient with LOS &gt;48 hours. Medical patients with decrease in usual ambulation AND VTE risk factors (myocardial infarction, stroke, congestive heart failure, pneumonia, active inflammation/infection, dehydration, age&gt;65).</td>
<td>UFH or LMWH prophylaxis*</td>
</tr>
<tr>
<td><strong>High Risk:</strong> Hip or knee arthroplasty, hip fracture surgery, major trauma, spinal cord injury or major neurosurgery, abdominal-pelvic surgery for cancer.</td>
<td>IPC AND LMWH or other anticoagulant*</td>
</tr>
</tbody>
</table>

*For those at moderate or high VTE risk and contraindication to anticoagulation, use Intermittent Pneumatic Compression (IPC) alone until bleeding risk subsides

**B. Group thromboprophylaxis approach.** The second approach to determining which thromboprophylaxis method will be used is to implement routine, standard thromboprophylaxis for all patients in a large group, (e.g. major orthopedics, major general surgery, general internal medicine, etc.). The entire group would receive the same prophylaxis unless a particular patient has a contraindication to the standard option. This approach has several advantages. Although a large number of patient-specific factors can contribute somewhat to the variability in VTE risk, the most important factor is
generally the patient’s primary reason for hospitalization. In contrast to individual patient assessment, group risk assessment is the basis for most randomized trials of thromboprophylaxis and for many evidence-based, clinical practice guidelines. This approach simplifies the process and, therefore, allows all healthcare providers to assist in the policy of providing appropriate thromboprophylaxis as a result. A further simplification is to use the same modality (usually a LMWH) for almost every patient unless there are specific patient factors that require an alternative approach. Clinical judgement is still required in the group prophylaxis model to ensure that the prophylaxis modality and dose are appropriate for a particular individual patient.

Step 2 - Development of Order Sets
The use of standardized order sets with thromboprophylaxis embedded within them has been shown to significantly improve the proportion of patients receiving appropriate VTE prophylaxis. Introduction of a well-designed, evidence-based order set that reaches most patients has yielded VTE prophylaxis rates of 70 to 85 per cent (from baseline levels of 35-55 per cent). Gaylis et al. showed that the use of standardized medical orders improved prophylaxis rates to 70 per cent compared to 22 per cent in the hand-written order group. A major additional benefit of order set use is that a broad range of safety interventions can simultaneously be included. Order sets can be paper or electronic, but should be designed in a way that requires prescribers to select the standard thromboprophylaxis option or to document why an alternative approach is ordered. A sample standardized order set can be found in Appendix G.

Several common barriers can occur when constructing or implementing a VTE prophylaxis order set.

- **Not providing enough guidance**
  Centres may design order sets that list numerous options for VTE prophylaxis without providing guidance as to which choices are most appropriate. Several mechanical thromboprophylaxis options, various doses and types of anticoagulant thromboprophylaxis, combinations of mechanical and anticoagulant, and a no prophylaxis option are sometimes all listed and may appear to be equally acceptable choices (or, at least, may cause confusion for the prescriber). It is most helpful to reduce the number of options to those that are the preferred options and clearly specify that mechanical thromboprophylaxis is for situations when anticoagulant prophylaxis is contraindicated (and possibly as an adjunct for very high risk patients).

- **Too much complexity**
  Options for thromboprophylaxis should be simplified to make decisions easy for the prescriber to ensure that a high proportion of patients at risk receive the preferred option recommended by local policy. If possible, institutions should use only one LMWH with only one or two standard dosing regimens. Mechanical thromboprophylaxis is also best simplified to one option such as IPC or GCS, not both.
• **Failure to revise and replace pre-existing order sets**
  QI teams should examine all existing admission, transfer, and peri-operative order sets to establish that they include VTE prevention orders that are consistent with the organization’s policy. Once order sets are revised, a concentrated effort is needed to remove all of the older order sets and to ensure a continuous supply of the most current orders sets are readily available at the sites of patient contacts.

**Step 3 - Computerized Reminder System**
Computerized reminder systems (CRS) to alert prescribers about the risk of VTE and to recommend thromboprophylaxis have proven to be very powerful tools to increase prophylaxis rates.\(^{15}\) A randomized trial showed that use of a CRS significantly increased adherence with thromboprophylaxis use and reduced the incidence of VTE by 41 per cent (\(p<0.0001\)).\(^4\)

A forced stop function in computerized prescriber order entry (CPOE) is an excellent method if electronic order entry is used. This strategy requires the prescriber to address thromboprophylaxis before further order entry can take place. Combining this with electronic decision support tools can address the barrier of prescriber unfamiliarity with appropriate VTE prophylaxis.\(^{18}\)

3) **Measurement (including audits) of Appropriate Thromboprophylaxis is in Place and Used to Inform Improvement Efforts**

For patient safety practices as important as VTE prevention, it is essential to audit performance periodically on an ongoing basis to ensure continued high rates of adherence with the institution’s policy. The impact of reliable audit data and feedback to patient care teams has been demonstrated to significantly improve thromboprophylaxis rates.\(^{3,14,15,18}\) Measures are needed to determine how well a system is performing and to track this over time, to determine if there are barriers to implementation of the organizational prophylaxis policy on specific units or in certain patient groups, to provide objective evidence of success (or lack of success), and to assess whether the goal has been reached and is sustained.

In the audit process, it is critical to focus on the protocol definitions of “appropriate prophylaxis” as the target outcome rather than use of “any prophylaxis”.\(^5\) It is also essential that the results of the local audits are disseminated to organizational leaders and frontline healthcare providers. If the adherence to appropriate thromboprophylaxis falls below the target level, then focused quality improvement initiatives should be implemented to reach target. The ongoing collection and dissemination of adherence data is critical to the success of this and other local safety initiatives. See Section 6 for the Safer Healthcare Now! recommended measures. The discussion that follows will provide a brief overview of measurement with specific details about the process and outcomes to be measured reviewed in Section 6.
**Process Measures vs Outcome Measures vs Balancing Measures**

In general, three types of measures can be audited:

- **Process measures** examine whether the steps in a system are performing as planned and may include the percentage of patients receiving appropriate VTE prophylaxis, or usage of appropriate pre-printed order sets with a VTE component.

- **Clinical outcome measures** are used to quantify the ultimate end result - the prevention of objectively-proven, symptomatic, hospital-acquired VTE. Evidence from multiple studies confirm that adherence with the use of appropriate thromboprophylaxis will lead to fewer thromboembolic events and, therefore, to better patient outcomes. Collection of clinical outcome measures can provide real-time feedback to teams. The collection of clinical outcomes is discussed in more detail in Section 6.

- **Balancing measures** determine if a new approach is having a negative impact on other areas. An example would be to determine the rates of bleeding or heparin-induced thrombocytopenia (HIT) with anticoagulant thromboprophylaxis use.

**Sampling Strategies - Process of Care Measures**

There are several different sampling strategies:

- **Simple Random Sampling**
  Patients are selected by using a process such as random numbers. The random numbers are obtained from either a computer or a published random number table.

- **Systematic Random Sampling**
  Patients are selected based on choosing a random starting point, and then selecting patients at specific intervals. An example would be to look at every tenth patient admitted to hospital in a one week period.

- **Judgment Sampling**
  This method is useful when knowledge of known problems or barriers directs the selection of useful participants. An example would be to audit one or more clinical services if it is known that these are areas with low rates of prophylaxis.

- **Consecutive Sampling**
  This method assesses every patient in the selected group over a period of time. Examples include assessing consecutive hip fracture patients over a one-month period or assessing every in-patient on a given day. This type of sampling is generally preferred for continuous quality improvement efforts.
The extent of measurement will depend on the specific objectives of the audit as well as the scale of the improvement effort and resources available. If there are relatively small numbers of patients, an audit of 100 per cent of the patients can be performed without much difficulty. For larger numbers, a full audit will give the most accurate data; however, this may be too time- and resource-consuming. A random sample audit is an option to get a “snapshot” of current thromboprophylaxis use and the effects of any new process changes. Sampling can reduce time and resources while still reflecting performance over time. To be accurate and to reduce bias, samples need to be as random as possible (every patient should have an equal opportunity of being selected for the audit).

To maintain consistency of data abstraction, it is best to designate one or a small number of individuals to perform this task. These abstractors should work from a formal set of inclusion and exclusion criteria and definitions of “appropriate” thromboprophylaxis. The abstractors should meet periodically to “compare notes”.

The team should monitor adherence to the VTE protocol and ensure completed admission and/or postoperative orders are present for every patient in the target group. If there is deviation from the protocol, the team should try to determine why this has occurred. The QI team should capture these occurrences, learn from them, and take steps to prevent them. The suggested steps are reviewed in Section 6.

Disseminating Audit Results
The QI team must determine how and to whom the results of the audits will be reported. This might be driven by the purpose of the audit (e.g. quality improvement vs. quality control). If the purpose of the audit is to drive quality improvement, dissemination to front line staff would be important to help drive change and improvement in care. If the audit is a measure of quality control (or sustainability of improvement), it may be appropriate to disseminate the results even further to the quality of care committee, hospital administration, clinical leaders, etc. The results may also be publically reported, for example, as a component of a balanced scorecard. When displaying audit results, it is useful to show trends over time to help track improvement and ensure sustainability. Communicating audit data will help to keep teams motivated. Consider sharing information about reductions in VTE, “good catches” that were made by teams, cases of HA-VTE, improvements in patient safety, patient satisfaction, teamwork, communication, and staff satisfaction.

Examples of an audit tool can be found in Appendix H.
4) **Mechanisms to Identify and Provide Appropriate Post-Discharge Prophylaxis are in Place for Major Orthopedic Surgery Clients (Hip and Knee Replacement, Hip Fracture Surgery)**

If the hospital provides care for major orthopedic surgery cases, a process needs to be in place to:

- **Identify patients** who require post-discharge thromboprophylaxis. Hip and knee arthroplasty, and hip fracture surgery patients should receive appropriate thromboprophylaxis for a minimum of 10 days and up to 35 days post-surgery according to the ACCP guidelines.\(^{19}\)

- Provide a prescription for the appropriate thromboprophylaxis to the patient as well as **detailed instructions** about dosing and duration to them and/or their caregivers.

- If the patient is discharged directly home, the designated healthcare professional should confirm that the patient has received a prescription for thromboprophylaxis, has the means to cover the cost, and receives education about the medication including duration of treatment.

- **Communicate these instructions** to the rehabilitation facility for the high proportion of such patients who transition from acute postoperative care to home by way of a rehabilitation hospital or unit. See Appendix I for an example of a Thromboprophylaxis Discharge Letter.

5) **Information about the Risks of VTE and its Prevention is Available to Health Professionals and Clients**

Passive dissemination of guidelines and single educational events have been shown to be ineffective as sole methods to elicit change. More active initiatives have shown greater benefit. Systematic reviews of thromboprophylaxis implementation strategies have suggested that multifaceted, interdisciplinary interventions targeting different barriers to change were much more effective than single-strategy interventions.\(^{20-22}\)

Some healthcare professional education strategies that can be considered include:

- Education module(s) related to VTE and its prevention, etc. delivered in-person or using an e-learning format

- Sharing VTE audit data and reviewing potentially preventable HA-VTE cases: HA-VTE cases help the team identify any gaps in the process of care (e.g. uncover reasons for non-adherence with the protocol, confusion regarding VTE risk assessment, other barriers) and can provide guidance for improvements to the protocol and further educational efforts. Audit data is helpful in maintaining commitment for the improvement goals.
Teaching rounds and noon conferences: one trial showed that the use of a hospital-wide clinical pharmacy education program improved the thromboprophylaxis rate from 11 to 44 per cent (p<0.001) as well as rates of HA-VTE.23

Patient safety leadership walk-rounds: a successful approach used at Portsmouth Hospital and King’s College Hospital in the UK is to have such rounds weekly. The presence of a senior physician or administrator reminds the frontline staff of their organization’s commitment to VTE prevention. These types of events help ensure that VTE prevention becomes firmly embedded in the culture of the organization.

Pocket cards or posters: to serve as a reminder of the institutional thromboprophylaxis policy for medical residents, pharmacists, and nursing staff. These can be a helpful, quick reference if they are well designed.

Intranet resources: a portal or site on the institution’s intranet to house the thromboprophylaxis policy and any supporting documents including patient education materials and audit results.

Local unit champions: a nursing unit could identify one or more frontline staff who accept the responsibility of being the “messenger” to bring VTE prevention information to other staff, to conduct unit mini-audits, and to provide improvement ideas to the hospital QI team.

Patient education is also an important aspect of improving VTE prophylaxis rates. Patients should be offered verbal and written information on the importance of VTE prevention at the time of admission, throughout their hospital stay, and at discharge. Some centres have developed patient information leaflets, and counsel patients on symptoms and signs to watch for after discharge.

A great resource for both healthcare professional education and patient education materials is the Thrombosis Canada site which can be accessed at: www.thrombosiscanada.ca.
References (Section 5)


This Getting Started Kit has been written to help engage your inter-professional/interdisciplinary teams in a dynamic approach for improving quality and safety while providing a basis for getting started. The Getting Started Kit represents the most current evidence, knowledge and practice, as of the date of publication and includes what has been learned since the first kits were released in 2005. We remain open to working consultatively to update the content as more evidence emerges, as together we make healthcare safer in Canada.

The Getting Started Kits for all Safer Healthcare Now! interventions are available in both French and English.

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To view the Venous Thromboembolism Prevention Getting Started Kit in its entirety, visit www.patientsafetyinstitute.ca

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