VENOUS THROMBOEMBOLISM PREVENTION

Getting Started Kit

Section 7: Measurement and Technical Descriptions
### Abbreviations

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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ACCP</td>
<td>American College of Chest Physicians</td>
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<tr>
<td>AHRQ</td>
<td>Agency for Healthcare Research and Quality</td>
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<td>CMPA</td>
<td>Canadian Medical Protective Association</td>
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<td>CoP</td>
<td>Communities of Practice</td>
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<td>CPOE</td>
<td>Computerized Prescriber Order Entry</td>
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<td>CPSI</td>
<td>Canadian Patient Safety Institute</td>
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<td>CQUIN</td>
<td>Commissioning for Quality and Innovation Payment Framework</td>
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<td>CRS</td>
<td>Computerized Reminder System</td>
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<td>DVT</td>
<td>Deep Vein Thrombosis</td>
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<td>ED</td>
<td>Emergency Department</td>
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<td>GCS</td>
<td>Graduated Compression (“Antiembolic”) Stockings</td>
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<td>HA-VTE</td>
<td>Hospital-Associated Venous Thromboembolism</td>
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<td>INR</td>
<td>International Normalized Ratio</td>
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| 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) |
7. Measurement - Technical Descriptions

Technical Description of the Measurement Worksheets:

**Implementation Stages** - Definitions apply to all interventions and measures

**Baseline Stage (Pre-intervention)** - Data collected for Baseline should be collected prior to implementing small tests of change and reflect the current process.

**Early (Partial) Implementation Stage** - The team has set a clear aim(s) for the Prevention of Venous Thromboembolism intervention, identified which measures will indicate if the changes will lead to improvement, and started to implement small tests of change (PDSA) to identify and refine processes, procedures and practices which will lead to improvement and achieving the aim. When the team is close to goal they are ready to move to Full Implementation.

**Full Implementation Stage (At Goal)** - The processes, procedures and practices are finalized and have led to significant improvement. These practices on the selected unit are being consistently applied and monitored, showing a sustained performance at or close to goal. The team has achieved their aim(s) and is ready to spread to other areas.

As of June 1, 2016, *Safer Healthcare Now!* is no longer collecting data and *Patient Safety Metrics* is no longer available. Our Central Measurement Team continues to offer expert measurement coaching and consultation.
1.0  **Per cent of Patients Receiving Appropriate Venous Thromboembolism Prophylaxis - Technical Description**

**Intervention:** Prevention of Venous Thromboembolism (VTE)

**Definition:** Appropriate Venous Thromboembolism Prophylaxis rate: The percentage of eligible patients receiving appropriate thromboprophylaxis for the target patient group. Please provide the data described below using the results of (a) an audit of appropriate thromboprophylaxis use as described in the Getting Started Kit) in (b) at least one patient group (the target group).

**Goal:** Improve per cent of patients receiving appropriate VTE Prophylaxis to a target of at least 80% in one year.

**CALCULATION DETAILS:**

**Numerator Definition:** The total number of patients in the audit sample who received appropriate VTE prophylaxis as described in the VTE Getting Started Kit (Section 2, Table 4)

**Numerator Exclusions:** None

**Denominator Definition:** The total number of patients in the audit sample during this reporting period who are at risk according to the VTE Getting Started Kit (Section 1, Table 1)

**Denominator Exclusions:** Excludes patients on therapeutic anticoagulation, patients with a LOS < 2 calendar days (can also consider excluding patients on alternate level of care (ALC) / awaiting placement, length of stay (LOS) > 30 days, etc.)

**Calculate as:** Number of patients receiving appropriate VTE prophylaxis / Total number of patients in sample [x 100] = Per cent of Patients Receiving Appropriate Venous Thromboembolism Prophylaxis

**Measurement Period Length:** Measure periodically (e.g. monthly)

**Definition of Terms:**

- Appropriate Venous Thromboembolism Prophylaxis: Appropriate thromboprophylaxis use as described in the Getting Started Kit (Section 4, Item 6 and Section 2, Table 4)
- Target patient group: Identified by the team or institution and could include, for example: all acute care patients, all patients admitted under General Medicine.
- Eligible patients: Patients in the sample with an indication for Thromboprophylaxis (see the Background section and Section 1, Table 1)
COLLECTION STRATEGY:

Data Collection Approach:

Sampling Plan: It is suggested that the sample include at least 20 patients

Include one of the following options:

1. A sample of **consecutive admitted patients for one group** e.g. the next 20 admitted general surgical patients every month

2. At least one entire **patient group** on at least one day (e.g. arthroplasty, hip fracture, major general surgery, gynecology, ICU, general internal medicine, neurosurgery, etc)

3. At least one **patient care area** (nursing unit) on at least one day/month

4. A **random sample** of at least 10% of the in-patient population on at least one day/month

5. A sample of **consecutive admitted patients** e.g. the next 50 admitted patients/monthly

Report the monthly rate for the last several months (minimum three months). This will serve as your baseline. Continue to track the measure monthly. If possible, track the rate in an annotated run chart, with notes reflecting any interventions you made to improve.
2.0 Type of Thromboprophylaxis Delivered - Technical Description

**Intervention:** Prevention of Venous Thromboembolism (VTE)

**Definition:** The percentage of eligible patients receiving appropriate thromboprophylaxis (right drug, right dose, right start, right duration) for the target patient group.

**Goal:** 100% of patients receive prophylaxis

**CALCULATION DETAILS:**

**Numerator Definition:** The total number of patients who received specific thromboprophylaxis for the target patient group for the reporting period.

**Individual Numerators:** The total number of patients who received individual thromboprophylaxis types as listed below:

1. mechanical prophylaxis (IPC, GCS)
2. heparin
3. dalteparin (Fragmin™)
4. enoxaparin (Lovenox™)
5. nadroparin (Fraxiparine™)
6. tinzaparin (Innohep™)
7. fondaparinux (Arixtra™)
8. warfarin
9. dabigatran (Pradaxa™)
10. rivaroxaban (Xarelto™)
11. apixaban (Eliquis™)
12. other: _____________
13. none

**Numerator Exclusions:**

- None

**Denominator Definition:** The total number of patients in the audit sample during this reporting period who are eligible for inclusion based on the criteria listed in the VTE Getting Started Kit (see the Background section).

**Denominator Exclusions:**

- None
**Individual Type of Prophylaxis:** The measurement worksheet is designed to allow the team to monitor use of each of the types of prophylaxis listed above on an individual basis. The use of each element will be visually displayed on the run chart titled “Individual Type of Prophylaxis”. The team will be able to use this information to identify gaps in practice (e.g. more education required for healthcare professionals)

**Measurement Period Length:** Measure periodically, e.g. monthly.

**Definition of Terms:**
- None

**Calculate as:** Number of patients who received specific thromboprophylaxis options for the target patient group in the monthly sample / Number of patients who had an indication for thromboprophylaxis

**Comments:** None

### COLLECTION STRATEGY:

**Data Collection Approach:**

**Sampling Plan:** It is suggested that the sample include at least 20 patients

- Include one of the following options:
  1. A sample of **consecutive admitted patients for one group** e.g. the next 20 admitted general surgical patients every month
  2. At least one entire **patient group** on at least one day (e.g. arthroplasty, hip fracture, major general surgery, gynecology, ICU, general internal medicine, neurosurgery, etc.)
  3. At least one **patient care area** (nursing unit) on at least one day/month
  4. A random sample of at least 10% of the in-patient population on at least one day/month
  5. A sample of **consecutive admitted patients** e.g. the next 50 admitted patients every month

Report the monthly rate for the last several months (minimum three months). This will serve as your baseline. Continue to track the measure monthly. If possible, track the rate in an annotated run chart, with notes reflecting any interventions you made to improve

**Data Accuracy:** Data accuracy is enhanced when all definitions are used without modification.
### 3.0 Reason Recommended Thromboprophylaxis Was Not Used (Optional Measure) - Technical Description

**Intervention:** Prevention of Venous Thromboembolism (VTE)

**Definition:** The reason why eligible patients DID NOT receive thromboprophylaxis recommended for the target patient group.

**Goal:** 100% of patients receive prophylaxis

### CALCULATION DETAILS:

**Numerator Definition:** The total number of patients in the denominator who DID NOT meet the recommended standard of practice for thromboprophylaxis or their surgery-specific target group (select the reason below that best aligns):

1. No thromboprophylaxis was used
2. Mechanical prophylaxis alone was used without a bleeding contraindication
3. The wrong DRUG was used
4. The wrong DOSE was used
5. There was a delay in starting > 24 hours after the end of surgery or OR > 24 hrs after admission to hospital
6. The thromboprophylaxis was delivered for an insufficient duration

**Numerator Exclusions:** None

**Denominator Definition:** The total number of patients during this reporting period in the audit sample selected who are eligible for inclusion based on the criteria listed in the VTE Getting Started Kit (see the Background section and Section 1, Table 1) who DID NOT receive appropriate thromboprophylaxis.

**Denominator Exclusions:** Patients who are not eligible to receive thromboprophylaxis

**Measurement Period Length:** Measure monthly

**Definition of Terms:** None

**Calculate as:** The total number of patients in the denominator who DID NOT meet the recommended standard of practice for thromboprophylaxis for their specific target group due to one of the reasons listed in the “numerator” above / the total number of patients who met the criteria for inclusion during this month who DID NOT receive appropriate thromboprophylaxis x 100.

**Comments:** None
COLLECTION STRATEGY:

Data Collection Approach:

Sampling Plan:

It is suggested that the sample include a representative sample (e.g. 20-50 patients as described below)

Include one of the following options:

1. A random sample of at least 10% of the in-patient population on at least one day
2. At least one patient care area (nursing unit) on more than one day
3. At least one entire patient group on more than one day (e.g. arthroplasty, hip fracture, major general surgery, gynecology, ICU, general internal medicine, neurosurgery)
4. A sample of consecutive admitted patients (e.g. the next 50 admitted patients)
5. A sample of consecutive admitted patients for one group (e.g. the next 20 admitted hip fracture patients)

Data Accuracy: Data accuracy is enhanced when all definitions are used without modification.
4.0 Per cent of Appropriate Use of Order Sets for Venous Thromboembolism Prophylaxis - Technical Description

**Intervention:** Prevention of Venous Thromboembolism (VTE)

**Definition:** Appropriate Order Set Use: The percentage of patients in the target patient group (audit sample) for whom a pre-printed order set (or CPOE) was used on admission or following surgery. The pre-printed order set (or CPOE) must include orders for VTE Prophylaxis. All patients in the target group (audit sample) are eligible for inclusion regardless of VTE risk or whether prophylaxis was ordered. *Target groups may include a specific patient group, such as patients undergoing Hip or Knee arthroplasty or could cover a patient service, (e.g. patients admitted under General Medicine). Use separate sheets for monitoring individual patient groups.*

**Goal:** To incorporate appropriate VTE prophylaxis into order sets with a goal of using them for a target of 100% of admission or post-operative orders.

**CALCULATION DETAILS:**

**Numerator Definition:** The total number of patients in the audit sample who had a formal, pre-printed order set or CPOE with VTE prophylaxis used on admission or after surgery and that was completed appropriately. *Indicate the target group you have selected to monitor.*

**Numerator Exclusions:** None

**Denominator Definition:** The total number of patients who are included in this month’s audit sample who are at risk for VTE according to the Getting Started Kit (see the Background Section and Section 1, Table 1)

**Denominator Exclusions:** Excludes patients on therapeutic anticoagulation

**Calculate as:** Number of patients with an order set, completed appropriately, used for admission or post-operatively/ Total number of patients in sample [x 100] = Per cent of Appropriate Use of Order Sets or CPOE for Venous Thromboembolism Prophylaxis.

**Measurement Period Length:** Measure periodically, e.g. monthly

**Definition of Terms:**

- **Order Set:** A set of orders either in paper format or as part of Computerized Provider Order Entry (CPOE) used for admitting patients to hospital or after a surgical procedure. For this measure, the pre-printed order set (or CPOE) must include orders for VTE Prophylaxis and must be completed appropriately.

- **Target patient group:** Identified by the team or institution and could include, for example: all acute care patients, all patients admitted under General Medicine, a random sample of 20 patients admitted for General Surgery, etc.

- **Eligible patients:** all patients in the sample
COLLECTION STRATEGY:

Data Collection Approach: Sampling Plan

- Would be based on the sample group previously identified by the institution or team
- At least 50 patients should be included in the sample

May include one of the following options:

1. A sample of **consecutive admitted patients for one group** e.g. the next 50 admitted general surgical patients every month

2. At least one entire **patient group** on more than one day (e.g. arthroplasty, hip fracture, major general surgery, gynecology, ICU, general internal medicine, neurosurgery, etc.);

3. At least one **patient care area** (nursing unit) on more than one day/month;

4. A **random sample** of at least 10% of the in-patient population on at least one day/month

5. A sample of **consecutive admitted patients** e.g. the next 50 admitted patients every month

Report the monthly rate for the last several months (minimum three months). This will serve as your baseline. Continue to track the measure monthly. If possible, track the rate in an annotated run chart, with notes reflecting any interventions you made to improve. If your organization reports data quarterly, we strongly encourage you to disaggregate this data and report monthly.
5.0 Description of the Organization

Intervention(s): Prevention of Venous Thromboembolism (VTE)

Definition: For each participating hospital, baseline information about the hospital will be collected and updated annually using this standard reporting form. The following process measures are linked to the recommended steps in implementing appropriate VTE prophylaxis (which will also assist organizations achieve compliance with the Accreditation Canada VTE ROP).

Goal: Does not apply to this worksheet

WORKSHEET COMPLETION DETAILS:

This worksheet is designed for the annual collection of healthcare facility-specific information relevant to Prevention of Venous Thromboembolism.

Process Measures:

1) Does your organization have a hospital-wide written thromboprophylaxis policy?
   - No
   - Yes, we have thromboprophylaxis policies for certain patient groups but not a hospital-wide policy
   - We have a fully-approved and implemented, hospital-wide thromboprophylaxis policy
   - Other (please explain): ________________________________

2) Does your organization have a method to identify hospital patients at risk for VTE and provide them with thromboprophylaxis consistent with the thromboprophylaxis policy?
   - No formal method or individual physicians make thromboprophylaxis decisions about individual patients
   - Yes, at least for some patient groups, we have a formal method to routinely identify patients at risk for VTE and routinely provide them with thromboprophylaxis consistent with the hospital policy
   - Yes, for most patient groups, we have a formal method to routinely identify patients at risk for VTE and routinely provide them with thromboprophylaxis consistent with the hospital policy
   - Yes, for all (or almost all) patient groups, we have a formal method to routinely identify patients at risk for VTE and routinely provide them with thromboprophylaxis consistent with the hospital policy
   - Yes, we apply a formal VTE risk assessment model to each admitted patient which is linked to risk-appropriate thromboprophylaxis consistent with the hospital policy
   - Other (please explain): ________________________________
3) Does your organization **audit appropriate thromboprophylaxis use?**
   - No thromboprophylaxis audit has been done in the past 6 months
   - An audit of *any* thromboprophylaxis use in one (or more) patient group(s) was carried out in the past 6 months. Please provide details of the audit: ________________________________________________________________
   - An audit of *appropriate* thromboprophylaxis use in one patient group was carried out in the past 6 months. Please provide details of the audit: _____________________________________________________________
   - An audit of *appropriate* thromboprophylaxis use was carried out in at least 2 patient groups in the past 6 months. Please provide details of the audits: _____________________________________________________________
   - Regular audits (at least once a month) of appropriate thromboprophylaxis use was carried out in at least one patient group in the past 6 months. Please provide details of the audits: _____________________________________________________________
   - An audit of appropriate thromboprophylaxis use was carried out in every admitted patient at least once over the past 6 months. Please provide details of the audit: _____________________________________________________________
   - Other (please explain): _____________________________________________________________

4) Does your organization have a formal strategy to identify every high-risk orthopedic surgery patient (THR, TKR, HFS) who requires **post-discharge thromboprophylaxis** and have a mechanism in place to ensure that these patients receive it?
   - Our organization does not provide care for high-risk orthopedic surgery patients
   - Our organization does not have a formal strategy to identify high-risk orthopedic surgery patients appropriate for post-discharge thromboprophylaxis
   - High risk orthopedic surgery patients are not provided with post-discharge thromboprophylaxis
   - Post-discharge thromboprophylaxis is generally provided to high-risk orthopedic surgery patients at the discretion of the individual surgeons
   - Our organization has a formal strategy to identify high-risk orthopedic patients and consistently provides post-discharge thromboprophylaxis to them

5) Does your organization formally **provide information about VTE and its prevention** to the majority of **health professionals** at least once every 6 months (grand rounds, mailing or emailing to each member of the group)?
   - Our organization has not provided formal education about VTE and its prevention to health professionals over the 6 months
   - Our organization has provided formal education about VTE and its prevention to one or more of the following health professional groups in the past 6 months (check all that apply):
     - All physicians
     - All nursing staff
     - All pharmacists
     - Other healthcare professionals (e.g. physiotherapy, etc.)
Our organization has provided formal education about VTE and its prevention to one or more of the following health professional groups in the past 6 months (check all that apply):

- Some physicians
- Some nursing staff
- Some pharmacists
- Other healthcare professionals (e.g. physiotherapy, etc.)

6. Does your organization provide information about VTE and its prevention to patients?

- Our organization has not provided any formal education about VTE and its prevention to patients over the past 6 months
- Our organization has written information about VTE and its prevention available to patients (leaflets, booklets) at key patient encounter sites (pre-surgical clinic, Admitting Department, nursing units, etc.)
- Our organization provides written information about VTE routinely to at least 50% of patients (e.g. in all pre-surgery admission packages)
- Our organization provides written information about VTE to almost every (>80%) admitted patient

**COLLECTION STRATEGY:**

**Data Collection Approach:**

- The data is available from the VTE Prevention working group at the healthcare facility
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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