

## INSTRUCTIONS

### Selected Best Practices and Suggestions for Improvement

**What is this tool?** The purpose of this tool is to provide:

- Detailed description of best practices, including supporting evidence, suggestions for improvement, prescribed process steps, and additional resources.
- Sufficient information to complete a Gap Analysis (Tool D.5), make a decision to implement (or not to implement) a process, and develop an Implementation Plan (Tool D.6).

These tools provide information on evidence-based best practices when available, as well as information gathered from real-world experience in working with hospitals. These tools are not meant to replace validated guidelines. Rather, these documents are meant to supplement various improvement process projects related to the AHRQ Quality Indicators.

The information used to populate these documents is derived from professional association guidelines, the research literature, and experience and lessons learned from hospitals' work on previous AHRQ Quality Indicator implementation efforts. The references cited were not derived from a full systematic evidence-based literature review. Rather, the list includes more well-known research and publications on the subject, where available.

The information contained in these documents should be used to review and compare against your organization's current processes to determine where gaps may exist. As always, the final decision regarding whether to implement the guidance provided in this document should be made by a multidisciplinary quality improvement team in your hospital and should be based on information specific to your organization.

**Who are the target audiences?** The primary audiences include quality improvement leaders, clinical leaders, and multidisciplinary frontline staff members.

**How can the tool help you?** The Best Practices and Suggestions for Improvement Tool details each of the following components of a best practice and its implementation:

- Indicator Specifications
- Literature Support
- Best Processes/Systems of Care
- Additional Resources

**How does this tool relate to others?** The Best Practices and Suggestions for Improvement Tools are used to prepare the Gap Analysis (Tool D.5) and the Implementation Plan (Tool D.6).

### ***Instruction Steps***

1. See instructions for Gap Analysis (Tool D.5).

2. Use the appropriate Selected Best Practices and Suggestions for Improvement Tool to populate the Gap Analysis (Tool D.5).

## Selected Best Practices and Suggestions for Improvement

### ***Patient Safety Indicator Specifications***

#### **PSI 12: Postoperative Pulmonary Embolism (PE) or Deep Vein Thrombosis (DVT)**

**Numerator:** Discharges among cases meeting the inclusion and exclusion rules for the denominator with International Classification of Diseases (ICD)-9 codes for deep vein thrombosis or pulmonary embolism in any secondary diagnosis field.

**Denominator:** All surgical discharges age 18 and older defined by specific diagnosis-related groups (DRGs) or Medicare Severity (MS)-DRGs and an ICD-9 code for an operating room procedure.

Exclude:

- Principal diagnosis of deep vein thrombosis or pulmonary embolism or secondary diagnosis present on admission.
- Procedure for interruption of vena cava as the only operating room procedure.
- Procedure for interruption of vena cava that occurs before or on the same day as the first operating room procedure. *Note: If day of procedure is not available in the input data file, the rate may be slightly lower than if the information were available.*
- MDC 14 (Pregnancy, Childbirth, and Puerperium).
- Missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), or principal diagnosis (DX1=missing).

Reference: AHRQ Patient Safety Indicators Technical Specifications, Version 4.3, August 2011.

<b>Recommended Practice</b>	<b>Details of Recommended Practice</b>
Venous Thromboembolism (VTE) Risk Assessment	Evaluate each patient upon admission for the risk of developing VTE. Risk should be reassessed whenever the clinical situation changes. <sup>1, 2, 4, 5</sup>
Guideline-Directed VTE Prophylaxis Selection	Appropriate use of prophylaxis for VTE in patients at risk is the number one strategy to improve patient safety. Use clinically appropriate evidence-based methods of thromboprophylaxis. <sup>1-4</sup>
Nursing Assessment and Intervention	Promote highest level of patient mobility and advance as tolerated. <sup>2, 5</sup> Assess for symptoms/presence of acute DVT and provide intervention, if appropriate. <sup>5</sup>

### **Literature Support**

## **VTE Risk Assessment**

“Ultimately the team should strive for perfect integration of the VTE protocol into admission and transfer order writing; thus the importance of an easy-to-use model cannot be overstated.”

*Maynard G, Stein J. Preventing hospital-acquired venous thromboembolism: a guide for effective quality improvement. Rockville, MD: Agency for Healthcare Research and Quality; August 2008. AHRQ Publication No. 08-0075. Available at: [www.ahrq.gov/qual/vtguide/](http://www.ahrq.gov/qual/vtguide/).*

“Assess all patients on admission to identify those who are at increased risk of VTE.”

*Venous thromboembolism – reducing the risk: quick reference guide. London, UK: National Institute for Health and Clinical Excellence; January 2010. Available at: [www.nice.org.uk/nicemedia/live/12695/47197/47197.pdf](http://www.nice.org.uk/nicemedia/live/12695/47197/47197.pdf). Accessed September 19, 2011.*

“We recommend, on admission to the intensive care unit, all patients be assessed for their risk of VTE.”

*American College of Chest Physicians (ACCP). Prevention of venous thromboembolism. American College of Chest Physicians evidence-based clinical practice guidelines (8<sup>th</sup> edition). Chest 2008 Jun;133(6 Suppl):381S-453S.*

“Assess all patients for risk of deep vein thrombosis (DVT) upon admission using Autar Deep Vein Thrombosis Risk Assessment Scale.”

“Reassess for risk of DVT when there is a change in patient medical condition and mobility status.”

*Nursing management for prevention of deep vein thrombosis (DVT)/venous thromboembolism (VTE) in hospitalized patients. Singapore: Singapore Ministry of Health; February 2008.*

## **Guideline Directed VTE Prophylaxis Selection**

“Essential elements to reach breakthrough levels of improvement in care include:

- A multidisciplinary team or steering committee focused on reaching VTE prophylaxis targets and reporting to key medical staff committees.
- Protocols that standardize VTE risk assessment and prophylaxis.”

*Maynard G, Stein J. Preventing hospital-acquired venous thromboembolism: a guide for effective quality improvement. AHRQ Publication No. 08-0075, Rockville, MD: Agency for Healthcare Research and Quality; August 2008.. Available at: [www.ahrq.gov/qual/vtguide/](http://www.ahrq.gov/qual/vtguide/).*

“Base the choice of pharmacological VTE agents on local policies and individual patient factors, including clinical condition (such as renal failure) and patient preferences.”

*Venous thromboembolism – reducing the risk: quick reference guide. London, UK: National Institute for Health and Clinical Excellence; January 2010. Available at: [www.nice.org.uk/nicemedia/live/12695/47197/47197.pdf](http://www.nice.org.uk/nicemedia/live/12695/47197/47197.pdf). Accessed September 19, 2011.*

“Accordingly, most patients should receive thromboprophylaxis.”

*American College of Chest Physicians. Prevention of venous thromboembolism. American College of Chest Physicians evidence-based clinical practice guidelines (8<sup>th</sup> edition). Chest 2008 Jun;133(6 Suppl):381S-453S.*

“One of six cases of all VTE and two of three cases of VTE, for which thromboprophylaxis had been indicated, could potentially have been prevented had

physicians followed the recommended ACCP guidelines. Inadequacy of prophylaxis was most often caused by omission of prophylaxis.”

*Arnold DM, Kahn SR, Shrier I. Missed opportunities for prevention of venous thromboembolism: an evaluation of the use of thromboprophylaxis guidelines. Chest 2001;120:1964–71.*

### **Nursing Assessment and Intervention**

“For patient with minimal DVT/VTE risks of <6, nurses should encourage early ambulation as soon as clinical condition permits.”

*Nursing management for prevention of deep vein thrombosis (DVT) / venous thromboembolism (VTE) in hospitalized patients. Singapore: Singapore Ministry of Health; February 2008.*

“Encourage patients to mobilize as soon as possible.”

*Venous thromboembolism – reducing the risk: quick reference guide. London, UK: National Institute for Health and Clinical Excellence; January 2010. Available at: [www.nice.org.uk/nicemedia/live/12695/47197/47197.pdf](http://www.nice.org.uk/nicemedia/live/12695/47197/47197.pdf). Accessed September 19, 2011.*

### **Best Processes/Systems of Care:**

#### **Introduction: Essential First Steps**

- Engage key stakeholders, including pharmacy and therapeutics committee, nursing groups, orthopedics/surgery/trauma leaders, patient safety committee, perioperative committees, and chief residents and residency program directors; and engage representatives from quality improvement and information services as part of the team to develop time-sequenced guidelines, care paths, or protocols for the full continuum of care for prevention of VTE.
- Team responsibilities include:
  - Ensure institutional support and prioritization for the initiative, expressed in terms of a meaningful investment in time, equipment, personnel, and informatics, and a sharing of institutional improvement experience and resources to support any project needs.
  - Focus on reaching VTE prophylaxis targets and reporting to key medical staff committees.
  - Use reliable data collection and performance tracking.
  - Identify specific goals or aims that are ambitious, time defined, and measurable.
  - Draft or adopt evidence-based protocols that standardize VTE risk assessment and prophylaxis.
  - Create institutional infrastructure, policies, practices, or educational programs promoting the use of the protocol.

- Complete assessment of current practice and identify gaps.

### **Recommended Practice: VTE Risk Assessment**

- Develop standardized VTE risk assessment that delivers decision support to the point of care; in other words, at the moment of medical decisionmaking, providers have what they need to stratify the patient to a specific VTE risk level.<sup>1</sup>
- Integrate into admission and transfer order sets.<sup>1</sup>
- Identify at-risk patients<sup>1, 2, 4, 5</sup>:
  - Assess each patient's VTE risk at admission.
  - Use stickers placed on patient charts or electronic reminders to prompt caregivers to take this step.
  - Use the tool to triage patients into low-, moderate-, or high-risk categories.<sup>1, 5</sup>

### **Recommended Practice: Guideline-Directed VTE Prophylaxis Selection**

- Prompt providers to order VTE prophylaxis when completing admission or transfer orders; they also should have a standardized VTE risk assessment immediately available to support medical decisionmaking (see "VTE Risk Assessment").<sup>1, 2</sup>
- Ensure that VTE protocols also have a visual link from the level of VTE risk to the options for appropriate prophylaxis; this visual link will enable providers to make a rapid, accurate decision and take action to order appropriate prophylaxis.<sup>1</sup>
- Determine contraindications to pharmacologic prophylaxis and deliver decision support to the point of care so that providers know when to choose alternative prophylaxis, e.g., if specific contraindications to anticoagulation or heparin products exist.<sup>1</sup>

### **Recommended Practice: Nursing Assessment and Intervention**

- Maximize patient mobility whenever possible and take measures to reduce the amount of time the patient is immobile because of the effects of treatment (e.g., pain, sedation, neuromuscular blockade, mechanical ventilation).<sup>5</sup>
- Ensure nurse followup:
  - Ensure that appropriate treatment has been ordered and they are empowered to initiate contact with physicians if prophylaxis has not been ordered for an eligible patient.
  - Review for appropriateness of therapy.

- Assess for symptoms/presence of acute VTE to provide intervention if appropriate.
  - Signs of VTE of the iliac, femoral, or popliteal veins include
    - unilateral leg swelling, warmth, and erythema. Patient may also complain of tenderness of the involved veins. In some cases, the patient may be asymptomatic.
  - The most common symptom of PE is dyspnea and the most common sign is tachycardia.
  - Other signs and symptoms of a small PE may include dry cough, pleuritic pain, or hemoptysis.
  - Syncope, cyanosis, or hypotension is associated with a massive PE.
  - Additional signs and symptoms of PE may include anxiety, a low-grade fever, or neck vein distension.

<b>Effectiveness of Action Items</b>
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- Track compliance with elements of established protocol.
- Evaluate effectiveness of new processes, determine gaps, modify processes as needed, and reimplement.
- Develop a plan of action for staff in noncompliance.
- Provide feedback to all stakeholders (physician, nursing, and ancillary staff; senior medical staff; and executive leadership) on level of compliance with process.
- Conduct surveillance and prevalence of healthcare-associated VTE to evaluate outcomes of new process.
- Monitor and evaluate performance regularly to sustain improvements achieved.

### **Additional Resources**

#### ✓ Systems/Processes

- [VTE implementation guide](#), Society of Hospital Medicine
- [UW Medicine Department of Pharmacy Anticoagulation Services](#)
- [Preventing PE and DVT: a practical guide to evaluation](#), University of Massachusetts

✓ Policies/Protocols

- [Sample VTE protocols](#), Society of Hospital Medicine

✓ Tools

- [VTE safety toolkit](#), University of Washington
- [VTE risk assessment form](#), Emory Healthcare
- [VTE risk assessment form](#), University of California, San Diego

✓ Staff Required

- Nurses trained to use tool to triage patients into low, moderate, or high risk
- Providers educated and reminded to order appropriate VTE prophylaxis at admission
- Pharmacists educated in pharmacologic prophylaxis
- Physical therapists to assess and assist in patient mobility

✓ Equipment

- Mechanical compression devices
- Compression stockings
- Vena cava filters

✓ Communication

- Systemwide education on protocol

✓ Authority/Accountability

- Senior leadership mandating protocol for all providers
- Clinical support personnel dedicated to ensure and document that mechanical prophylaxis is worn by patients
- Nurses empowered to initiate contact with physicians if prophylaxis has not been ordered for an eligible patient

## Supporting Literature

1. Maynard G, Stein J. *Preventing hospital-acquired venous thromboembolism: a guide for effective quality improvement*. Rockville, MD: Agency for Healthcare Research and Quality; August 2008. . AHRQ Publication No. 08-0075. Available at: <http://www.ahrq.gov/qual/vtguide/>.
2. *Venous thromboembolism – reducing the risk: quick reference guide*. London, UK: National Institute for Health and Clinical Excellence; January 2010. Available at: [www.nice.org.uk/nicemedia/live/12695/47197/47197.pdf](http://www.nice.org.uk/nicemedia/live/12695/47197/47197.pdf). Accessed September 19, 2011.
3. Arnold DM, Kahn SR, Shrier I. Missed opportunities for prevention of venous thromboembolism: an evaluation of the use of thromboprophylaxis guidelines. *Chest*. 2001;120:1964–71.
4. American College of Chest Physicians. Prevention of venous thromboembolism. American College of Chest Physicians evidence-based clinical practice guidelines (8<sup>th</sup> edition). *Chest* 2008 Jun;133(6 Suppl):381S-453S.
5. Nursing management for prevention of deep vein thrombosis (DVT)/venous thromboembolism (VTE) in hospitalized patients. Singapore: Singapore Ministry of Health; February 2008.