Field Guide: Venous Thromboembolism

Definition and Harm Impact

Hospital-acquired pulmonary embolism and deep vein thrombosis, otherwise known as venous thromboembolism (VTE), is one of the most common forms of preventable death in hospitals. It is estimated that approximately 350,000 to 900,000 patients develop VTE each year in hospitals. Approximately 100,000 of the patients that develop VTE die from it each year.¹ Aside from the mortality risk, VTE is responsible for causing long-term, chronic conditions. Clinicians often underestimate the risk of harm from a clot and overestimate the risk of bleeding from preventative prophylaxis.² Even seemingly healthy patients who are admitted to the hospital for minor surgical procedures or routine childbirth find themselves at greater risk once hospitalized if progressive ambulation is not encouraged. This means that the vast majority of hospitalized patients are at some level of risk for developing VTE,³ as risk factors include:

- Multiple comorbidities.
- Recent surgery.
- Immobility or inadequate mobility.

Measurement

The Hospital Improvement Innovation Network (HIIN) goal for reduction in VTE rates is a 20 percent reduction from 2014 baseline rates. VTE is measured as a rate of surgical patients who develop either deep vein thrombosis (DVT) or pulmonary embolism (PE) following a surgical procedure within the same hospitalization. It is based on the national metric from the Agency for Healthcare Research and Quality (AHRQ) Patient Safety Indicator #12, and is measured as the total number of surgical patients that develop DVT or PE divided by the total number of surgical patients multiplied by 1,000. While VTE can affect any patient type, the measurement is focused solely on surgical patients for the purposes of the HIIN.

Known Improvement Strategies

Improvement efforts aimed at increasing patient mobility and the number of patients receiving appropriate prophylaxis interventions have the greatest success in reducing hospital-acquired VTE.⁴,⁵ Successful strategies in the work toward reducing VTE rates include:

- Early mobility protocols for operative patients
  - This includes an emphasis on preoperative conditioning education and preoperative mobility education when possible.
• Use of standardized risk assessments for every hospitalized patient
  – Use one process for assessing all patients at admission and at standardized times throughout their
    inpatient stay (e.g., change in status, following surgery, change in level of care).

• Risk-based prophylaxis
  – Use standardized order sets that allow for risk-based prescribing of mechanical and
    chemoprophylaxis, when indicated.

• Concurrent surveillance of risk factors and concomitant prophylaxis for patients in the hospital
  – Implement a real-time check of all or certain population groups within the hospital (e.g., those
    without ambulation orders, intensive care unit only, those identified as high risk for VTE) to cross
    check the accuracy of the VTE risk assessment versus the appropriateness of the ordered
    intervention, also known as “measure-vention.”

Engaging Patients and Families

Educate patients and family members about the importance of using sequential compression devices when
ordered, as well as any chemoprophylaxis ordered, and the role that patients and family members play in
the prevention of VTE. Encourage patients and family members to be proactive in asking healthcare providers about
ambulation and include family members in any education.

Resources and Guides for Hospitals

• Agency for Healthcare Research and Quality—Preventing Hospital-Associated Venous
  Thromboembolism: http://www.ahrq.gov/professionals/quality-patient-safety/patient-safety-
  resources/resources/vtguide/index.html

• Society for Hospital Medicine—The VTE Toolkit, Society for Hospital Medicine:
  http://www.hospitalmedicine.org/Web/Quality_Innovation/Implementation_Toolkits/Venous_Thrombo-
  embolism/Web/Quality___Innovation/Implementation_Toolkit/Venous/Overview.aspx

• Health Research and Educational Trust—Venous Thromboembolism Change Package, 2016 Update:

• American College of Chest Physicians—Antithrombotic Therapy and Prevention of Thrombosis,
  Evidence-Based Clinical Practice Guidelines:

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1 Rathbun, S. (2009). The surgeon general’s call to action to prevent deep vein thrombosis and pulmonary embolism.
  Circulation, 119(15), 480-482.

  Archives of Internal Medicine, 165(13):1458-1464.

3 Heit, JA; Melton, LJ; Lohse, CM, et al. (2001) Incidence of venous thromboembolism in hospitalized patients versus

4 Preventing Hospital-Associated Venous Thromboembolism. Agency for Healthcare Research and Quality, Rockville, MD.

  of Thrombosis and Thrombolysis, 29(2), 159-166.