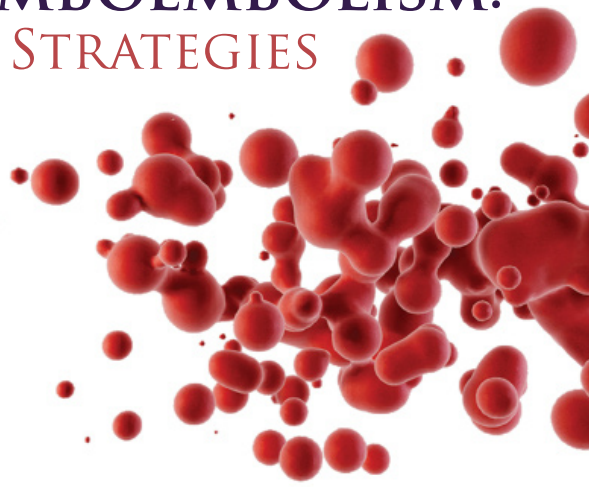


Quality Improvement in Managing Patients at Risk for

VENOUS THROMBOEMBOLISM: INTERVENTIONAL STRATEGIES



REGIONAL WORKSHOPS

Plan to attend a full-day regional workshop with your entire team, including physicians, pharmacists, nurses, nurse practitioners and case managers. These one-day workshops will offer proven strategies for the implementation of a multidisciplinary team approach to quality improvement in the prevention of hospital-acquired VTE. With a special emphasis on interactive, team-based learning, expert faculty will share validated methods for VTE prophylaxis, as well as tools to implement therapeutic guidelines and quality improvement measures. Workshops are approved for up to 6 hours of continuing education for physicians, pharmacists, nurses, nurse practitioners, and case managers.

Participants are encouraged to complete two VTE essentials CE activities available as podcast or web-based on-demand programs entitled, "Multidisciplinary Approach to Identifying Patients at Risk for VTE",

and "Managing VTE Prophylaxis: Making a Case for a Team Approach to Quality Improvement," before attending the workshops. After completion of the VTE essentials activities, you'll be ready to expand your expertise during one of these regional workshops.

Register online today

- » **September 9, 2010** - San Francisco, California
- » **September 14, 2010** - Parsippany, NJ
- » **September 24, 2010** - Atlanta, Georgia
- » **October 7, 2010** - Chicago, Illinois



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CONTINUING EDUCATION FOR THE ENTIRE TEAM

This educational initiative is planned for a multidisciplinary audience so please share this e-Newsletter with your team. Go to www.StopVTE.org for a schedule of webinars and workshops, as well as information about how to register for these activities and gain access to archived webinars.

Congratulations to the selected participants!

Baylor Medical Center at Waxahachie

Waxahachie, Texas

Team Leader: Donna Drain, Pharm.D.

Memorial Hospital

South Bend, Indiana

Team Leader: Eli Opacich, Pharm.D.

Memorial Regional Hospital

Hollywood, Florida

Team Leader: Thomas Macaluso, M.D.

Sharp Grossmont Hospital

La Mesa, California

Team Leader: Electa Stern, Pharm.D.

West Virginia University Hospitals

Morgantown, West Virginia

Team Leader: Frank Briggs, Pharm.D.

FIVE HEALTH SYSTEMS SELECTED FOR NATIONAL INSTITUTIONAL IMPACT VTE MENTORED QUALITY INITIATIVE

ASHP *Advantage* has selected five health systems to participate in a national Institutional Impact VTE Mentored Quality Initiative. The sites were selected through a competitive application process, and applicants were required to assemble a multidisciplinary team and garner support from senior leadership to conduct a VTE quality improvement project at their facilities.

Physician-pharmacist faculty teams with expertise in VTE prevention and quality improvement will visit selected health systems August through October to evaluate VTE prevention practices and provide specific recommendations to enable the participants to meet their quality improvement goals. Following the visit, participants and their multidisciplinary teams will conduct a VTE quality improvement project and report changes in the care of patients at risk of VTE.

The faculty mentors are as follows:

Stuart T. Haines, Pharm.D., BCPS, FCCP, FASHP, FAPhA

West Palm Beach VA Medical Center, West Palm Beach, Florida

University of Maryland School of Pharmacy, Baltimore, Maryland

Jordan C. Messler, M.D., FHM

Morton Plant Hospital

Clearwater, Florida

Gregory A. Maynard, M.D., M.S., FHM

University of California - San Diego, California

Zachary A. Stacy, Pharm.D., BCPS

St. Luke's Hospital, Chesterfield, Missouri

St. Louis College of Pharmacy, St. Louis, Missouri

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LEARNING OBJECTIVE

After reading this e-Newsletter, the reader should be able to:

Discuss current thinking about the leadership and role of multidisciplinary teams in venous thromboembolism (VTE) prevention, strategies for VTE prevention, and the role of the lay public in preventing VTE.

VENOUS THROMBOEMBOLISM: AN ONGOING PROBLEM AND OPPORTUNITY FOR MULTIDISCIPLINARY TEAMS

Failure to provide venous thromboembolism (VTE) prophylaxis remains a problem in the United States, despite a long history of documented problems and efforts to rectify the situation.^{1,2} Although VTE is commonly referred to as a silent killer because it often is asymptomatic, there is much that can be done by health care professionals and the lay public to prevent it.³ Many hospitalized patients are at increased risk for VTE. The stratification of hospitalized patients based on risk for VTE and education of health care professionals about the need and appropriate strategies for VTE prophylaxis have led to improvements in the use of appropriate VTE prophylaxis in at-risk patients.^{4,5}

Multidisciplinary team efforts to prevent VTE have the potential to improve outcomes in at-risk patients in the hospital setting. The persistent problem of VTE in hospitalized patients represents an opportunity for multidisciplinary teams to improve the quality of care in their institutions. Each member of a multidisciplinary team contributes a unique perspective, and the potential impact of the team can be greater than that of each member working alone.

medical executive committee, pharmacy and therapeutics committee, and other committees with influential physician members.

Although physicians are responsible for ordering VTE prophylaxis, nurses often recognize VTE risk factors and problems with VTE prophylaxis because of their role providing bedside care. Pharmacists provide expertise in the pharmacokinetics and pharmacodynamics of pharmacologic prophylaxis. Frontline personnel from nursing and pharmacy in various hospital areas (e.g., medical, surgical, and intensive-care units) should be represented on the multidisciplinary VTE prevention team.⁶

Information technology experts can contribute to VTE prevention efforts by establishing interfaces between the computer systems used by various hospital departments involved in patient care, developing clinical decision-support functions and alerts, and incorporating standardized orders into computerized physician order entry (CPOE) systems. Quality improvement professionals also should

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“ We are seeing a shift in responsibility for VTE prevention from physicians to hospitals. To provide optimal patient care, we must establish a partnership between hospitals, physicians, and other members of a multidisciplinary team to implement system-wide VTE risk assessment and prevention strategies. Such strategies should be considered in situations where the risk for VTE remains elevated in a patient, including the period after hospital discharge. ”

A multidisciplinary VTE prevention team ideally should be led by a physician champion who is respected by the medical staff and has expertise in VTE prophylaxis and anticoagulation.⁶ A physician hospitalist leader, pulmonologist, hematologist, critical care physician, or surgeon is preferred for this leader role.^{6,7} Hospitalists are physicians with residency training in internal medicine, general pediatrics, family practice, or another medical discipline who specialize in the delivery of comprehensive medical care to hospitalized patients. Although non-physicians are effective leaders, the authority and clout of a physician leader for the VTE prevention team are valuable in establishing rapport with the

be members of the VTE prevention team because efforts to improve the use of VTE prophylaxis should be coordinated with other institutional quality improvement initiatives. Other personnel should be included in the multidisciplinary team as appropriate depending on institutional needs.

Multidisciplinary team dynamics can affect the success of efforts. Persons with a reputation for collaboration should be selected as team members. Removal of authority gradients (i.e., ensuring that each team member has an equal voice) also contributes to success.⁶

Strategies

In a recently published population-based, retrospective cohort study, daily rounds by a multidisciplinary team reduced the mortality rate in medical intensive care unit (ICU) patients.⁸ Part of the difficulty in providing VTE prophylaxis is the heterogeneity of patients at risk and the fact that providing VTE prophylaxis is not the responsibility of any one specialist.⁹ Nevertheless, a variety of strategies involving collaboration among various health care professionals can improve VTE prophylaxis rates in hospitals.¹⁰ The most effective strategies include electronic clinical decision-support systems or paper-based remind-

ers of the need for VTE risk assessment, and concurrent audit with feedback (i.e., evaluating the presence and appropriateness of orders for prophylaxis, contacting the prescriber if orders are needed or the order is inappropriate, and recommending appropriate prophylaxis).^{10,11} A combination of active strategies is more effective than single strategies. Passive dissemination of guidelines is likely to be ineffective for improving prophylaxis rates.

At the University of California, San Diego Medical Center, improvement in the use of VTE prophylaxis and reduction in the incidence of hospital-acquired VTE were observed over a 3-year period as a result of the efforts of a multidisciplinary team.¹⁰ The team comprised hospitalists, pulmonary critical care VTE experts, pharmacists, nurses, and information specialists. The team efforts included implementation of a simple VTE risk assessment protocol with three levels of risk that were linked to a menu of preferred VTE prophylaxis methods, which were incorporated into standardized order sets in a CPOE system. Members of the multidisciplinary team provided staff education about the VTE prevention protocol at medical and surgical grand rounds, teaching rounds, and noon conferences. Audits with feedback and education about inadequate prophylaxis based on the protocol were provided to physicians and nursing staff. As a result of these efforts, progressive increases in the percentage of patients receiving adequate prophylaxis were observed each year, from 58% the first year to 78% the second year and 93% the third year, with a sustained rate of adequate prophylaxis of 98% during the last 6 months of the third year. A 39% relative risk reduction in hospital-acquired VTE and an 86% relative risk reduction in preventable VTE were associated with the multidisciplinary team efforts.

The impact of multidisciplinary team-led systems changes on compliance with American College of Chest Physicians (ACCP) VTE prophylaxis guidelines was assessed at an 800-bed tertiary care medical center in Saudi Arabia.¹² The findings were described at the ACCP CHEST 2009 meeting. The multidisciplinary team comprised nursing professionals, physicians, and information technology experts. The systems changes included implementation of screening for VTE risk factors by nurses, electronic reminders of the need for prophylaxis for physicians, preprinted admission

Patient Assessment

Improvement in the use of VTE prophylaxis has been associated with the implementation of risk assessment strategies, especially when risk assessment is linked with standardized orders for VTE prophylaxis.⁵ Some risk assessment systems involve calculation of a risk score based on weighted point values assigned to various risk factors.^{13,14} However, the need for complex calculations can make risk assessment impractical and contribute to nonadherence to institutional protocols.⁶ Simpler risk assessment sys-

Recognizing the Role of Teamwork in Quality Improvement

In April 2010, the Society of Hospital Medicine (SHM) announced the recipients of its annual awards for quality improvement and patient care at its conference in Washington, D.C.¹⁶ The Emory Healthcare Venous Thromboembolism Prevention Team received the SHM Award for Excellence in Teamwork in Quality Improvement for its groundbreaking work in VTE prophylaxis. The multidisciplinary team at Emory Healthcare is led by Jason Stein, MD, FHM; Carolyn Hill, RN; Laura Phillips; and Dee Cantrell, Chief Information Officer. The collaboration involved in this project transformed the approach to quality improvement at the institution by establishing new channels of communication and relationships, building trust, and creating a new mindset for improvement and measurement of performance, which resulted in a sense of pride. Additional information about the approach to VTE prevention at Emory Healthcare is available in the Agency for Healthcare Research and Quality publication *Preventing Hospital-Acquired Venous Thromboembolism: A Guide for Effective Quality Improvement* (available at <http://www.ahrq.gov/qual/vtguide/>).

order forms, user-friendly educational tools to summarize VTE prophylaxis guidelines (e.g., unit-specific posters), a hospital policy for VTE prophylaxis, a VTE awareness event, and provider-specific feedback on performance. The team met on a regular basis to assess performance and make systems changes as needed. The hospital-wide rate of compliance with VTE prophylaxis guidelines before implementation of the systems changes was 68% despite prior adoption of the ACCP guidelines. Hospital-wide compliance with VTE prophylaxis guidelines exceeded 90% after implementation of the systems changes. These findings demonstrate that efforts coordinated by a multidisciplinary team can lead to improvement in compliance with VTE prevention guidelines. The University of California, San Diego Medical Center experience suggests that multidisciplinary team efforts to improve the use of VTE prophylaxis translate into reductions in the incidence of VTE.

tems that stratify patients in one of several (usually three or four) risk categories based on characteristics without the need for complex calculations are preferred.^{3,6}

Fear of bleeding is a potential barrier to the use of pharmacologic prophylaxis.⁹ Recently published data from the International Medical Prevention Registry on Venous Thromboembolism (known as the IMPROVE registry), an observational study of the in-hospital bleeding risk in

more than 15,000 medical patients, may help clinicians identify patients at high risk for bleeding for whom non-pharmacologic prophylaxis might be chosen instead of pharmacologic prophylaxis.¹⁵ Gastroduodenal ulcer, prior bleeding, and low platelet count are the strongest independent risk factors for in-hospital bleeding in this patient population, with increased age, hepatic or renal failure, ICU stay, central venous catheter, rheumatic disease,

cancer, and male sex also increasing the bleeding risk. Knowledge of the risk factors for bleeding might make clinicians more comfortable using pharmacologic prophylaxis in patients without these risk factors. The risk factors for bleeding might be taken into consideration during the VTE risk assessment (i.e., along with risk factors for VTE) in making decisions about VTE prophylaxis.



Outreach Effort

Public information campaigns can help reduce the risk of VTE by educating lay persons about VTE and its consequences and risk factors, ways to reduce risk, and the early signs and symptoms of VTE. The Coalition to Prevent Deep Vein Thrombosis (<http://www.preventdvt.org/>), a group of more than 60 organizations committed to educating the public and healthcare community about the problem, was established in 2003. Melanie Bloom, widow of David Bloom, a 39-year-old NBC journalist who died suddenly from pulmonary embolism while covering the war in Iraq, joined the Coalition as its national patient spokesperson in 2004. The Coalition recently partnered with Mary Ann Wilson, RN, founder and host of the PBS series, Sit and Be Fit, an exercise program for older adults. An educational program, DVT Awareness In Motion (<http://www.preventdvt.org/motion/awareness-in-motion.aspx>), demonstrating simple movements that may help reduce the risk of VTE by encouraging blood circulation, will be presented as part of the PBS series. This partnership represents a potentially effective outreach effort by health care professionals to empower the lay public to prevent VTE.

SELF-ASSESSMENT QUESTIONS

1. Which of the following health care professionals should lead a VTE prevention team in a hospital?

- a. A pharmacist with expertise in the pharmacokinetics and pharmacodynamics of pharmacologic prophylaxis.
- b. A physician who is respected by the medical staff and has expertise in VTE prophylaxis and anticoagulation.
- c. A nurse who provides patient care at the bedside.
- d. An information specialist responsible for establishing interfaces between the computer systems used by various hospital departments involved in patient care.

2. Which of the following statements best describes current thinking about the role of multidisciplinary teams in hospitals and the lay public in preventing VTE?

- a. Multidisciplinary teams in hospitals and the lay public both play important roles in preventing VTE.
- b. The lay public plays an important role in preventing VTE because of the need for proactive efforts to reduce risk in the ambulatory care setting, which is beyond the influence of multidisciplinary teams in hospitals.
- c. Multidisciplinary teams play an important role in preventing VTE in hospitals, but lay persons typically do not because VTE often is a silent killer without warning signs or symptoms.
- d. Neither multidisciplinary teams in hospitals nor the lay public can prevent VTE because it often is a silent killer without warning signs or symptoms.

3. Which of the following strategies for VTE prevention is preferred in hospitals?

- a. Passive distribution of guidelines alone.
- b. Electronic clinical decision-support systems or paper-based reminders alone.
- c. A combination of electronic clinical decision-support systems and paper-based reminders.
- d. A combination of electronic clinical decision-support systems or paper-based reminders, ongoing education, and concurrent audit with feedback.

ANSWERS: 1. b 2. a 3. d

Target Audience

This continuing education activity was planned to meet the needs of pharmacists who are interested in preventing VTE in health systems, particularly those with an interest in a multidisciplinary team approach to implementing effective VTE risk assessment and prevention strategies.

Continuing Pharmacy Education



The American Society of Health-System Pharmacists is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. This activity provides 0.25 hour (0.025 CEUs) of continuing pharmacy education credit (ACPE activity #204-000-10-453-H01P).

To receive continuing pharmacy education credit, participants must read the e-Newsletter, review the self-assessment questions, and **attest** to completion of the activity on the ASHP Learning Center. Participants may print their official statements of continuing pharmacy education credit immediately. The estimated time to complete this activity is 15 minutes. This activity is provided free of charge. This activity is available from August 1, 2010 through July 31, 2011.

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