2014 Gage Awards

Reference #	7492091
Status	Complete
Name of hospital or health system	Harborview Medicine Center, UW Medicine
Name of project	Multidisciplinary Venous Thromboembolism (VTE) Task Force Utilizes QI Analytics to Reduce In-Hospital VTE Events: Bringing Safety and Quality Improvement to the Bedside
CEO name	Eillen Whalen
CEO approval	Check here to confirm that your CEO approves of this project being submitted for a 2014 Gage Award
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Within which of the two categories does your application best align?	Quality

1. Provide a brief description of the project. (This section should resemble an abstract for a poster presentation or an abstract for a peer reviewed journal. Include an objective, data sources, study design, findings, and conclusions.)	Venous thromboembolism (VTE), including deep vein thrombosis (DVT) (blood clots in deep veins of the extremities) and pulmonary embolism (PE) (blood clots in the lung), is a known preventable complication of hospitalization. In the US, an estimated 100,000 patients die each year from VTE or related complications. From a recent 2013 study, the cost of care has been estimated to approach $1.5 billion annually. Most hospitalized patients have at least one VTE risk factor and accurate risk assessment and evidence-based prophylaxis are known to help prevent VTE. In 2010, Harborview Medical Center, one of four UW Medicine hospitals, formed the VTE Task Force, to examine practices and identify opportunities for improvement around VTE prevention and treatment in hospitalized patients. This multidisciplinary group is co-chaired by a trauma surgeon and hospital medicine physician and was developed at the request of the Medical Director and sanctioned by the Medical Executive Board. Members include representatives from general surgery, medicine, orthopedic surgery, nursing, pharmacy, and quality improvement (QI). The QI Department provides analytic support. The VTE Task Force, in collaboration with QI programmers, developed an electronic tool to efficiently and rapidly review all in-hospital VTE events. This tool allows us to assess accuracy of VTE risk assessment, appropriateness of prophylaxis relative to UW Medicine guidelines (see attachment), and adequacy of VTE treatment. Events with potential improvement opportunities are referred to departmental physician, nursing or pharmacy leaders for standardized review. Event synopses and proposed actions are shared monthly at a medical-center wide QI meeting and with the Task Force. Action items have included the development of innovative information technology (IT) tools to improve the care of patients at the bedside. These tools are designed to educate and drive the culture of safety around VTE prevention and treatment across services and disciplines. Since FY2009, our annual rate of post-operative DVT/PE has decreased by 21.7%. Rates of guideline-directed prophylaxis have improved and, among patients who developed VTE, 89% received guideline-adherent prophylaxis. In the last year, we achieved 95.6% compliance with Hospital VTE core measures. Additionally after identification of VTE occurrence, since January 2013 greater than 91% of patients have received appropriate education prior to discharge with written instructions and have had appropriate outpatient follow-up arranged. The VTE Task Force utilizes QI analytics to standardize VTE event review and develop tools to improve VTE prevention and treatment for all hospitalized patients. Transparency of our performance has supported accountability and driven change. Increasingly, lessons learned and improvement initiatives are shared across the

	UW Medicine health system.
1A. Attachment, if applicable (Applicable examples include a peer reviewed journal article, other content published in the literature, or a presentation at a national meeting)	UWMedicineVTEProphylaxisGuidelines.pdf (44k)

2. Describe the methods use in this project. Include where, why, and how the project was accomplished.	To improve VTE prophylaxis and treatment, the VTE Task Force used QI analytics to implement retrospective and real-time initiatives. The UW Medicine VTE Prevention Guidelines provide a framework to engage services in these initiatives across the institution. These guidelines were developed jointly at Harborview Medical Center and University of Washington Medical Center based on nationally accepted evidence-based guidelines. Initially the VTE Task Force developed an electronic tool to review all in-hospital VTE events (see Figure 1). Using natural language processing, the tool integrates events from vascular and radiology studies with demographic, clinical and medication data from the electronic health record. This facilitates assessment of appropriate guideline-adherent prophylaxis and allows for feedback to physicians, nurses and pharmacists. Missed doses are highlighted. Events with potential opportunities for improvement are used to develop initiatives for education and system improvement and to help patients in a more prospective manner. Since Task Force formation, we have developed analytic tools that support providers with real-time information at the bedside. One tool lists patients who have not received chemical prophylaxis within 24 hours by service. This is distributed daily to all service-based pharmacists to ensure that prophylaxis is appropriate and to support education of resident physicians and nurses on rounds (see Figure 2). A list of patients with active orders for segmental compression devices (SCDs) and concurrent nursing documentation that SCDs are not applied is generated at the unit level to allow for real-time feedback to nurses (see Figure 3). Another daily list identifies patients on heparin drips with dosing information and pertinent lab values that our patient safety pharmacist uses daily to monitor adherence to standard nomograms and to pre-emptively identify patients who might be at risk for Heparin Induced Thrombocytopenia (see Figure 4). We have also worked closely with pharmacists and discharge planners to ensure that patient education regarding anticoagulation occurs throughout hospitalization and at discharge and that appropriate outpatient follow-up is arranged. Both goals are accomplished by sending a list of all patients receiving warfarin in hospital to care coordinators and pharmacists to allow for appropriate early discharge planning and education (see Figure 5). Recently we initiated a series of multidisciplinary summits in which we review our UW Medicine guidelines and current performance. Discussion with front-line providers in pharmacy, nursing and resident physicians allows us to enhance our IT tools and make other system improvements. We anticipate that this hospital-wide, multi-disciplinary engagement will further improve our VTE prevention and treatment efforts.

3. Describe the results of the project. What data was used to support improvement results?	To measure the success of our interventions, the VTE Task Force originally tracked the rate of post-operative DVT/PE (AHRQ Patient Safety Indicator 12). In 2012, we expanded tracking to include all in-hospital VTE events and report adherence to the UW Medicine VTE prophylaxis guidelines. Recently, we added review of VTE events that occur after hospital discharge to improve the care of patients across the continuum. Together, these quality measures have allowed us to accurately track performance on the Center for Medicare & Medicaid Services (CMS) /The Joint Commission (TJC) Inpatient Hospital VTE Quality Core Measures and to report Meaningful Use since January 2013. Since the beginning of FY 2009, our rate of PSI-12 Postoperative PE/DVT has decreased 21.7% from 13.8 per 1,000 patients in FY 2009 to 10.8 per 1,000 hospitalized patients in FY 2013 (see Figure 1). Over the four year time period, assuming an average of 7100 eligible post-operative patients per year, this rate decline would be estimated to prevent approximately 20 VTE events per year. Since inception of the task force, the percent of hospitalized patients across all services that receive guideline-adherent prophylaxis has increased. From 2012 through the current fiscal year (July to November 2013), guideline-directed prophylaxis has improved 7% with optimal prevention from admission to VTE event. Currently 89% of VTE cases are found not to be preventable with all patients receiving VTE prophylaxis in accordance with our UW Medicine guidelines. The remaining 11% were reviewed to determine whether there might have been potential for improvement. Some of these events may still not have been preventable given a very complex patient population with many critically ill patients who undergo multiple high-risk operative procedures, such as neurosurgical procedures, and where the balance between VTE risk and risk of bleeding must be considered throughout hospitalization. This information is reported monthly on our intranet by service to emphasize the importance of this work and ensure transparency and accountability (see Figure 2). For CMS/TJC VTE Core Measures performance we benchmark against the University HealthSystem Consortium (UHC) members. Since January 2013 when these measures were first reported we have surpassed the TJC median performance on the Hospital VTE Composite. This composite includes performance on both prophylaxis and treatment measures. Our most recent published quarter performance in Q2 2013 is a 95.6% compliance with all process measures, which ranks us 16th out of 155 participating UHC hospitals (see Figure 3). During this time period, we had no potentially preventable VTEs (denominator 58). We track all of the VTE process measures concurrently on a monthly basis to monitor for system improvement opportunities (see Figure 4).

3A. Attachment, if applicable (Only graphically displayed data such as charts will be accepted. Data should include baseline and improvement data)	HarborviewMedicalCenter_GageAwardResults.pdf (284k)
4. Describe what happened as a result of the project. Was the improvement related to the intervention? Can the project be duplicated by other organizations?	In addition to improvements in appropriate and timely prophylaxis rates leading to a reduction in VTE events , our VTE Task Force initiatives have heightened awareness of the impact of these events on our patients and the importance of prevention of VTE if possible across services and disciplines. Increasingly resident physicians comment about VTE risk and prevention plans in their daily notes. This improved awareness has impacted not only initiation of VTE prophylaxis, but also appropriate continuation of VTE prophylaxis. For example, several years ago, we determined that many high-risk surgical patients missed doses of chemoprophylaxis on the morning of surgery. This led us to change our orders to administer chemoprophylaxis doses in the evening prior to surgery with improved adherence to our institutional guidelines and a decrease in held doses. As a result of the project, all four UW Medicine hospitals have highlighted prevention of VTE by identifying the rate of PSI-12 post-operative DVT/PE as a high level strategic initiative and pillar goal for patient safety. The University of Washington Medical Center has also created a similar VTE Task Force for concurrent event review. The work of our VTE Task Force and use of QI analytics has been highlighted nationally at the UHC Annual Meeting, the AHRQ Annual Meeting, and the Society of Hospital Medicine. This project can be duplicated by other organizations given the structured nature of the intervention. Overall the multidisciplinary approach and the support and engagement of senior clinical leadership have been keys to our program's success. The existence of a standard institutional guideline and the dissemination of this information are other keys to success. Use of QI analytics both for retrospective review and real-time feedback of data as well as complete transparency of performance have further led to clinical improvements in patient safety.

5. Describe how patients, families, and if appropriate, community was included in the work.	In our review, patient declination is a common reason for missed doses of appropriate prevention (both chemoprophylaxis and non-pharmacologic approaches). We are initiating a program partnering nurses, pharmacists and resident physicians to educate patients on the importance of VTE prevention. In addition our pharmacists are working closely with our nurses and discharge planners to ensure that patient education about VTE and anticoagulation occurs throughout hospitalization and at discharge. Follow-up appointments for anticoagulation are established prior to patient discharge to support safety across the care continuum. A VTE Task Force member provided testimony supporting the Metropolitan King County Council's proclamation of March 2012 as DVT Awareness Month in King County, Washington. The UW Medical Center/Seattle Cancer Care Alliance Anticoagulation Services Program, a designated Center of Excellence, has developed a series of patient education materials. These resources are available at http://depts.washington.edu/anticoag/home/content/patient-education-0
5A. Attachment, if applicable (Applicable attachments include documents created for patients, families, or community members or by them as a result of the project)	HarborviewMedicalCenter.GageAward.Methods.pdf (238k)
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