

2015 CDC HA-VTE PREVENTION CHALLENGE CHAMPION



ORGANIZATION:

The Johns Hopkins Hospital | Baltimore, Maryland

PATIENT POPULATION:

- 50,000 inpatient admissions in 2014
- 951 staffed beds

BACKGROUND

In 2005, the multidisciplinary Johns Hopkins VTE Collaborative was formed, comprised of patient safety and quality leaders, physicians, nurses, pharmacists, researchers, and health information technology experts at the Johns Hopkins Hospital. The VTE Collaborative conducted a random chart audit of high-risk patient populations and found that only 33% of patients were prescribed risk-appropriate VTE prophylaxis reflecting the lack of standardized risk assessment tools and order sets. They also identified missed doses of prescribed VTE prophylaxis as a cause of preventable harm with 12% of hospitalized patients not receiving doses, mostly due to patient refusal. Among patients who developed VTE, 73% were prescribed the best-practice care, but missed one or more doses.

The mission of the Johns Hopkins VTE Collaborative has been to develop and implement strategies and interventions to improve VTE prevention for hospitalized patients. The strategies have largely

focused on risk assessment and prophylaxis prescription, delivery of patient-centered care, nurse education, and provider performance measurement and feedback.

The strategies have shown measurable and reproducible improvements in VTE outcomes at Johns Hopkins Hospital, which have been published extensively, and are now being implemented elsewhere.

OBJECTIVES

The objective of the Johns Hopkins VTE Collaborative is to decrease preventable harm from healthcare-associated VTE.

METHODS

The VTE Collaborative utilized the “Translating Research into Practice” model to implement their project.

Improving Prescription of Risk-Appropriate VTE Prophylaxis

Beginning in 2005, the VTE collaborative developed individualized paper order sets for multiple medical and surgical specialties that guided prescribers through the VTE risk stratification and prophylaxis ordering process.

In response to workflow challenges, an evidence-based, specialty-specific, proactive VTE prophylaxis clinical decision support tool for the hospital's computerized provider order entry system was designed and implemented. The tool built-in VTE and bleeding risk assessments as a mandatory part of the admission and transfer process, and provided risk-appropriate prophylaxis recommendations to the prescriber in real-time.

To further improve prescribing practices, individualized feedback was provided to residents in the Departments of Surgery, Medicine, and Gynecology and Obstetrics about their VTE prophylaxis prescribing habits. Each month, residents received a scorecard that provided information about their previous month's prescribing practice and details about any suboptimal VTE prophylaxis orders written. They were also provided with an individualized de-identified ranked list to allow for comparison to their peer residents and benchmarking of their own performance over time.

Decreasing Rates of VTE Prophylaxis Non-administration

PATIENT ENGAGEMENT

In partnership with the North American Thrombosis Forum, ClotCare, and the National Blood Clot Alliance, the VTE Collaborative developed a patient-centered education bundle to improve patient education and engagement. The bundle included a two-page educational form, a 10-minute video that included both patient stories and expert recommendations, and an in-person discussion with clinical VTE experts. These tools are freely available at <http://bit.ly/bloodclots>.

NURSE ENGAGEMENT

The VTE collaborative developed an electronic, real-time escalating alert that was triggered when a nurse documented that a dose of prescribed pharmacologic VTE prophylaxis was not administered for any reason. Upon receiving the alert, the VTE team investigated the cause of non-administration with nurses and, when appropriate, engaged patients with the patient-centered education bundle.

In addition, a dynamic learner-centric education module was developed to provide education to nurses on the harms of VTE and the benefits of VTE prophylaxis. The module has been completed by over 1000 nurses at Johns Hopkins Hospital, and has been adopted by the 55-hospital Illinois Surgical Quality Improvement Collaborative.

RESULTS

Improving Prescription of Risk-Appropriate VTE Prophylaxis

- Paper order sets improved the proportion of surgical patients with risk-appropriate VTE prophylaxis prescriptions from 26% to 68%.
- A switch from paper to electronic order sets further improved risk-appropriate VTE prophylaxis prescription practices to 80.2% for surgical patients and to 92.2% for medical patients.
- In trauma patients, risk-appropriate VTE prophylaxis prescription practices increased from 65% to 84%.
- Individualized feedback to surgical residents improved risk-appropriate VTE prophylaxis prescribing practice for surgical patients from 89.4% to 96.4%.

Administration of Prophylaxis

- Prior to implementing the real-time escalating alert with patient-centered education bundle, non-administration of VTE prophylaxis was 14.8% in the Department of Medicine and 6.2% in the Department of Surgery.
- After implementing the real-time escalating alert with patient-centered education bundle, preliminary data show that prophylaxis non-administration decreased by about 30% in medically ill patients and about 60% in surgical patients.

HA-VTE Incidence

With each intervention, Johns Hopkins has noted a decreasing trend in the incidence of healthcare-associated VTE (HA-VTE) and a significant reduction in potentially preventable HA-VTE.

- Trauma: HA-VTE (3.0% vs. 1.9%, $p=0.23$); potentially preventable HA-VTE (1.0% vs. 0.17%, $p=0.04$);
- Medicine: HA-VTE (2.5% vs. 0.7%, $p=0.002$); potentially preventable HA-VTE (1.1% vs. 0, $p=0.001$);
- Surgery: HA-VTE (0.81% vs. 0.39%, $p=0.24$); potentially preventable HA-VTE (0.35% vs. 0, $p=0.046$).

CONCLUSIONS

To eliminate preventable patient harm from VTE, every step in the prophylaxis process must occur flawlessly. This action involves risk assessment of patients, prescription of risk-appropriate VTE prophylaxis, nurses to understand and educate patients on the importance of the VTE prophylaxis, and patients to accept and nurses to administer all prescribed VTE prophylaxis. Johns Hopkins has demonstrated that this goal is achievable and scalable, even within a large health system.