

The Health Care Improvement Foundation
2019 Delaware Valley Patient Safety and Quality Award
Entry Form

1. Hospital Name

Thomas Jefferson University Hospital – Jefferson Health

2. Title Of Initiative

Reducing the Number of Missed Doses for Venous Thromboembolism Prophylaxis

3. Abstract (Please limit this description to 250 words.)

In an effort to identify reasons for the occurrence of hospital-acquired venous thromboembolism (VTE) in our organization, we evaluated missed VTE chemical prophylaxis doses as one possible factor. We looked at the doses scheduled over a 13-day period and found that 7.03% of the doses were not administered. Documentation showed that the majority were not administered due to patient or family refusal. A multidisciplinary committee was charged with performing an in-depth analysis of factors contributing to the missed dose rate and implementing actions to reduce the number of missed doses. Among the actions taken were intensive education of the Nursing staff on the importance of VTE prophylaxis, a change in the standard administration times, an escalation process for alerting nursing management and the team providers of the occurrence of missed doses, development of a script for nursing staff to use to explain to the patient the importance of not missing a dose, and proactive patient education on VTE prophylaxis in the Pre-Admission testing area. Following implementation of the corrective actions, an analysis of missed doses was completed on a second 13-day period; 4.8% of doses were found to be omitted. The reduction in the rate of missed doses was significant at $p < 0.01$.

4. What were the goals of your initiative?

Venous thromboembolism (VTE), consisting of pulmonary embolism (PE) and deep vein thrombosis (DVT), is a major cause of preventable harm. As supported in clinical guidelines, appropriate prescribing of VTE chemical prophylaxis can significantly reduce the risk for DVT and PE among hospitalized patients. However, correct prescribing of VTE prophylaxis does not ensure that doses are actually being administered. Research has shown that non-administration of VTE prophylaxis significantly increases the risk of preventable VTE (1-3). A review of the literature demonstrates a missed dose rate of 10.9-13.6% among hospitalized patients (4). We undertook a study to assess our institution's percentage of missed doses and found that although our percentage was less than rates reported in the literature (4), an opportunity existed for reducing the missed VTE prophylaxis rate. The goal of our initiative was to implement actions that would reduce our rate of missed VTE prophylaxis doses.

5. What were the baseline data and the results of your initiative?

We conducted an analysis of missed VTE prophylaxis doses over a 13-day period in September 2018. During this period, 9922 doses of subcutaneous heparin, subcutaneous enoxaparin, and subcutaneous fondaparinux were scheduled for administration. Of these doses, 698 were not administered (rate: 7.03%). The most common reason for non-administered doses was patient/family refusal, accounting for 91.6% of the omitted doses. The next most common reason was that the patient was off the unit. A number of actions were developed to reduce the number of missed doses and implemented across the hospital during the Spring of 2019. An analysis of a 13-day period in June 2019 for missed VTE prophylaxis doses was conducted to determine if improvement was seen. For this 13-day period, 9964 doses were scheduled to be administered. Of these doses, 480 were not administered (rate: 4.8%). The reduction in the percentage of missed doses was statistically significant at $p < 0.01$.

6. Describe the interventions that were instrumental in achieving the results for your initiative.

The results of our initial analysis of missed VTE prophylaxis doses (September 2018) caused widespread concern throughout our organization. The results were reviewed at numerous committees and our VTE Committee (a subcommittee within the Magnet structure) was charged with developing actions that would result in a reduction of missed doses. The VTE subcommittee included representatives from prescriber leadership, nursing leadership, unit nurses from throughout the organization, Pharmacy, Performance Improvement and Patient Safety.

A survey of the nursing staff was conducted first to understand nurses' beliefs related to VTE, mechanical and chemical DVT prophylaxis, and to subsequently develop an education program aimed at addressing the findings of the survey (November 2018). Unit based focus groups were formed that identified "at the bedside" barriers to administration of chemical prophylaxis.

The following interventions were implemented:

- All nursing staff completed a mandatory "VTE Prevention" module on the hospital intranet which focused on the importance of mechanical and chemical VTE prophylaxis (November 2018).
- Multiple presentations on VTE prophylaxis were provided at Nursing Governing Body, Nursing Leadership Council, Advanced Practice Nurses group, and several of the provider groups.
- Times of administration were standardized for VTE prophylaxis.
- An escalation process for chemical and mechanical DVT prophylaxis refusal was created involving notification of the charge nurse/nurse manager. If the patient continued to refuse then the Resident, and, with continued missed doses, the Attending Physician were notified. This process was incorporated into the electronic health record.
- Patient education materials were developed for patients scheduled for planned surgical procedures (see Appendix A). Nurse practitioners in the Pre-Admission Testing Center reinforce with the patients the importance of VTE prophylaxis after surgery.
- Nurse managers and Clinical specialist groups were educated on use of reports for monitoring missed doses and data feedback to front-line providers was provided.
- Scripting was developed for providers to address patient refusals.

- The list of reasons for refusal on the electronic health record (EHR) drop down list was expanded to gain a better understanding of why doses are being omitted.
- Pharmacists have been granted by the Pharmacy & Therapeutics Committee permission to change according to a protocol the timing of VTE prophylaxis so as to avoid administration of doses during the night (we have found that some patients refuse because they do not want to be awoken during the night).
- All nursing staff completed a one-on-one competency with a Clinical Nurse Specialist reviewing VTE, the importance of chemical and mechanical prophylaxis, VTE risk stratification, the escalation process and associated documentation, and scripting (May 2019).

7. Describe the key steps required to successfully replicate this initiative throughout the region. (Please limit this description to 100 words.)

The actions described as part of our initiative require a concerted effort and commitment on the part of various professionals to develop the educational materials, make changes within the EHR and make educational material available on-line, educate staff, and conduct ongoing monitoring. These activities were incorporated within the day-to-day activities of the involved staff. There was no significant additional cost associated with this effort.

8. Explain how the initiative demonstrates innovation (Please limit this description to 100 words.)

The fact that we evaluated our missed VTE prophylaxis doses and then took action based on the findings was innovative; there is not an abundance of literature looking at this topic. The development of an escalation process embedded within the EHR which informs providers of missed doses demonstrates creativity and allows measurement of the successes and failures of the process. Allowing pharmacists to adjust the timing of VTE prophylaxis per protocol so as to avoid administration during the night is an innovative process change which may result in decreased patient refusals and increased patient satisfaction.

9. How does this initiative demonstrate collaboration with other providers within the continuum of care? (Please limit this description to 100 words.)

A Pharmacy Resident conducted the initial analysis of missed doses as a requirement for a Medication Use Evaluation. Achievement of our goal of reduction in the number of missed VTE prophylaxis doses required involvement of a multidisciplinary team. Our VTE Committee developed the recommended actions described above, and included representatives from the Medical Staff, Nursing, Pharmacy, Performance Improvement, Patient Safety/Risk Management, and Physical Therapy. Excellent team work was necessary for this effort to succeed and to be sustainable.

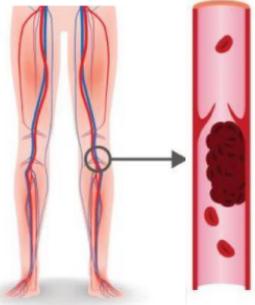
10. Explain ways in which senior leadership exhibited commitment to the initiative (Please limit this description to 100 words.)

The findings of our initial analysis led to a coordinated effort at all levels of the organization, and responsibility for addressing the findings was assigned to the VTE Committee. This committee is co-chaired by Nursing leadership and the Medical Director of Quality and Safety. The Associate Chief Medical Officer is also part of this team. The Medical Director of Quality and Safety is strongly dedicated to the success of the project and visits nursing units with high levels of missed doses to stress the importance of administering doses and to gain an understanding of the factors behind missed doses.

11. Appendices (i.e., tables and graphs)

Three things to do during your hospital stay Prevent the Clots!

1. Wear your Compression Boots or Stockings
2. Walk a lot
3. Take your Pills and Shots

<p>What is a blood clot?</p> <ul style="list-style-type: none"> • Clumps of blood that can block the flow of blood • Blood Clots can be dangerous and deadly  <p>Why am I at risk in the hospital?</p> <ul style="list-style-type: none"> • You are not moving around and walking less while you are in the hospital • You recently had surgery or an injury • Your disease may increase your chance of getting a clot 	<p>How are blood clots prevented?</p> <p>Your Doctor may ask to give you a medication called a “blood thinner”</p> <ul style="list-style-type: none"> • The medication may be given as a pill or through a shot once, twice or 3 times a day • Allow the nurse to administer the blood-thinning drug without skipping a dose. Skipped doses have been associated with dangerous blood clots! <p>What else can you do to prevent blood clots?</p> <ul style="list-style-type: none"> • Walk at least 3 times a day when your doctor says it is OK. Always ask your nurse for help before getting out of bed 	<p>Blood clots are also prevented with compression boots</p> <ul style="list-style-type: none"> • If needed, compression boots will be placed on your legs by the nurse. It works by squeezing your legs to keep blood flowing • The compression boots should be removed when you are out of bed walking but should be on when you are in bed or in a chair • Always ask for the compression boots to be put back on your legs when you are back in bed • Sometimes a compression stocking is used instead to keep blood flowing in your legs 
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**ASK YOUR DOCTOR ABOUT BLOOD CLOT PREVENTION
PREVENT CLOTS = SAVE LIVES!**

References:

1. Louis SG, Sato M, Geraci T, et al. Correlation of missed doses of enoxaparin with increased incidence of deep vein thrombosis in trauma and general surgery patients. *JAMA Surg.* 2014;149(4):365-370.
2. Haut ER, Lau BD, Kraus PS, et al. Preventability of Hospital-Acquired Venous Thromboembolism. *JAMA Surg.* 2015; 150(9):912-915.
3. Roberts LN, Porter G, Barker RD, et al. Comprehensive VTE prevention program incorporating mandatory risk assessment reduces the incidence of hospital-associated thrombosis. *Chest.* 2013;144(4):1276-1281.
4. Lau BD, Streiff MB, Kraus PS, et al. Missed Doses of Venous Thromboembolism (VTE) Prophylaxis at Community Hospitals: Cause for Alarm. *J Gen Intern Med.* 2018;33(1):19-20.