

Background

- Many of the patients admitted to our General Neurology service suffer from chronic lower extremity weakness and/or immobility from acute neurologic conditions, increasing their risk of developing a deep venous thrombosis (DVT)
- Pharmacologic DVT prophylaxis is not routinely ordered on all admissions, as many of these patients require lumbar punctures or other semi-invasive procedures
- We have found that even when patients are appropriate for DVT prophylaxis, it sometimes is not ordered
- The annual incidence of DVTs on the General Neurology service is estimated to be about 3-5 per year, however this number may in fact be higher as lower extremity dopplers are not frequently performed on our inpatients

Aim Statement

- Implement changes to Epic patient hand off lists to better monitor and track DVT prophylaxis coverage and observe for a resulting decrease in DVT incidence on the General Neurology service
- Improve resident awareness about when to hold DVT prophylaxis and when to resume it before and after lumbar puncture (LP), respectively

MUSC Pillar: Quality



Methods and Intervention

- On 2/7/2022 a toolbar was added to the shared General Neurology patient list that all Neurology residents and Psychiatry interns have access to.
- The new column displayed the patient's heparin-based DVT prophylaxis and the current dose in an easy-to-view format
- The Epilepsy Monitoring Unit (EMU) patients were excluded from observation as these patients do not have DVT prophylaxis ordered as a result of a separate department policy
- The existing data on recommendations for antiplatelet and anticoagulation management in patients requiring lumbar puncture were reviewed, printed out, and displayed in several areas in the General Neurology workroom
- From 2/7/2022 to 4/25/22 the General Neurology patient lists were independently reviewed and inclusion criteria required a formal diagnosis of DVT to be made based off of a lower extremity venous doppler demonstrating non-compressibility of the deep veins consistent with acute DVT and with symptoms beginning during hospitalization

Heparin/LMWH

enoxaparin (Lovenox) 40 mg/0.4 mL subcutaneous...

enoxaparin (Lovenox) 40 mg/0.4 mL subcutaneous...

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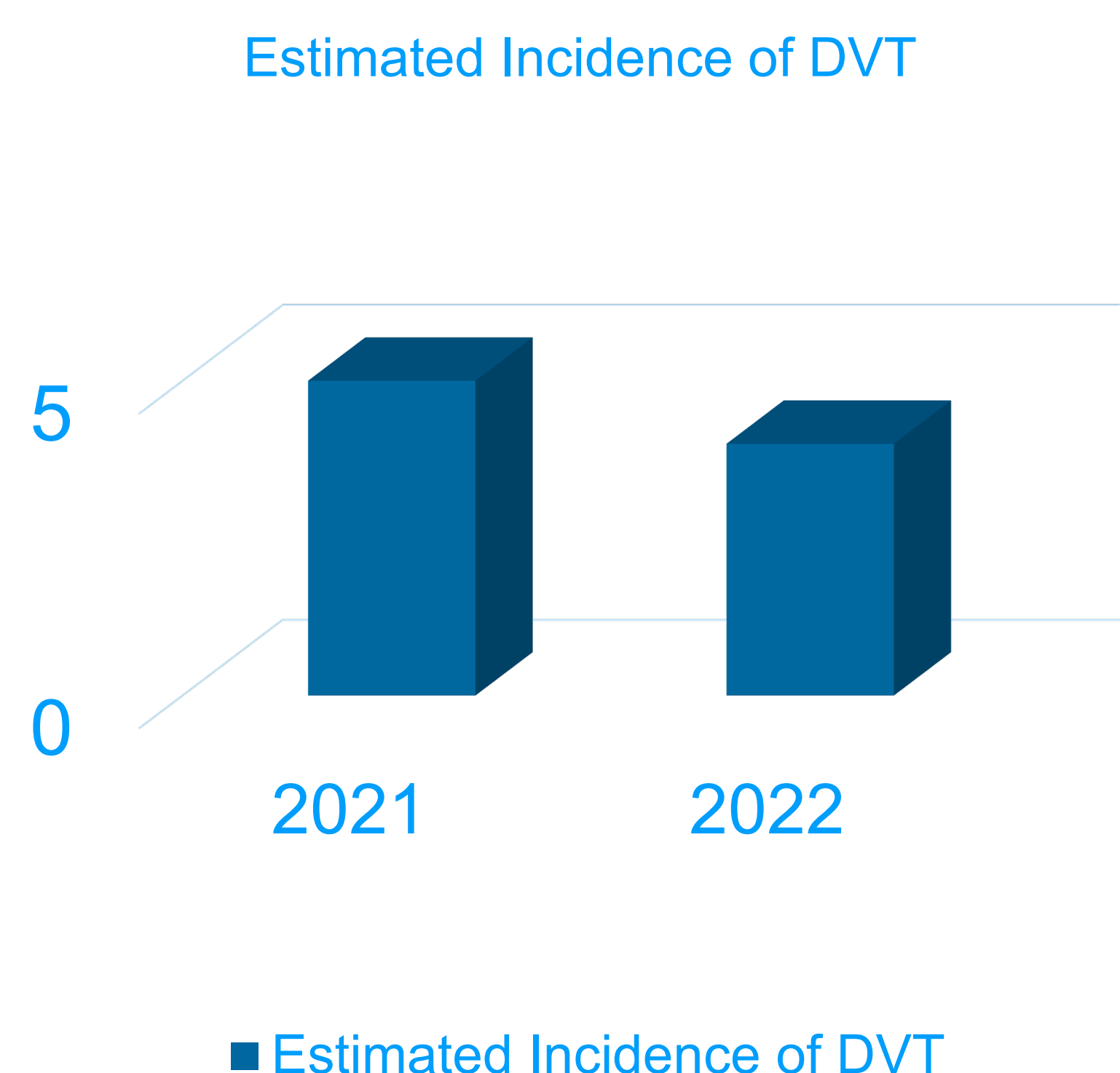
enoxaparin (Lovenox) 40 mg/0.4 mL subcutaneous...

HEParin (PF) 5,000units/0.5mL injection 5,000 Unit...

enoxaparin (Lovenox) 100mg/mL subcutaneous inje...

Figure 1. The new heparin/LMWH column added as seen on the shared General Neurology patient list

Results



- From 2/7/22 to 4/25/22 1 patient on the General Neurology service was diagnosed with an acute DVT
- In this specific individual, DVT prophylaxis had been inadvertently held in anticipation of lumbar puncture and not started afterwards. The patient was then found to have an acute DVT, however systemic anticoagulation was consciously held as they had just undergone a craniotomy for brain biopsy and were high risk for hemorrhagic complications
- Using predictive statistics, 1 patient in a 3-month observation period would average to 4 patients in a 12-month period

Conclusion

- Changes to the General Neurology inpatient hand off lists were successfully implemented that allowed residents to easily view whether or not DVT prophylaxis had been ordered
- Despite implementing the additions to the list, the predicted incidence of DVT on the inpatient General Neurology service did not differ from the baseline predicted incidence of DVTs prior to the intervention, however the low sample size precludes accurate statistical analysis at this time

Barriers Identified

- The new column only displayed heparin-based anticoagulant agents and did not include other anticoagulants such as warfarin or Eliquis
- Despite the addition of this column in the shared patient list, DVT prophylaxis was still held on certain patients where it could safely be resumed, however in these instances there were no DVTs diagnosed by lower extremity venous dopplers
- Prior to the initiation of this study, there were no records on the incidence of DVTs diagnosed by lower extremity venous dopplers on the General Neurology patients, making baseline data acquisition difficult to obtain
- Furthermore, accurate scientific analysis would require every patient admitted to our service obtain a screening DVT ultrasound study in order to observe the true incidence of DVTs and to demonstrate a true reduction in DVT incidence, which in turn would subject patients to unnecessary medical testing

Next Steps

- With the assistance of Epic administrators, create a DVT "flag" in the patient's chart to alert the provider that pharmacologic DVT prophylaxis has not been ordered within 48 hours of hospitalization
- With the assistance of Neuropharmacy, continue to educate residents on the proper time to hold and resume antithrombotic agents before and after lumbar puncture or other invasive procedures
- Continue to track incidence of DVTs for a total period of 12 months in order to more accurately represent the annual incidence of observed DVTs and to come up with more accurate baseline data

