Evaluating the Opportunity to Utilize Caprini Score Recommendations for VTE Prophylaxis in Surgical Patients

ECU HEALTH | ECU BRODY SCHOOL OF MEDICINE

Grant Brown, BS; Kenji Leonard, MD; Amy Campbell, PhD, RN

BACKGROUND

- Every surgery carries a risk of venous thromboembolism (VTE).
- Patient Safety Indicator 12 (PSI 12) measures perioperative PE or DVT rates per 1,000 surgical discharges for patients aged 18+.[1]
- High PSI 12 rates can negatively impact hospital ratings and reimbursements.
- Risk factors include age, BMI, clotting disorders, recent trauma, etc.
- VTE prophylaxis evaluation needs standardization; currently, each surgeon decides the treatment individually.
- Studies show the Caprini Scale reduces VTE rates in hospitals.[2]

PROJECT AIM

- To review all PSI 12 cases (39 patients with a VTE) to determine if standardizing the Caprini Scale at ECU Health can reduce post-surgical VTE rates by 10/1/24.
- Our goal is to decrease VTE occurrence by 15% by implementing a risk stratification tool in the Electronic Medical Record.

PROJECT DESIGN/STRATEGY

- This study reviewed 39 surgical patients at ECU Health with post-procedure VTEs from October 2023 to July 2024.
- Each patient was retroactively scored on the Caprini Scale, and their VTE prophylaxis was compared to the scale's recommendations.
- Discrepancies were analyzed to identify improvement opportunities.

RESULTS/OUTCOMES

Of the 39 patients assessed, 10 showed no need for improvement based on their retroactive Caprini Score. Mechanical prophylaxis improvement was indicated for 21 patients, while 18 patients showed a potential need for chemical prophylaxis improvement. Additionally, 10 patients indicated an opportunity for improvement in both prophylaxis categories.

	Opportunity for Mechanical Prophylaxis	Opportunity for Chemical Prophylaxis	Opportunity for both Mechanical and Chemical Prophylaxis	No Prophylaxis Opportunity Indicated
Number of Patients	11	8	10	10
Percentage of Sample Population	28.2%	20.5%	25.6%	25.6%

CHANGES MADE (PDSA CYCLES)

- After reviewing with IS, we confirmed that automation could result in inaccurate scoring, potentially placing patients at risk.
- For PDSA cycle two, ECU Pharmacy is implementing a protocol to adjust chemical prophylaxis based on weight

Caprini Score Recommendations[2]:

Sequential Compression Device, Used for Mechanical VTE Prophylaxis[3]:

LESSONS LEARNED

- This study identifies opportunities to improve chemical and mechanical VTE prophylaxis in surgical patients at ECU Health.
- It supports the need for standardizing VTE prophylaxis with the Caprini Scale.
- Many issues stemmed from documentation or timing rather than mismatched recommendations.
- Larger studies are needed for definitive conclusions.
- Limitations include the small sample size and the unique nature of each patient, which may limit standardization.

NEXT STEPS

- Identify opportunities for improving VTE prophylaxis at ECU Health.
- Continue analyzing emerging VTE cases to substantiate findings.
- Present data to surgeons and surgical department staff.
- Collaborate with ECU Health surgeons to implement the Caprini Score and its recommendations into pre-surgery VTE prophylaxis.

ACKNOWLEDGEMENTS

- I would like to thank the ECU Health Department of Trauma Surgery for allowing me to work with them and analyze their past cases.

REFERENCES

1. Krauss, E. S., Segal, A., Cronin, M., Dengler, N., Lesser, M. L., Ahn, S., & Caprini, J. A. (2019). Implementation and validation of the 2013 Caprini score for risk stratification of Arthroplasty patients in the prevention of venous thrombosis. *Clinical and Applied Thrombosis/Hemostasis*, *25*. https://doi.org/10.1177/1076029619838066
2. "Caprini Score for DVT Risk Calculator." *MDApp*, www.mdapp.co/caprini-score-for-dvt-risk-calculator-405/. Accessed 16 Dec. 2024.
3. "How Does an SCD Machine Work and How Long Should I Use It?" *Medcom Group*, 9 May 2023, www.medcomgroup.com/blog/how-does-an-scd-machine-work-and-how-long-should-i-use-it/.

Grant Brown
Brody School of Medicine
East Carolina University
Greenville, North Carolina 27858
browngran23@students.ecu.edu