

Does a COVID-19 Quick Order Set Improve Anticoagulation Rates?

Dustin Davis, PGY-3, Ethan Linscott, DO PGY-2, Robert Bowman, DO PGY-2, Henry Gutierrez, DO PGY-1, Patrick McIntosh DO PGY-1, Shanell Gray DO PGY-1, Faculty Advisor Maria Ramos, DO.

Family Medicine Residency Clinic
Choctaw Nation of Oklahoma Health Services Authority
Talihina, Oklahoma



Background

The COVID-19 pandemic has pushed the healthcare system to new limits in terms of volume and acuity world-wide. With rapidly changing treatment recommendation, best practices have been difficult to choose. What became clear relatively early in the process was that anticoagulation for COVID-19 patients was paramount for their survival as they were placed in a hypercoagulable state due to the disease itself, the steroids they received to treat the disease, and the prolonged immobilization that is consequent of respiratory distress. Given the rapidly changing protocols, our team sought to find a quality improvement project which would ensure that the highest percentage of admitted COVID-19 patients received appropriate anticoagulation.

Our Question

Does adding a COVID-19 quick order set increase the percent of COVID patients who are receive anticoagulation?

Methods

We examined the number of number of inpatients with a diagnosis of COVID-19 who received some form of medicinal anticoagulation (whether prophylactic or treatment dose enoxaparin, rivaroxaban, or apixaban) as part of their admission orders. Dates examined were August 1, 2020-November 30, 2020. We then compared this information to the same criteria for the dates August 1, 2021-November 30, 2021 at which time a Quick COVID Order Set had been added which included medicinal anticoagulation as routine orders.

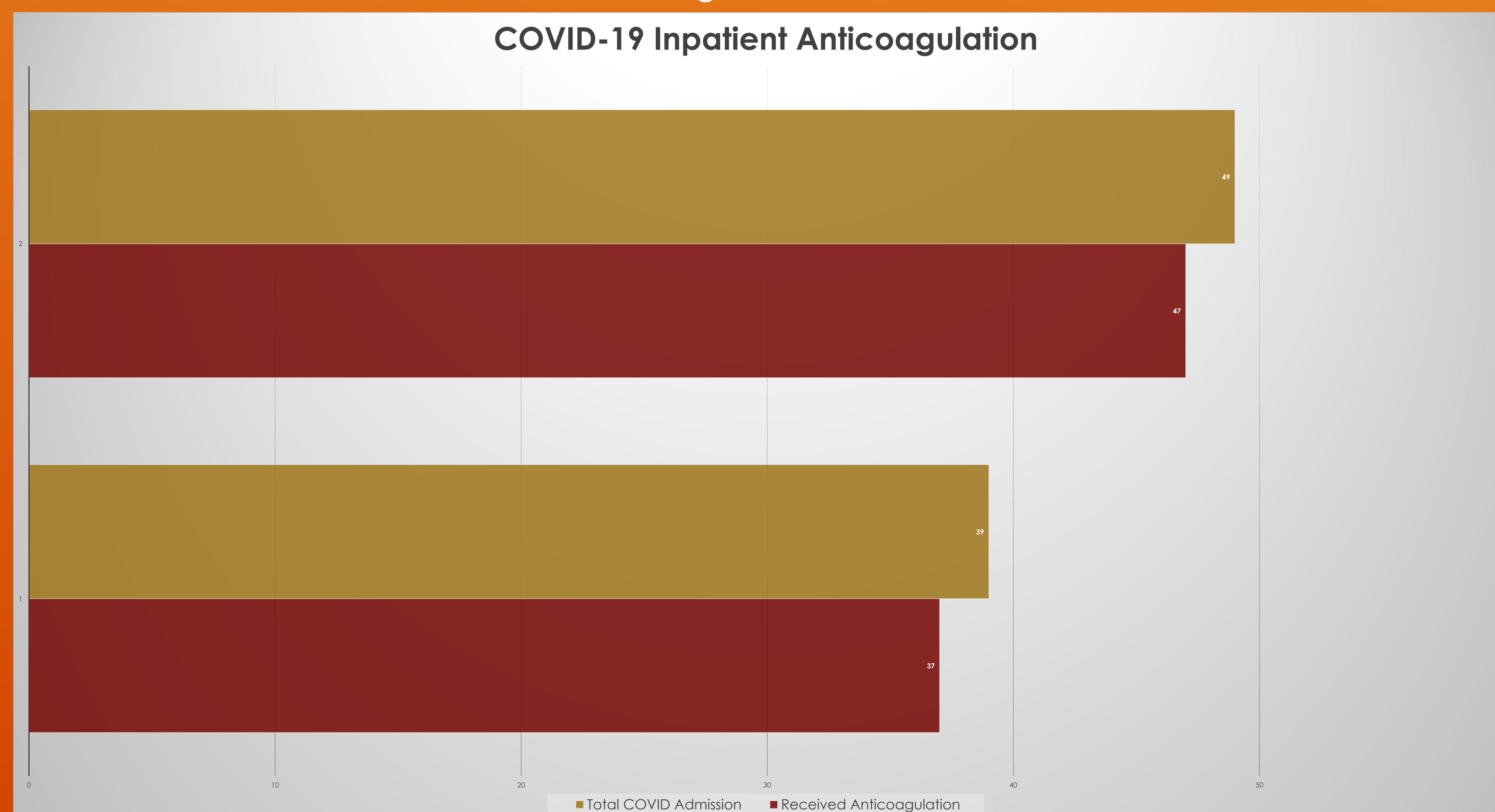


Figure 1: Inpatient COVID anticoagulation data from Fall 2020 compared to Fall 2021.

Results

From September 1, 2020- November 30, 2020, 47 patients were admitted to the medical floor with a diagnosis of COVID-19. Of those, 49 (95.9%) received enoxaparin at either prophylactic or treatment dose. Following the implementation of the COVID-19 quick order set and reviewing the data from September 1, 2021-November 30, 2021 reveals that 39 patients were admitted for COVID-19 with 37 receiving either prophylactic or treatment dose anticoagulation (94.9%). Statistical analysis reveals no significance between this difference.

Conclusions and Next Steps

A COVID-19 quick order test does not improve anticoagulation rates for admitted patients. However, it also does not hinder anticoagulation and other benefits were not investigated in this study.

Reflections and Limitations

This Quality Improvement Project took place during different phases of the COVID-19 pandemic. Overall admissions were higher during the first data set examined. The study did not take into account confounding factors which would preclude anticoagulation such as marked thrombocytopenia, etc. Furthermore, the study only looked at patients admitted during the investigation period and did not examine patients already admitted and present long term (and thus using COVID beds and skewing overall counts).

Resources

1. Bounameaux, H. (1999). Integrating pharmacologic and mechanical prophylaxis of venous thromboembolism. *Thrombosis and Haemostasis*, 82(2), 931-937. doi:10.1055/s-0037-1615935
2. Gharabaghi, M., Amin, M., & Meshkini, A. (2015). "A Comparison of Pharmacologic and Mechanical Prophylaxis on the Prevention of Deep Vein Thrombosis in Spinal Cord Injury." *Trauma Monthly*, vol. 20, no. Special Issue, 2015, doi:10.5812/traumamon.28508.
3. Merli, G. J., Crabbe, S., Doyle, L., Ditunno, J. F., & Herbison, G. J. (1992). Mechanical plus pharmacological prophylaxis for deep vein thrombosis in acute spinal cord injury. *Paraplegia*, 30(8), 558-562. doi:10.1038/sc.1992.115
4. Sadeghi, B., Romano, P. S., Maynard, G., Strater, A. L., Hensley, L., Cerese, J., & White, R. H. (2012). Mechanical and suboptimal pharmacologic prophylaxis and delayed mobilization but not morbid obesity are associated with venous thromboembolism after total knee arthroplasty: A case-control study. *Journal of Hospital Medicine*, 7(9), 665-671. doi:10.1002/jhm.1962
5. Stannard, J. P., Lopez-Ben, R. R., Volgas, D. A., Anderson, E. R., Busbee, M., Karr, D. K., ... Alonso, J. E. (2006). Prophylaxis against deep-vein thrombosis following trauma: A prospective, randomized comparison of mechanical and pharmacologic prophylaxis. *Journal of Bone and Joint Surgery - Series A*, 88(2), 261-266. doi:10.2106/JBJS.D.02932