

Impact of Pharmacist-Verified Oral Anticoagulation on Discharge from an Academic Medical Facility

Oklahoma State University Medical Center (OSUMC)



OKLAHOMA STATE UNIVERSITY
CENTER FOR HEALTH SCIENCES

Mitchell Welch, PharmD (PGY1); Cole Eichelberger, PharmD, AAHIVP (PGY2); Facility Advisors: Leah Rappsilber, PharmD; Minhye Kim, PharmD, BCPS

INTRODUCTION

- Oral anticoagulants are commonly prescribed for the prevention and treatment of stroke, systemic embolism and venous events associated with atrial fibrillation and venous thromboembolism (VTE)¹
- Errors can occur when prescribing anticoagulants that can lead to increased medical costs, hospitalization or significant patient harm²
- A new process was established to aid in the prevention of anticoagulant errors by requiring pharmacist verification of all outpatient anticoagulation prescriptions
- Pharmacists use information provided in electronic medical record to determine appropriateness of therapy based on factors such as weight, age, renal function, indication, dose/durations and drug interactions

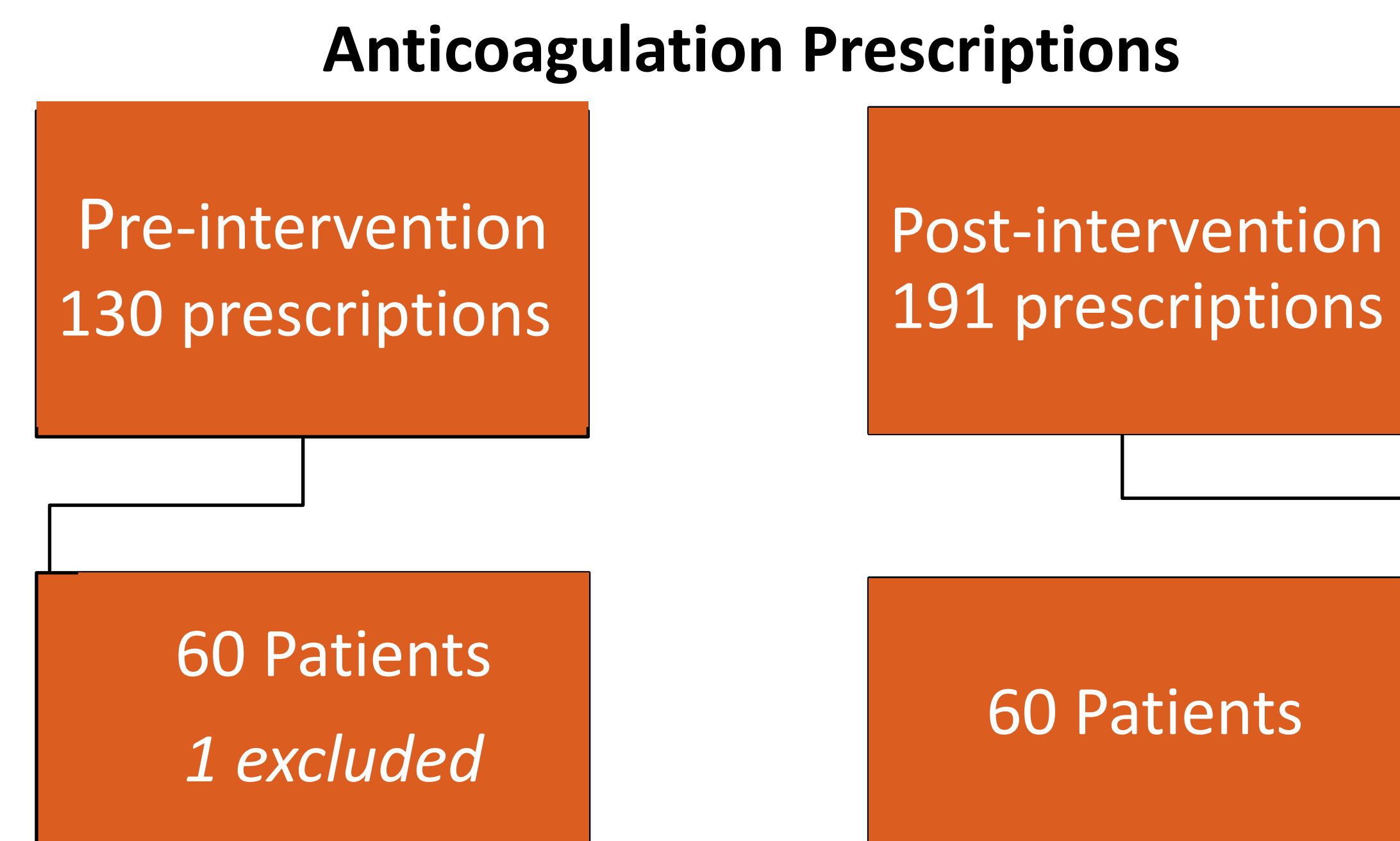
AIM STATEMENT

- This study aimed to evaluate the reduction in overall anticoagulation errors after implementation of pharmacist verification of anticoagulation prescriptions at hospital discharge

METHODS

- Retrospective chart review from May 1, 2022, to September 30, 2022, and May 1, 2023, to September 30, 2023.
- Inclusion: age ≥ 18 years, apixaban, rivaroxaban, or warfarin written on discharge, and with first 60 eligible patients
- Exclusion: Age < 18, pregnancy, documented prescription for dabigatran, outside of the first 60 patients
- Primary endpoint was assessed using a fisher's exact test and secondary endpoints were assessed using descriptive statistics

RESULTS



Primary Endpoint

- Appropriateness of discharge anticoagulation prescription

Secondary Endpoints

- Number of interventions made by pharmacist(s)
- Number of errors per anticoagulant
- Errors made (incorrect dose, incorrect duration, omission of information, etc.)

Results of Primary Endpoint			
Group (N)	Appropriate therapy	Inappropriate therapy	Total
Pre-intervention	53	7 (11.6%)	60
Post-Intervention	56	4 (6.66%)	60
Statistical analysis		- 5%	P=0.25

- This research did not find a statistically significant difference between the appropriateness of discharge anticoagulation prescriptions when comparing pre- and post-pharmacist verification. Based on descriptive statistics, there was a numerical reduction in overall errors.

Secondary Endpoints		
	Apixaban	Rivaroxaban
Errors	8	3
Pre-intervention	4	3
Post-intervention	4	0
Indications		
VTE	5	1
Atrial fibrillation	2	0
Other	1	2

Secondary Endpoints: Errors Made	
Type of Errors	Number of Errors
Not loaded appropriately	5
Inappropriate dose reduction	4
Wrong PAD dose	2

CONCLUSION

- Mistakes commonly occur with anticoagulation prescribing as a result of varying indications and dosing recommendations. With rising use of direct oral anticoagulants, it is important patients receive appropriate dosing for the prescribed indication.
- Data was collected one month after implementation of the new process. This likely could have affected the data evaluated. Another consideration that could have affected the study was the addition of anticoagulation education to resident physicians. A final consideration is that the data reflects an underestimation of pharmacist interventions due to lack of a consistent documentation process.

NEXT STEPS

- Errors or inappropriate therapies have continued to occur at OSUMC. Moving forward we will be looking at how and why these prescriptions were prescribed and verified.
- We will also be investigating the need to alter how pharmacy verifies these prescription and address if there needs to be a new process established for pharmacist documentation.
- Lastly, we will look to see if there are opportunities to provide continued education to all members of the health care team.

REFERENCES

- Benipal H, Holbrook A, Paterson JM, Douketis J, Foster G, Thabane L. Predictors of oral anticoagulant-associated adverse events in seniors transitioning from hospital to home: a retrospective cohort study protocol. *BMJ Open*. 2020;10(9):e036537. Published 2020 Sep 22. doi:10.1136/bmjopen-2019-036537
- Kallal A, Griffen D, Jaeger C. Using Lean Six Sigma methodologies to reduce risk of warfarin medication omission at hospital discharge. *BMJ Open Qual*. 2020;9(2):e000715. doi:10.1136/bmjopen-2019-000715
- OSU Medical Center, Facts about OSU Medical Center, OSUMC.com. <https://osumc.com/resources/about-us/>

