



Peri-procedure Management of Antithrombotic Medications for Interventional Radiology Procedures

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BACKGROUND

- Antithrombotic medications are widely used for the prevention and treatment of both venous and arterial thrombosis.¹
- The additional cost to an inpatient stay due to an anticoagulant adverse drug event was estimated to be \$10,000 per discharge, resulting in an additional annual hospital cost of about \$2.51 billion per year.²
- When invasive procedures are performed, there is a risk of adverse events if anticoagulant medications are not managed properly.
- There was no standard process for identifying and managing patients on antithrombotic medications in the peri-procedure setting at Samaritan Health Services (SHS) Interventional Radiology (IR), and processes varied amongst the five SHS hospital sites.

OBJECTIVES

Implement and determine the impact of a system-wide standardized process for peri-procedure assessment, medication management, and EPIC documentation of antithrombotic and antiplatelet medications for patients having IR procedures.

METHODS

- In July 2021, ambulatory care pharmacists started the new process to instruct patients scheduled for IR procedures at GSRMC on antithrombotic medication management.
- A documentation tool was built in Epic so that the assessment and instructions were easily accessible to all the care teams and the patient.
- Therapy plans were designed based on best evidence and radiology approved guides. If needed, the pharmacist collaborated with the proceduralist and the antithrombotic ordering provider.
- Epic instructions were also updated to reflect radiology approved guides and generic instructions to hold blood thinners for 5 days were subsequently removed.
- Chart reviews were performed for representative samples of patients pre and post intervention, assessing appropriate perioperative management of antithrombotic medications and adverse events related to antithrombotic medications.
- Data was collected on a representative sample of patients during 4 periods:
 - Baseline: Before the program was started, Jun 18th, 2021 - Jul 18th, 2021 (GSRMC-only)
 - Phase 1: After program implementation, July 19th, 2021 - Aug 19th, 2021 (GSRMC-only)
 - Phase 2: After the process used to find patients who needed to be instructed was improved, Jan 1st, 2022 - Jan 28th, 2022 (GSRMC-only)
 - Phase 3: After the initiative spread system-wide, Jan 24th, 2022 - Feb 24th, 2022 (All-sites)

RESULTS

- There were 32 patients in the pre-intervention cohort, of which 30 (93.7%) had issues identified in the management of their medications. (Table 1)
- There were 95 patients in the post-intervention cohort: Phase 1: n = 46, Phase 2: n= 21, Phase 3: n= 28. Of these, 21 (22%) had issues in management of their medications identified. (Table 2)
- No hospital readmission, ER visit, or Urgent Care visit related to a bleeding events occurred within 30 days after the procedure in either cohort.
- One patient in the pre intervention period had an ED visit within 30 days for a subacute to chronic pulmonary embolism. For this patient, apixaban had been held for 5 days prior to the procedure, which was longer than recommended.

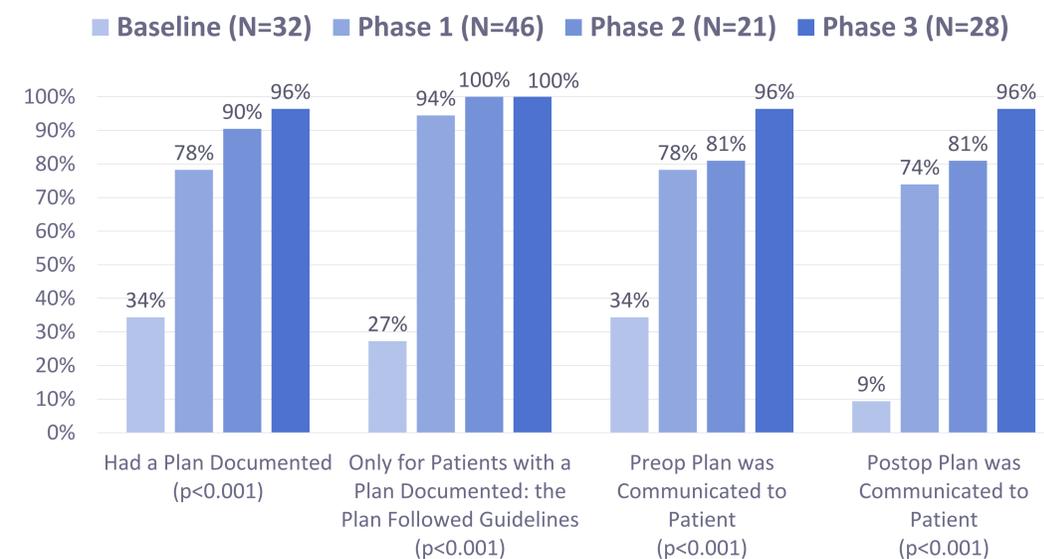
Table 1. Pre-Intervention

Reasons why management was deemed inappropriate	# of Patients	% of Those Not Properly Managed (N=30)
Peri-op plan was not documented	21	70%
Peri-op plan did not follow guidelines	8	27%
INR not done before procedure	1	3%

Table 2. Post-Intervention

Reasons why management was deemed inappropriate	# of Patients	% of Those Not Properly Managed (N=21)
Patients not captured on report (phase 1)	7	33%
Urgent add-on: pharmacist did not manage	7	33%
INR not done	4	19%
Unable to reach patient	2	10%
True Miss (phase 1)	1	5%

Figure 1. Percent of Patients with Proper Documentation of Perioperative Plans



CONCLUSIONS

- The most common reasons patients were not managed appropriately in the pre-intervention cohort were (1) the peri-procedure plan was not documented in Epic or (2) the peri-procedure plan did not follow radiology protocol guidelines.
- The most common reasons patients were not managed appropriately in the post-intervention cohort were (1) the report used to identify patients scheduled for IR procedures had mistakenly missed the patient (this was corrected in Phase 2), and (2) the patient was scheduled for an urgent procedure and there was no time for the pharmacist to call the patient.
- There was a statistically significant increase in the percent of patients with proper documentation and a proper peri-procedure plan in the post-intervention cohort compared to the pre-intervention patient cohort
- Limitations:
 - Relies on medication reconciliation to be accurate, especially in non-SHS patients
 - Only outpatient IR procedures were evaluated

FUTURE IMPLICATIONS

- Success of antithrombotic medication management in the outpatient peri-procedure setting may lead to:
 - Expansion of this workflow to manage patients on antithrombotic medications scheduled for IR procedures in the inpatient setting
 - Expansion of pharmacy's role in anticoagulation stewardship
 - Expanded of the use of the centralized Epic documentation tool to other services besides pharmacy and encompassing procedures beyond IR

REFERENCES & ACKNOWLEDGEMENTS

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