**Impact of Indication-based Prescribing of Direct Oral Anticoagulants (DOACs)**

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**Background:** Medication errors are critical in high-risk medications like direct oral anticoagulants (DOACs). According to a study conducted by Alrowily and colleagues, the indication of treatment and duration of therapy were among the highest contributing factors to errors with DOAC therapy. These errors can lead to adverse effects such as bleeding. Extended duration anticoagulation (>3 months) is associated with a 2.6-fold increase in major bleeding compared to no extended duration. Therefore, it is important to adhere to the recommended duration of treatment based on the indication and weigh the risk versus benefit of long-term anticoagulation. The purpose of this study is to evaluate prescribing practices of DOACs pre- and post-implementation of a computerized provider order entry tool (CPOE) in hopes of increasing the rate of adherence to intended therapy duration.

**Objective:** The primary objective is to identify the rate of adherence to the intended duration of direct oral anticoagulants. Secondary objectives include evaluation of the relationship between duration non-adherence and bleeding events and assessment of the use of a computerized provider order entry (CPOE) tool.

**Methods:** This quality improvement study was exempt from Novant Health New Hanover Regional Medical Center Institutional Review Board approval. A retrospective cohort analysis was conducted for adult patients with a deep vein thrombosis (DVT) or pulmonary embolism (PE) on their problem list. One cohort of patients were included if they were prescribed a DOAC from April 1 to December 1, 2021. The second cohort were included if they were prescribed a DOAC from January 25 to March 25, 2022 which followed implementation of several EPIC changes in hopes to increase adherence to the intended DOAC duration. Patients with missing data, atrial fibrillation, or cancer were excluded. Bleeding events were identified via the search term “bleed” and the patient chart was reviewed for events occurring within the specified time period.

**Preliminary Results:** Overall, patient demographics between the two cohorts were similar. The typical patient prescribed a DOAC for DVT or PE was a white male in their early to mid-60s. Apixaban was the most common DOAC prescribed in both groups and DOACs were initiated most commonly for a pulmonary embolism. There was a low rate of adherence to intended DOAC duration, especially for the 3 to 6-month pre-intervention group where only 34.3% of patients reached their duration goal. In all cases besides indefinite intended duration, the DOAC was continued for longer than intended. Twenty-eight patients experienced a bleed. Of the 8 patients in the 3 to 6-month group who experienced a bleed, 6 patients continued their DOAC for longer than intended. Inclusion of DOAC indication in the prescription sig increased from 9.5% to 10.5% while duration inclusion increased from 1.3% to 9.4% after the intervention. However, there was low utilization of the tools that were implemented (7.7% utilization of the CPOE tool and 1.1% utilization of the overview tool).

**Conclusion:** Overall, there was a low rate of adherence to intended DOAC duration. Continuation of DOACs for longer than intended commonly resulted in bleeding events. Although several tools were implemented to solve this problem, there was low utilization of the tools. The CPOE tool had a larger impact on including the duration of the DOAC in the prescription sig rather than the indication. The clinical impact of the tools is not known and future research is needed to determine if the CPOE tools affect duration adherence or bleeding events. Further education needs to be provided to prescribers on the implemented tools to increase utilization.