Presentation Title: “Improving Time to Anticoagulation in Patients with Pulmonary Embolism”

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Background: American College of Chest Physicians (CHEST) guidelines recommend early anticoagulation for PE, as delays can lead to increased morbidity and mortality. A Pulmonary Embolism Response Team (PERT) alert can be initiated for patients at UVA Health with intermediate or high risk pulmonary embolism (PE). This alert brings together a multidisciplinary group of healthcare professionals to help risk stratify and manage complex cases. The initial care provided to patients with a PERT alert is similar to all patients with PE. From October 2018 until April 2021, the median time from computed tomography pulmonary angiogram (CTPA) confirmation of intermediate or high-risk PE to anticoagulation administration was 90 minutes in patients with a PERT alert.

Objective: The aim of this project was to decrease the time from confirmed diagnosis of PE on imaging to anticoagulation administration to 60 minutes or less (33% reduction).

Methods: An interdisciplinary team including providers, pharmacists, and nurses utilized Plan-Do-Study-Act (PDSA) cycle methodology. The team constructed a process map of the current state, and potential causes for anticoagulation delays were categorized into a fishbone diagram. To characterize the impact on time to anticoagulation, data on reasons for anticoagulation delays was collected from the electronic medical record (EMR) and analyzed using a Pareto chart. An intervention was chosen using a priority matrix and will be implemented. Its effect on time to anticoagulation will be measured and analyzed with a Statistical Process Control (SPC) chart.

Results: Twenty patients were included in baseline analysis. The median time from CTPA result notification to anticoagulant order placement was 50 minutes. The median time from order placement to pharmacist verification was 7 minutes, and the median time anticoagulation administration from order verification was 29 minutes. In 100% of patients, anticoagulation was not ordered STAT, and anticoagulation was deferred until after PERT alert initiation 60% of the time. The time to placement of anticoagulant order after CTPA confirmation was greater than 15 minutes in 50% of patients and anticoagulation was administered more than 30 minutes after verification 45% of the time. These barriers accounted for 80% of anticoagulation delays.

Conclusion: The PDSA cycle methodology identified several barriers to early anticoagulation in patients with PE. To achieve the aim of decreasing time to anticoagulation, a new order set to be used for suspected PE will be implemented in the EMR. Further investigation will assess the effect of this intervention and identify areas for further improvement.