

Reducing Mortality in PE Patients Through the Use of a Pulmonary Embolism Response Team (PERT) at SBH

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Abstract

Pulmonary embolism (PE) remains a challenge despite medical advancements, with early diagnosis and prompt treatment critical to improving patient outcomes. In response, SBH launched the Pulmonary Embolism Response Team (PERT), a collaborative, multidisciplinary approach designed to optimize PE care.

- Since its implementation in October 2024, SBH has achieved a 100% reduction in mortality among patients with Intermediate High-Risk to High-Risk PE.
- Additionally, anticoagulation administration for these patients has significantly improved, with a median time of just 38 minutes.

This data underscores the effectiveness of PERT in enhancing both survival rates and treatment efficiency.

Introduction

- Each year, an estimated 300,000 to 600,000 individuals in the U.S. experience pulmonary embolism (PE), resulting in 60,000 to 100,000 deaths, with 5-10% occurring during hospitalization ².
- Effective PE management requires rapid anticoagulation, minimized diagnostic delays, timely escalation of care, and improved patient outcomes in terms of both mortality and morbidity ⁴.
- Although existing algorithms guide PE treatment, the novel Pulmonary Embolism Response Team (PERT) represents a significant step forward.
- PERT is specifically designed to enhance the care of patients with Intermediate High-Risk to High-Risk PE by optimizing multidisciplinary collaboration and streamlining treatment protocols ⁶.
- This approach aims to reduce mortality and improve overall clinical outcomes by addressing the complexities of PE management in real time.

Methods

- With support from our IT Department and approval from Central Office, the first-ever PERT consult order was successfully integrated into EPIC in late October 2024.
- This implementation allowed for a retrospective cohort chart review of all PERT consults since its launch, providing valuable data for continuous improvement.
- Our quality improvement initiative at SBH focuses on evaluating and enhancing pulmonary embolism management protocols through evidence-based strategies.
- Key objectives include early identification of high-risk PE, prompt activation of the PERT Consult Service, and coordinated, evidence-driven care for high-risk PE patients.

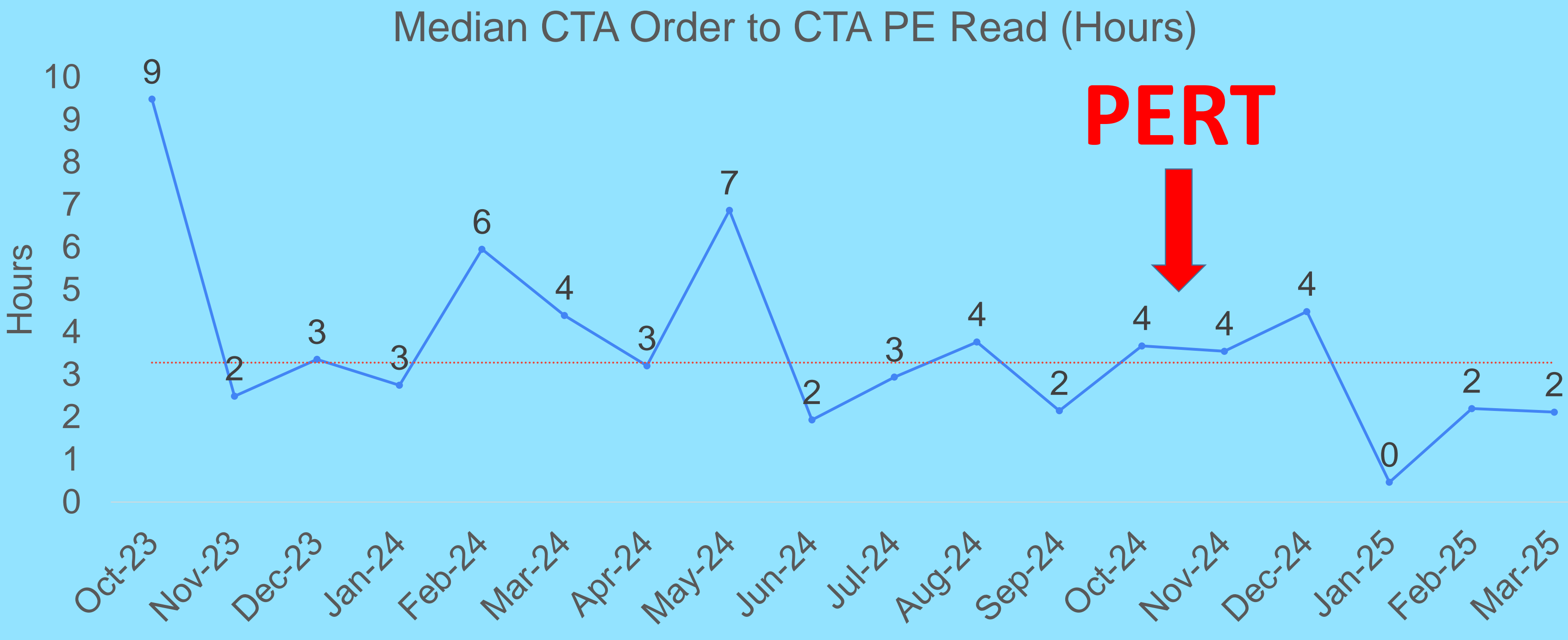


Fig 1: Median time from CTA order to CTA PE read in hours

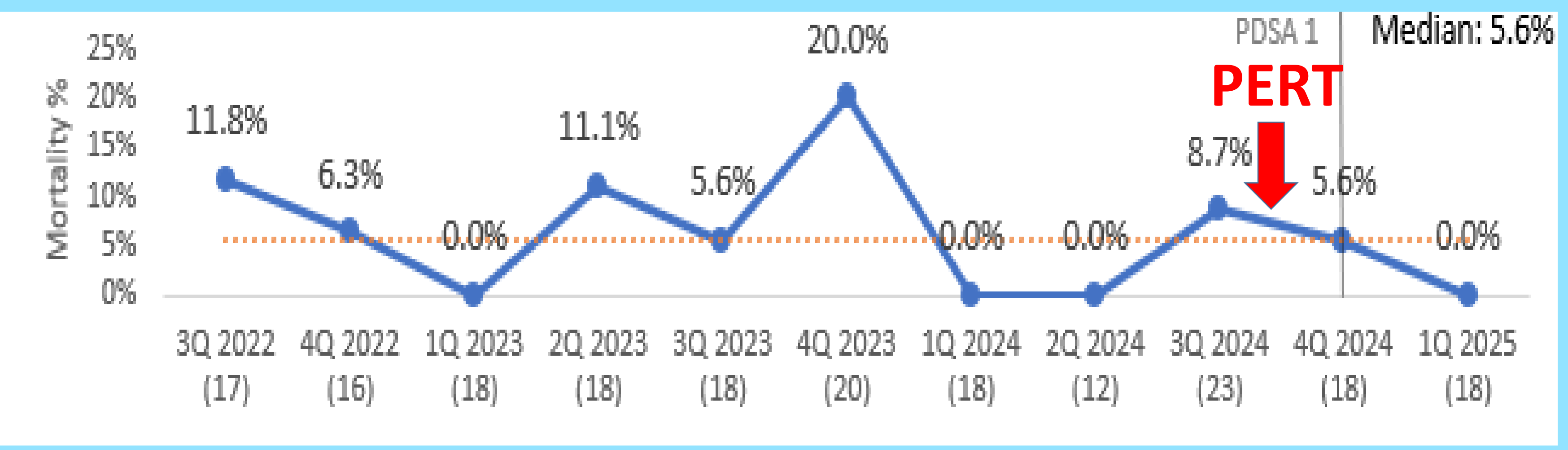


Fig 2: Mortality rate for patients presenting to SBH with Intermediate-High to High Risk PE

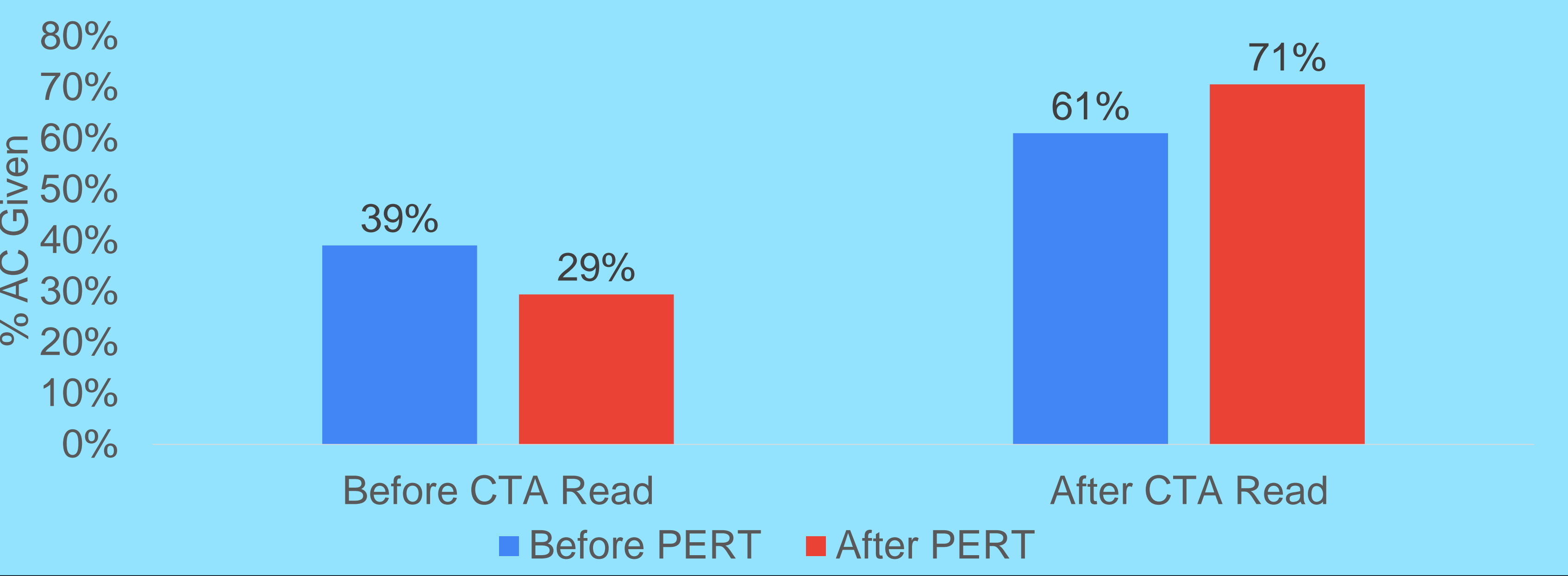


Fig 3: Percentage of Anticoagulation Given before and after CTA Read Pre and Post PERT Initiation

Results

- The peak mortality rate of 20% (Q4, 2023) has drastically reduced to a mortality rate of 0%. The data indicates a remarkable greater than 75% reduction in the mortality rate for patients identified as Intermediate High-Risk to High-Risk PE since the end of 2023 at SBH.
- This improvement has been consistent, with mortality rates remaining below the median since the initiation of the PERT consult.

Discussion/Conclusion

- At South Brooklyn Health, our newly established Pulmonary Embolism Response Team (PERT) aims to deliver unified clinical decision-making—particularly in areas where existing guidelines are limited or evidence is lacking.
- One of our primary goals is to investigate factors that may delay the initiation of anticoagulation, including patient-specific variables such as age, body weight, and renal function.
- Risk Stratification of acute pulmonary embolism (PE) with the PESI score.
- We also plan to study the timing of anticoagulation orders and the interval between emergency department (ED) admission and completion of CT angiography (CTA).
- Based on collected data, our current median time from ED admission to CTA interpretation is 4 hours and 47 minutes.
- Additionally, our median time from ED admission to CTA order is approximately 2 hours.
- Our standing PERT committee will meet regularly to review PE cases, monitor adherence to clinical protocols, identify opportunities for improvement, and update practices in accordance with the latest research and standards of care.
- Looking ahead, our long-term plans include developing an automated clinical decision support system that integrates vital signs, laboratory results, and imaging data to trigger timely PERT consultations.

References

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