# Challenges and Successes in Introducing Coronary CT Angiography in an Emergency Medicine–Run Observation Unit

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## Abstract

This study was designed to analyze the departmental changes in transitioning the Emergency Department (ED)-run Observation Medicine Unit's routine noninvasive cardiac evaluation from the traditional standard-of-care procedures to coronary computed tomography angiography (CCTA). While the routine use of CCTA for the evaluation of chest pain has been deemed feasible and safe, provider confidence appears apprehensive, and ordering patterns appear reluctant to change. We conducted a retrospective analysis of data from two risk-matched cohorts of ED patients who presented with symptoms suggestive of acute coronary syndrome (ACS) but without ischemic electrocardiogram (ECG) changes or positive troponin. Endpoints included length of stay, major adverse cardiovascular event (MACE) rates at 28 days, recidivism rate, and downstream findings on coronary catheterization. The adoption of CCTA led to a significant reduction in the length of stay for patients in the ED-run Observation Medicine Unit. Provider and nursing education initiatives were crucial in overcoming initial resistance and improving the implementation of CCTA. Post-education, there was a marked increase in the volume of CCTA performed and a decrease in the length of stay, enhancing overall departmental throughput. The results suggest that CCTA offers a

reliable and efficient diagnostic alternative to traditional noninvasive tests, with high diagnostic accuracy contributing to faster decision-making and reduced need for invasive procedures. Continuous education for providers and nursing staff was essential to ensure adherence to the new protocol and improve clinical outcomes. Transitioning to CCTA for routine noninvasive cardiac evaluation in the ED-run Observation Medicine Unit demonstrated significant efficiency and diagnostic accuracy benefits. Successful implementation requires targeted educational efforts to ensure competency and confidence among healthcare providers. The findings support the integration of CCTA into standard clinical practice for the evaluation of chest pain in the emergency setting, with future research needed to validate these results in broader patient populations and assess long-term outcomes.

**Keywords:** acs (acute coronary syndrome); angina; chest pain; coronary artery disease; coronary ct angiography; ct coronary aniography; noninvasive cardiac evaluation; nursing education; observation medicine; provider education and collaboration.