

Addressing Delays in ECGs During Cardiac Events in the ICU

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Abstract

Background: Several studies have solidified the role of ECGs in critical care settings, such as the ICU, as an effective tool not only to diagnose patients with cardiac diseases, but also to predict patient outcomes and manage their care in non-cardiac diseases as well. Delays in ECGs for patients in critical care can delay clinical decision-making and may lead to poorer patient outcomes.

Objective: The purpose of this study is to identify contributing factors to delays in ECGs specifically at the University of Colorado Hospital intensive care units, understand why they occur, and discuss possible interventions that may address these factors.

Methods: Stakeholders at the University of Colorado Hospital were surveyed in person, including ICU nursing staff (n=9), ECG techs (n=2), and patients (n=3) with both qualitative and quantitative questions. We then performed a root cause analysis through an affinity diagram in order to understand what factors in different categories may be contributing to the concern, then identified a few key factors that were most prevalent in our discussions with stakeholders and insight into their workflow.

Conclusion: After discussions with the stakeholders, common concerns included reported delay times up to 40-50 minutes, dissatisfaction from nursing staff who were able to perform ECGs at other institutions, challenges with transporting ECG machines throughout the hospital, and families concerned with alarms coming from the

vitals monitor that they did not understand. Through our root cause analysis, we identified that common contributing factors at our institution included nonavailability of machines on the ICU floors, provider limitations based on hospital regulations, and ECG techs being responsible for several units. Possible interventions, such as changes in hospital policy allowing trained ICU nurses to use dedicated ICU ECG machines, implementation of automated ECG reports, and dedicated ECG techs and machines on the ICU floor, are identified and evaluated for any possible future adverse effects. Other challenges we face include differences in the interest of different stakeholders and limitations in resource availability and allocation. Next steps include expanding the scope of this discussion to other institutions and gathering data from a wider population of stakeholders and preliminary studies with specific interventions.