Implementation of an EMR-based continuous electrocardiographic monitoring (CEM) order to reduce inappropriate utilization

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Implementation of an EMR-based continuous electrocardiographic monitoring (CEM) order to reduce inappropriate utilization

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Background

- Continuous electrocardiographic monitoring (CEM) outside of the intensive care unit (ICU) represents an over-utilized resource that increases the cost of care.
- A retrospective chart review at our largest hospitals in Oregon found that approximately 35-40% of patients on CEM did not have a recommended indication for its continued use.

Methods

- A new time-defined order was built within our electronic medical record (EMR) system to reduce the initiation and duration of CEM in adults.
- Diagnoses for which CEM is commonly ordered, but not recommended, were listed.
- The order prompts providers to select a general and specific indication for CEM. Depending upon the indication, the order duration may be indefinite or time defined (24-72 hours). The order does not expire for patients residing in the ICU, obstetrics unit, or emergency department. Time-defined orders automatically discontinue after the specified period, without the need for a separate order.
- For patients with a time-defined indication, a nursing best practice advisory (BPA) was created to provide an alert of the impending order expiration; the BPA makes recommendations about the likelihood that CEM could be safely stopped based on the patient’s vital signs in the preceding 8 hours.

Results

- In October 2016, 22 hospitals within our health system (Providence Health & Services) went live with the new CEM order. Over 1.3 years, 147,909 patients spent 9,242,330 hours on CEM.

Conclusions

- Over this period, CEM decreased modestly overall (-8.6%) with notable variability between hospitals (+2.0% to -20.2%). Significant overlap for time spent on CEM was observed for hospitals without the ability to perform cardiac catheterization or cardiac surgery and those that could perform one or both.
- For 7,773 patients in whom a nursing BPA had fired to facilitate removal of CEM, there were appreciable removal delays (23% with a 4-12 hour delay, 14% with a 12-24 hour delay, and 18% with a >24 hour delay).

Facility-Level Change in CEM

Distribution of Hours to Remove CEM After the BPA

CEM represents an over-utilized resource that increases health care costs. While implementation of a time-defined EMR order reduced the duration of time spent on CEM, substantial opportunity to reduce its initiation and duration still persists.

Disclosures for Ty J Gluckman: Consultant, Boehringer-Ingelheim (Modest)