

TITLE:

Adding Friction to the Electronic Health Record to improve adherence with best practices for diagnostic testing across multiple hospital system intensive care units.

INTRODUCTION:

In 2013 the American College of Radiology changed its appropriateness criteria regarding portable chest radiographs (CXR) in intensive care units (ICUs) as appropriate for specific indications only instead of as a standing daily order. The American Board of Internal Medicine's Choosing Wisely Campaign and Critical Care Societies Collaborative followed suit in 2014.

Daily CXRs have been shown to be of low value to patients, as they expose patients to radiation, sleep disruptions, risks of inadvertent device removal and nosocomial infections. Daily CXRs contribute to the workload of healthcare workers without reducing length of stay or improving other patient-centered outcomes.

Despite the evidence, daily CXRs continue to be commonly ordered within ICUs. The purpose of this study was to determine if making a change in ordering options in the electronic health record (EHR) could decrease standing orders for daily CXR in ICUs at this institution from 42% to <5%. A secondary goal of our study was to reduce radiology technologist job satisfaction/burnout.

METHODS:

This project was performed at an urban quaternary academic hospital. We hypothesized that modification of the electronic health record, wherein we added friction by eliminating "Daily" as a frequency option when ordering CXRs would reduce the frequency of daily CXRs.

The impact of this intervention was tracked by recording the number of repeat ICU CXR that were ordered simultaneously for 3 months both before and after making EHR change intervention. We also surveyed radiology technologists' level of stress and burnout after EHR changes were made.

RESULTS:

Between September 1, 2021, and December 30, 2021, there were 9307 ICU CXR orders, of which 3923 (42%) were ordered as standing daily orders. Since the process change there were 4832 ICU CXR orders from Jan 13, 2021, to March 31, 2021, of which 2 (4%) were ordered as a standing daily order. This is a reduction in standing orders of 93%. As a result, ICU CXR volume decreased from 76 CXR per day to 62 CXR per day, for a decrease of 18.5% in total daily ICU CXR.

Surveys were sent to radiology technologists who participate in ICU morning CXRs after the change was made asking about their job satisfaction and burnout since the change was made. Of technologist respondents 87% stated they were more satisfied or much more satisfied with their jobs since the change, and 75% described much less or less burnout than before the change was made.

DISCUSSION:

Limitations of our study include that we did not test if there were other factors that may have affected ordering habits of ICU physicians during this time. In addition, we surveyed technologists about their job satisfaction and burnout only after the change was made. Adding friction to the electronic health record, by eliminating “daily” as a frequency option when ordering CXRs, effectively and significantly reduced low-value care, to the benefit of patients and healthcare professionals.