Abstract:

Purpose: To describe the benefits of smart infusion pump interoperability with an electronic medical record (EMR) system in an adult intensive care unit (ICU) setting.

Summary: In order to assess the impact of smart infusion pump and EMR interoperability, we observed whether there were changes in the frequency of electronic medication administration record (eMAR) documentation of dose titrations in epinephrine and norepinephrine infusions in the ICU setting. As a secondary endpoint, we examined whether smart pump/EMR interoperability had any impact on the rate of alerts triggered by the dose-error reduction software. Pharmacist satisfaction was measured to determine the impact of smart pump/EMR interoperability on pharmacist workflow. In the preimplementation phase, there were a total of 2,503 administrations of epinephrine and norepinephrine; 13,299 rate changes were documented, for an average of 5.31 documented rate changes per administration. With smart pump interoperability, a total of 13,024 rate changes were documented in association with 1,401 administrations, for an average of 9.29 documented rate changes per administration (a 74.9% increase). A total of 1,526 dose alerts were triggered in association with 76,145 infusions in the preimplementation phase; there were 820 dose alerts associated with 48,758 autoprogammed infusions in the postimplementation phase (absolute difference, -0.32%). ICU pharmacists largely agreed (75% of survey respondents) that the technology provided incremental value in providing patient care.

Conclusion: Interoperability between the smart pump and EMR systems proved beneficial in the administration and monitoring of continuous infusions in the ICU setting. Additionally, ICU pharmacists may be positively impacted by improved clinical data accuracy and operational efficiency.

Reference: