Title

High Alert Medication Safety: A Pilot Study using a novel intravenous labeling system

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Purpose

The overall goal is to improve patient safety related to high alert medications, in particular heparin, and to develop a uniform process when labeling and identifying IV lines. For this project, the team implemented and evaluated the effectiveness of a novel intravenous labeling system for use in a simulation environment, an escape room.

Relevance

According to the United States Food and Drug Administration (2016), 1.3 million people are injured every year and at least one death occurs every day due to medication errors in the United States. Nurses are at the sharp end of medication errors, and at least one-third of total medication errors are during the administration phase (Cloete, 2015). It is incumbent for the hospital education team to recognize the limitations of fast, unconscious, automatic thinking and compensate for shortcomings in cognition by promoting conditions that facilitate safe effective decision making.

Strategy/Implementation/Methods

The repetitive skills associated with medication administration draw from working memory and help the nurse make quick efficient judgments. This is risky and judgmental errors can lead to medication errors (TJC, 2023). It is incumbent to build a process that facilitates safe and effective decision making.

With a quasi-experimental design, newly hired RNs participated in a medication safety escape room where they had to identify IV infusion errors. One week the team tested the novel interventional IV labeling system and the following week the conventional labeling system was tested to determine the effectiveness of the labeling system. Staff who utilized the novel labeling system were surveyed regarding their experience.

Evaluation/Outcomes/Results

The team evaluated the efficiency of nurses to identify the embedded medical errors. The unique IV labeling system significantly reduced the time needed to identify IV infusion errors in a simulated environment. Nurses' ability to correctly identify issues with IV tubing clamps and connections improved. The survey revealed the unique IV labeling system was perceived as helpful in facilitating medical error identification. Among participating nurses, haptic and symbol were noted as the most useful features of the unique IV labeling system. Our pilot study demonstrates that nurses participating in the intervention escape room had fewer IV related errors, recognized and reported the medication errors earlier in the scenario than those participating in the conventional escape room.

Conclusions/Implications for Practice

While there is much emphasis on the improvement of IV infusion safety with high risk medications, there is little published evidence on strategies associated with novel approaches to labeling tubing. Therefore, future research should focus on testing interventions to support improved labeling for IV tubing when infusing high risk medications.

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