Failure Modes and Effects Analysis Reduces ADEs

Doctors Hospital of Manteca/Tenet Healthcare
Manteca, CA
Beds: 73
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The Problem

Realizing high-alert medications are often the most commonly prescribed drugs yet they potentially can cause the greatest harm, Tenet Healthcare's Doctors Hospital of Manteca wanted to ensure safe use at all times. It launched an initiative to reduce adverse drug events (ADEs) involving high-alert drugs by 40 percent.

The Solution

Led by Katy Marconi, PharmD, director of pharmacy and director of clinical quality, Doctors Hospital developed a closed-loop process to lower ADEs. It decided to focus on high-alert medications and create standard best practices for dealing with those medications. It then planned to measure the effectiveness of the new processes and adjust them as needed to keep improving.

To identify the key issues leading to an ADE, Doctors Hospital conducted a failure modes and effects analysis (FMEA), which is a step-by-step approach for identifying all possible failures in a process. It also took the self-assessment and tapped the tools and resources of the Institute for Safe Medication Practices before developing a Policy and Procedures (P&P) guide to administering high-alert medications. As a result, the guidelines define the intent, purpose, benefits, requirements of risk-avert strategies and safety features as well as references of best practices.

It then built order sets and standardized procedures that follow the safety guidelines, limiting the potential for error and deviation from the high-alert medication policies. The medical staff signed off on the P&P guide as well as the new order sets.

For example, any time a PCA opioid or opioid drip is being set up or a change is made to the settings, a second nurse must double-check the chart order or medication administration report (MAR) for correct drug, correct concentration and correct pump settings. Both RNs document the double-check by initialing the MAR. For other opioid narcotics, the administering nurse must verify frequency and dose.

To support the new approach, Doctors Hospital harnessed technology. It invested $1,500 to install the DoseEdge system, which it uses to manage the pharmacy workflow for selecting, compounding, inspecting, tracking and reporting of intravenous and oral liquid doses. It also leveraged the automated dispensing cabinet, requiring scanning of all medications as they are added and removed.

The Result

Adverse drug event reporting continues within the expected limits, with a decrease of roughly 40 percent since 2007. Doctors Hospital currently averages 21 ADEs a month with an average monthly census of 350. Importantly, there have been no category G, H or I medication errors in the past five years.

The hospital continues to record medication errors and monitor them monthly using its online adverse event database. While more E and F errors are being reported, fewer C and D errors are being made.

When it comes to identifying new ways to work on reducing medication errors, Doctors Hospital follows the four-step Deming management method of plan-do-check-act (PDCA). After introducing a new process or other change, the hospital analyzes its effectiveness and makes adjustments as needed to drive continued improvements.

Current Status

Doctors Hospital continues to work on lowering ADEs. It has been reinforcing the concept of a "just culture" in its organization, which underscores the personal accountability of all staff to patient safety and quality. It investigates and then assigns the cause of an ADE into one of three categories, from human error, at-risk behavior or reckless behavior. Based on whether the errors are due to a lapse, a deliberate choice or even reckless disregard, the hospital has established a set of possible actions in response, from reworking procedures to retraining to disciplinary steps.

Pearls of Wisdom

"A plan-do-check-act approach to rolling out a major change program provides the right framework for making lasting improvements," says Katy Marconi, PharmD, director of pharmacy and director of clinical quality. Part of that process needs to include regularly reporting back to the staff on the effort. Marconi says, "We need to remind them how important their reporting on medication errors and near-misses is, so we can track and trend and hopefully prevent harmful errors."

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