Field Guide: Adverse Drug Events

Definition and Harm Impact

Adverse drug events (ADEs) are among the most preventable causes of death in hospitals. According to the Office of Inspector General (OIG), ADEs cause one-third of all hospital-acquired conditions (HACs). This was corroborated by the Agency for Healthcare Research and Quality (AHRQ) that found that most HAC deaths averted during the 2010 to 2014 time period were a result of reductions in ADEs; ADEs constituted 40 percent of the overall reduction and were about 34 percent of the HACs measured in the 2010 baseline rate.

Based on ADE research, three types of ADEs have been selected as high-priority targets nationally. These three ADEs are deemed the most common, clinically significant, and preventable:

- Anticoagulants (ADE: increased clotting time)
- Hypoglycemic agents (ADE: hypoglycemia)
- Opioids (ADE: oversedation/respiratory depression)

Measurement

The Hospital Improvement Innovation Network (HIIN) goal for reduction in ADEs is a 20 percent reduction over two years from baseline of calendar year 2015. ADEs are measured through outcome measures related to each of the three types of ADEs. The population for all measures is adult patients with the exception of those in the emergency department:

- Naloxone Use for Reversal of Opioid Over Sedation (excluding operating room)
- INR > 5 per 1,000 Patient Days
- Glucose Value < 50 mg/dL per 1,000 Patient Days

Known Improvement Strategies

1. Inpatient Opioid Safety: Standard, validated tools for assessing patients’ response to opioid administration after each dose and before the subsequent dose can reduce over-sedation from opioids.
2. Inpatient Glycemic Management: Use of basal-bolus correction insulin on all patients prescribed insulin in hospitals and eliminating sliding scale insulin as the sole means of glycemic control can reduce hypoglycemic episodes.
3. Inpatient Anticoagulation Safety: Obtaining a daily international normalized ratio (INR) for all patients on warfarin can help prevent bleeding caused by the super-therapeutic effect of a high INR level.
Engaging Patients and Families

Educate patients and family members about the ADE risks of anticoagulants, hypoglycemic agents, and opioids. Encourage them to proactively ask for the aforementioned improvement strategies depending on what medications they are on—patients should ask for an assessment after opioid administration, a daily INR check if on warfarin, and for basal-bolus insulin if on insulin. Include patients and/or family members in bedside rounding and address medications. Offer writing supplies at the bedside so patients and family members can document questions and information about their medications while in the hospital.

Resources and Guides for Hospitals

- Minnesota Hospital Association—Road Map to a Medication Safety Program: [https://www.mnhospitals.org/Portals/0/Documents/ptsafety/ade/Medication-Safety-Roadmap.pdf](https://www.mnhospitals.org/Portals/0/Documents/ptsafety/ade/Medication-Safety-Roadmap.pdf)