Partnership for Patients

ASHNHA ALASKA STATE HOSPITAL & NURSING HOME ASSOCIATION | Washington State Hospital Association

Safety Action Bundle – Adverse Drug Events (ADE)
Hypoglycemic Agents

Background

- The Institute of medicine (IOM) estimates that 1.5 million preventable Adverse Drug Events (ADE) occur each year.[i]
- On average, every patient admitted to a hospital is subject to at least one medication error per day, accounting for approximately $3.5 billion additional costs.[ii, iii]
- According to the United States General Accounting Office (GAO) report from February 2000, individual state studies have shown ADE occurrence rates as high as 0.56 to 3 per 100 hospital admissions.[iv]
- According to the 2004 Medicare Patient Safety Monitoring Study sample of 25,145 hospital visits, an estimated 10.7% of patients exposed to insulin/hypoglycemic agents experienced associated ADE.[v]

Aims

To reduce the incidence of ADE related to hypoglycemic agents by 40% by the end of 2017.

Measures

Outcome: Option chosen must remain consistent for optimal data trending.

Primary Measure:

Numerator: Number of patient blood glucose (BG)* levels of <50 mg/dl after any hypoglycemic agent administration (patients cared for in an inpatient area)

Denominator: Number of patients (cared for in an inpatient area) receiving hypoglycemic agents (oral & insulin)

Option #2:

Numerator: Total number of patient blood glucose (BG)* levels of <50 mg/dl (for patients cared for in an inpatient area).

Denominator: Total patient days (excluding healthy newborns).

*Blood glucose (BG) is Point of Care (POC) and/or serum test results.

Process: Adherence to Safety Action Bundles and Data Submission Trends

Submit: Washington State Hospital Association Quality Benchmarking System

Adverse Drug Events (ADE) – Hypoglycemic Agents

Core Strategies	Definition
Leadership	• Identify administrative, quality and pharmacy leaders to champion ADE reduction strategies, including hypoglycemic agents. • Set aims, goals and timelines for practice changes. • Develop training programs on hypoglycemic agents for all providers, pharmacists and nursing staff. • Implement high-risk medication policies that clearly delineate roles and responsibilities of providers, pharmacists and nursing.
Prevent	Hypoglycemic Agents: • Establish blood glucose targets for specific populations such as: critically ill patients, post-surgical patients, pregnant patients with gestational diabetes mellitus (GDM) or pre-existing diabetics, and pediatric/neonates. • Create and implement blood glucose monitoring guidelines to address existing diabetic patients, hyperglycemia acquired in hospital, pregnant patients with GDM or pre-existing diabetics and pediatric/neonates. • Ensure processes are in place to manage insulin procurement, storage, preparation and dispensing: - Use individualized insulin pens, or have pharmacy prepare individual scheduled intermediate or long-acting insulin doses. - Remove or minimize stock of insulin on patient care units. - Pharmacist reviews all insulin orders prior to insulin availability in automated dispensing cabinets. - Double-checks required for non-standard insulin concentrations or in override emergent situations by two professionals. - Pharmacy prepares all insulin infusions, dilutes insulin and concentrated (U-500) insulin. - Limit the number of insulin infusion standard concentrations to <u>one</u>. • Effectively display the patient's insulin administration record, blood glucose results, and carbohydrate intake in order to efficiently and accurately assess patient status. • Eliminate the use of sliding insulin dosage scales; convert to basal/bolus insulin dosing. If a sliding scale is used, standardize it through the use of a protocol and preprinted order form or computer order set that clearly designates the specific increments of insulin coverage. • Implement judicious use of independent double checks of subcutaneous insulin. • Establish and implement standard practices for situational subcutaneous insulin dosing (e.g. non-standard concentrations, basal prandial dosing, with conversion to oral and pre-operatively). • Establish and implement insulin infusion protocols for patients in the ICU, diabetic ketoacidosis and hyperosmolar hyperglycemic state. • Establish and implement standards for oral and injectable non-insulin hypoglycemic agents. • Ensure a policy is in place and staff are educated on the use of patient self-management of insulin pumps, including that the patient must meet cognitive requirements.

Core Strategies	Definition
Mitigate	□ Streamline formulary for insulin type to a single brand source with approved substitutions. □ Ensure policy/process is in place to administer all insulin infusions via an IV pump with capability to program max/min infusion rates, overrides and alerts – recommend smart pump technology. □ Independent double checks required for all insulin administration. □ Utilize alerts to flag changes in patient condition and hypoglycemic triggers such as: - NPO status, dietary and/or nutritional changes, surgery, acute illness (e.g. sepsis, acute renal or liver failure) and any additions or changes in medications that may affect blood glucose levels. □ Ensure coordination processes are available for blood glucose checks with meals and insulin administration, including monitoring for an inconsistency with nutritional intake and a fixed prandial dosing. □ Include in hand-off communication for patients on hypoglycemic agents the patients last blood glucose level (date/time) and the last dose of insulin or oral agent, as well as any pertinent patient assessment that may cause a hypoglycemic event.
Performance and Variation	□ Conduct an interdisciplinary failure modes and effects analysis (FMEA) within your facility to identify organization-specific sources of failure with the use of hypoglycemic medications. □ Present your performance compared to others to the board and other key stakeholder groups.
Leverage Expert Teams and Information Technology to Embed Safety in Process	□ Interface EHR with laboratory systems to provide alerts to practitioners when action is needed. □ Develop and implement hypoglycemic protocols for vulnerable populations such as elderly, pediatric, and obese patients.
Patient and Family Engagement	□ Engage patients and care givers to understand how to take their medications, potential drug/food interactions and how to identify symptoms that indicate harm. □ Remind patients the importance in having a medication list whenever they visit a provider and have him/her review it. □ Develop a robust communication plan to share information and to ensure timely follow-up with the next provider at time of discharge from the hospital.
Culture	□ Encourage collaboration across ranks and disciplines to seek solutions to patient safety problems. □ Promote transparency of results from display on units to the board and public.

[i] "How-to Guide: Prevent Harm from High-alert Medications." Cambridge, MA: Institute for Healthcare Improvement 2012. Web February 2013. http://www.ihi.org/knowledge/Pages/Tools/HowtoGuidePreventHarmfromHighAlertMedications.aspx

[ii] Ebbesen .J, Juajordet I., Erikssen J., et al. "Drug-Related Deaths in a Department of Internal Medicine." *Arch Intern Med* 161 (2001) 2317-2323.

[iii] "Anticoagulant Toolkit: Preventing Adverse Drug Events." *IHI* 2008 Purdue University PharmaTap. February 2013. http://www.ihi.org/knowledge/Pages/Tools/AnticoagulantToolkitReducingADEs.aspx.

[iv] Heinrich, Janet. "Adverse Drug Events: substantial problem but magnitude uncertain." United States General Accounting Office. 2000. February 2013. http://www.gao.gov/assets/110/108212.pdf.

[v] Classen DC, Jaser L, Budnitz DS. Adverse drug events among hospitalized Medicare patients: epidemiology and national estimates from a new approach to surveillance. *Jt Comm J Qual Patient Saf*. 2010 Jan;36 (1):12-21.