Partnership for Patients

ALASKA STATE HOSPITAL & NURSING HOME ASSOCIATION

Washington State Hospital Association

Medication Safety Action Bundle – Adverse Drug Events (ADE)
Opioids

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]
- Two of the most common adverse outcomes due to ADE are: warfarin overdose and inappropriate monitoring resulting in hemorrhage; and opioid overdose resulting in respiratory depression.[iii]
- Per 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]
- Per the Joint Commission Sentinel database, of the opioid-related adverse drug events reported (2004-2011), 47 percent related to wrong dose errors, 29 percent related to poor monitoring practices, and 11 percent related to factors such as medication interactions, excessive dosing and adverse drug reactions.[v]

Aims

- To reduce the incidence of ADE related to opioids by 40% by the end of 2017.

Measures

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

Primary Measure:

- Numerator: Number of patients (cared for in an inpatient area) who received naloxone < 24 hours after any opioid administration related to over-sedation
- Denominator: Number of patients (cared for in an inpatient area) receiving opioids
  Opioid Measure Definition Sheet[vi]

Option #2:

- Numerator: Total number of patients (cared for in an inpatient area) receiving naloxone after PCA administration
- Denominator: Total number of patients (cared for in an inpatient area) receiving PCA opioids
  Opioid Option 2 Measure Definition Sheet[vii]

Process: Adherence to Safety Action Bundles and Data Submission Trends

Submit: Washington State Hospital Association Quality Benchmarking System

Core Strategies

Strategy	Action Item
Leadership	Identify administrative, quality and pharmacy leaders to champion ADE reduction strategies, including opioids. Set aims, goals and timelines for practice changes. Develop training programs on high-alert medications for all providers, pharmacists and nursing staff. Implement high-risk medication policies that clearly delineate roles and responsibilities of providers, pharmacists and nursing.
Prevent	Use pain assessment scales standardized across the institution. Highlight snoring and sleep apnea as part of the patient history and communicate as part of all hand-offs and transfers. Hold patients in PACU for at least 30 minutes following narcotic dose. Avoid the use of narcotics to treat anxiety. Starting morphine doses do not exceed 2 mg IV in the opiate naïve adult patient. Starting hydromorphone doses do not exceed 0.4 mg I.V. in the opiate naïve adult patient. Pharmacy repackages hydromorphone into 0.2, 0.4, or 0.5 mg syringes. Meperidine use is minimized or eliminated. Avoid narcotic administration if accompanied by sedatives or anticholinergic drugs such as hydroxyzine. Develop a guideline for the use of Patient Controlled Analgesia (PCA) that disallows the routine use of basal dosing.[viii] Only doses needed for starting doses are available as override items in automated dispensing cabinets (e.g. morphine 2 mg syringes are available but 4 mg syringes are not available on override). Smart pumps with drug libraries are used for PCA and epidural narcotics.[ix] Epidural pumps are not used for any other therapy. Tubing is pre-connected in pharmacy and cannot be connected to a non-epidural pump. Non-narcotic medications (NSAIDs, acetaminophen, regional infusions of local anesthetics) are routinely used as a tactic to reduce narcotic administration on the patient care units. Develop order sets, preprinted order forms and clinical protocols that include monitoring parameters to standardize treatment of patients on opioid medications. Pharmacy modules should interface with electronic health records (EHR) to facilitate pharmacist and provider screening of patients: allergies, home medications, duplicate medications, appropriate dosing and contraindications with disease processes. Create alerts in the computer system for duplicate medications, high doses for age/weight, renal function, and too frequent dosing, multiple route or range orders.

Strategy	Action Item
Detect	Vital signs monitoring defined and adhered to for all clinical situations (PCA, epidural, IV injection). Continuous monitoring of capnography for all high-risk patients receiving PCA narcotics.[x] Monitor alarms cannot be turned "off, default to a hospital-defined threshold for alarms, and ensure they can be heard at the nursing station. Instruct patients on symptoms to monitor for side effects and when to contact a health care provider for assistance.
Mitigate	Ensure that rescue protocols, antidotes and reversal agents are readily available. Develop protocols allowing for the administration of reversal agents without having to contact the physician. A rapid response team is available and implemented to assist with possible narcotic over-sedation events.
Performance and Variation	Perform root cause analysis based on use of reversal agents for respiratory depression on patients receiving opioids in the hospital. Conduct an interdisciplinary failure modes and effects analysis (FMEA) within your facility to identify organization-specific sources of failure with the use of high-alert medications.[xi] Present your performance compared to others to the board and other key stakeholder groups.

Moving Towards Zero

Strategy	Action Item
Leverage Expert Teams and Information Technology to Embed Safety in Process	Identify pain management specialist available to provide mentoring as well as specific consults. Instruct patients on the use of non-pharmacologic intervention for pain and anxiety. Implement centralized anesthesia- or pharmacist-run pain management services. Evaluate naloxone usage in areas such as PACU and procedural areas such as, radiology, cath lab and endoscopy. Develop and implement protocols for vulnerable populations such as elderly, pediatric, and obese patients.
Person and Family Engagement	At pre-admission, during the hospital stay and upon discharge, educate patients of the importance of maintaining a list of prescription drugs, nonprescription drugs, homeopathic/herbal medicine, vitamins and minerals that they are taking. Engage patients and care givers to understand how to take their medications, potential drug/food interactions and how to identify symptoms that indicate harm.[xii] 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.

Hardwiring

Strategy	Action Item
Culture	• Encourage collaboration across ranks and disciplines to seek solutions to patient safety problems.[xiii] • Promote transparency of results from display on units to the board and public.

Key Resources

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

[iii] Kanjanarat P., et al. "Nature of Preventable Adverse Drug Events." Am J Hosp Pharm 60 (2003) 1750-9.

[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] "Safe Use of Opioids in Hospitals." The Joint Commission Sentinel Event Alert. Issue 49, August 8, 2012. The Joint Commission. Web March 2014. - http://www.jointcommission.org/assets/1/18/SEA_49_opioids_8_2_12_final.pdf

[vi] http://www.wsha.org/wp-content/uploads/MeasDefSheet_ADE_Opioid.pdf

[vii] http://www.wsha.org/wp-content/uploads/MeasDefSheet_ADE_OpioidOpt2.pdf

[viii] "ISMP Urges Caution with Basal Opioid Infusions" - http://www.ismp.org/pressroom/PR2200319.pdf

[ix] "Continuous Respiratory Monitoring and a "Smart" Infusion System Improve Safety of Patient-Controlled Analgesia in the Postoperative Period", Ray R. Maddox, PharmD; Harold Oglesby, RRT; Carolyn K. Williams, BSPharm; Marianne Fields, RN, MSN; Sherry Danello, RN, MSN - https://www.ahrq.gov/downloads/pub/advances2/vol4/advances-maddox_111.pdf

[x] "Continuous Respiratory Monitoring and a "Smart" Infusion System Improve Safety of Patient-Controlled Analgesia in the Postoperative Period", Ray R. Maddox, PharmD; Harold Oglesby, RRT; Carolyn K. Williams, BSPharm; Marianne Fields, RN, MSN; Sherry Danello, RN, MSN - https://www.ahrq.gov/downloads/pub/advances2/vol4/advances-maddox_111.pdf

[xi] "Reducing and Preventing Adverse Drug Events To Decrease Hospital Costs" - https://archive.ahrq.gov/research/findings/factsheets/errors-safety/aderia/ade.html

[xii] "Guide to Warfarin Therapy: Treatment to Prevent Blood Clots" - http://www.fvfiles.com/500648.pdf

[xiii] "A Framework for Spread: From Local Improvements to System-Wide Change" - http://www.ihi.org/resources/Pages/IHIWhitePapers/AFrameworkforSpreadWhitePaper.aspx