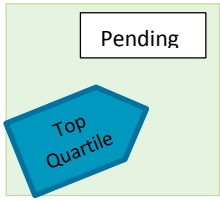
Medication Safety Action Bundle – Adverse Drug Events (ADE)
Anticoagulants

Background

- The Institute of medicine (IOM) estimates that 1.5 million preventable Adverse Drug Events (ADE) occur each year. [1]
- 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. [2,3]
- One of the most common adverse outcomes is related to warfarin overdose and inappropriate monitoring resulting in hemorrhage.[4]
- Costs of a major anti-coagulation hemorrhage for inpatients have been estimated from $3000 to $12,000.[1]
- 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. [5]



Aims

To reduce the incidence of ADE related to anticoagulants 40% by December 31, 2014.

Measures

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

Primary Measure:

Numerator: Number of patient events with an INR >5 after any warfarin administration.

Denominator: Number of patients on warfarin.

Option #2:

Numerator: Total number of INR>5 readings.

Denominator: Total number of INR readings.

Process: Adherence to Safety Action Bundles and Data Submission Trends.

Submit: Washington State Hospital Association Quality Benchmarking System

Core Strategies

Definition Reference Tool

Leadership	☐ Identify administrative, quality and pharmacy leaders to champion ADE reduction strategies. ☐ Set aims, goals and timelines for practice changes. ☐ Develop training programs on anticoagulation 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	Require baseline INR and routine monitoring as per your hospital policy for all warfarin patients. Time warfarin doses so they are given after the INR results are available. Require documentation of the INR result on the medication record and the signature of the RN indicating that it is in range before giving medication or have pharmacist review INR before dispensing that day's dose. Have pharmacist dose warfarin.
Detect	Ensure that critical lab information is available to those who need the information and can take action. Use anticoagulation flow sheet. Instruct patients on symptoms to monitor for side effects and when to contact a health care provider for assistance.
Mitigate	Have a reversal protocol including Vitamin K and other factors. Anticoagulation management team – designated pharmacist or registered nurse that ensures evidenced-based policies are in place related to therapeutic dosing protocols, frequency of INR, and patient education.
Performance and Variation	Perform root cause analysis based on use of reversal agents, transfer to a higher level of care or INR greater than 5. 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. Present your performance compared to others to the board and other key stakeholder groups.

Moving Towards Zero

Leverage Expert Teams and Information Technology to Embed Safety in Process	Interface EHR with laboratory systems to provide high INR alerts to practitioners when action is needed. Use anticoagulant dosing service or "clinic" for inpatient and outpatient settings. Implement centralized pharmacist- or nurse-run anticoagulation. Develop and implement 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.

Hardwiring

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.

Key Resources

1. "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
2. Ebbesen .J, Juajordet I., Erikssen J., et al. "Drug-Related Deaths in a Department of Internal Medicine." *Arch Intern Med* 161 (2001) 2317-2323.
3. "Anticoagulant Toolkit: Preventing Adverse Drug Events." *IHI* 2008 Purdue University PharmaTap. February 2013. http://www.ihi.org/knowledge/Pages/Tools/AnticoagulantToolkitReducingADEs.aspx.
4. Kanjanarat P., et al. "Nature of Preventable Adverse Drug Events." *Am J Hosp Pharm* 60 (2003) 1750-9.
5. 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.
6. Rozich, J.D., Haraden ,CR., Resar,.RK. "Adverse Drug Event Trigger Tool: A Practical Methodology for mMeasuring Medication-related Harm." *Qual Saf Health Care*. 12 (2003) 194-200.
7. Bates, D.W., Boyle, D.L., Vander Vliet, V.M., et al "Relationship Between Medication Errors and Adverse Drug Events." *J Gen Intern Med*. 10 (1995)199-205.
8. Bates, D.W., Cullen, D.J., Laird, N.M., et al. "Incidence of Adverse Drug Events and Potential Adverse Drug Events: Implications for Prevention." *JAMA*. 274 (1995) 29-34.