MEDICATION ERROR

HIGH ALERT MEDICATION

DR.Dr.Sutoto,M.Kes

Some of the factors associated with medication errors

- Medications with similar names or similar packaging (**LASA)**
- Medications that are not commonly used or prescribed
- Commonly used medications to which many patients are **allergic** (e.g., antibiotics, opiates, and nonsteroidal anti-inflammatory drugs)
- Medications that require testing to ensure proper (i.e., nontoxic) therapeutic levels are maintained (e.g., lithium, warfarin, theophylline, and digoxin)

Hughes RG, Medication errors occur in all setting,. Agency for Healthcare Research and Quality (US); 2008 .

MEDICATION ERRORS OCCUR IN ALL SETTINGS

may or may not cause an adverse drug event (ADE).

- Medications with complex dosing regimens and those given in specialty areas (e.g., intensive care units, emergency departments, and diagnostic and interventional areas) are associated with increased risk of ADEs.[6]
- Phillips and colleagues[7] found that deaths (the most severe ADE) associated with medication errors involved central nervous system agents, antineoplastics, and cardiovascular drugs.
- Most of the common types of errors resulting in patient death involved
  - the wrong dose (40.9 percent),
  - the wrong drug (16 percent),
  - and the wrong route of administration (9.5 percent).
- The causes of these deaths were categorized as: oral and written miscommunication, name confusion (e.g., names that look or sound alike), similar or misleading container labeling, performance or knowledge deficits, and inappropriate packaging or device design.

Hughes RG, Medication errors occur in all setting,. Agency for Healthcare Research and Quality (US); 2008 .

Adverse Drug Events (ADEs)
Overview Preventing Harm from High-Alert Medications

- Background:
- • Medications are the most common intervention in healthcare but are also most commonly associated with adverse events in hospitalized patients. At least **20% of all harm is associated with medication errors**.
- • **High-alert medications are more likely to be associated with harm** than other medications; they cause harm more commonly, the harm they produce is likely to be more serious, and they "have the highest risk of causing injury even when used correctly."
- • **Insulin, anticoagulants, narcotics and sedatives are the medications responsible for the majority of harm** due to high-alert medications.

Implementation Guide to Reducing Harm from High-Alert Medications. HRET (Health Research and Educational Contract). US Departement of Health and Human Services. 2013

Suggested Aim: Reduce the incidence of harm due to high-alert medications by 50% by December 31, 2013.

Potential Measures:

Outcome:

- Percent of high-alert medication (ADEs) per 1000 doses (aggregate, class or specific medication)
- Percent of admissions with a high-alert medication (ADE)

Process:

- Percent of patients receiving a high-alert medication (aggregate, class, or specific med) that receive a reversal agent.

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FOCUSING ON A FEW GROUPS OF HIGH-ALERT MEDICATIONS

(The Institute for Healthcare Improvement's Five Million Lives campaign)

1. anticoagulants
2. narcotics
3. sedatives
4. insulin

would have the greatest impact.

- These medications, due to their high volume of use coupled with their inherent risks, are responsible for the majority of harm due to all high-alert medications.8

Implementation Guide to Reducing Harm from High-Alert Medications. HRET (Health Research and Educational Contract). US Departement of Health and Human Services. 2013

Why focus on anticoagulants?

- • Lack of dosing guidelines and appropriate monitoring can lead to serious harm associated with this class of medications.
- • Anticoagulants account for 4% of preventable ADEs and 10% of potential ADEs.
- • Anticoagulation therapy is associated with serious and frequent ADEs in both inpatients and outpatients.
- • Warfarin is commonly involved in ADEs for a number of reasons: o the complexity of dosing and monitoring o patient compliance o numerous drug interactions o dietary interactions that can affect drug activity
- • There is considerable variation in ordering, dosing, and monitoring of patients on unfractionated heparin. Often, there is confusion over providing ongoing therapy while patients are receiving warfarin.

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Why focus on narcotics?

- • Opioid overdose or underdose associated with respiratory depression or poor pain control was a contributing factor common in adverse events.
- • A collaborative of pediatric hospitals led by Child Health Corporation of America (CHCA) identified a rate of 5.2 narcotic-related ADEs for every 100 patients.
- • Patient-controlled analgesia (PCA) poses potential for harm. Episodes of respiratory depression are associated with drug interactions, continuous narcotic infusion, nurse- or physician-controlled analgesia, and inappropriate use of PCA by patients.
- • Mortality from user programming errors with PCA pumps have been estimated to be a low-likelihood event (ranging from 1 in 33,000 to 1 in 338,800), but relatively numerous in absolute terms (ranging from 65 to 667 deaths)

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Why focus on sedatives?

- • Harm may result when clinicians are not aware of the onset of action, are titrating to effect without considering upper dose limits, and lack a process to address emergency situations such as respiratory depression and arrest.
- Multiple sedative uses accounted for 42% of preventable ADEs in the intervention group.
- • Sedative use in the elderly is considered particularly high risk by the Institute of Safe Medication Practices. It has also been shown to be associated with a higher rate of falls among this group of patients.

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Why focus on insulin?

- • The pharmacology of the drug, complexity of dosing, and variety of products all contribute to the potential for error and associated harm.
- • Hypoglycemia is the most common complication of insulin therapy and is an extremely frequent adverse event in hospitals worldwide.
- • Even when hospitals use protocols and guidelines, there continue to be adverse events. Adjustments are not made to dosing to take into account stress caused by illness or a medical procedure, or when a patient may not have adequate food/caloric intake.

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