Solution: Improving Medication Safety with Opioids: A Team Approach

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IDENTIFICATION:
According to the Institute for Safe Medication Practices (ISMP), opioids are identified as high risk, error prone medications with potentially devastating complications if misused. Medication Error and Incident Reports at UMMC demonstrated that potential and actual safety concerns existed.

PROCESS:
- At routine intervals since 2002, data reported via the Medication Error Reporting System was abstracted from the MIDAS Medication Error Focus Study by a Health Analyst and categorized into: 1) primary type of error, 2) system breakdown, 3) patient outcome and 4) pain service involvement.
- A team of experts in pain management and error reduction from pharmacy, nursing, and risk management reviewed details of each incident/potential incident to identify and categorize all types of errors and system breakdowns that actually or potentially contributed to each incident.
- Data was re-aggregated into similar causative factors and system fixes were identified to prevent future similar errors. Responsible parties were assigned to address each issue.
- Analyses were shared with appropriate committees (e.g., Pain Committee, Pain Task Force, and the Medication Error Adverse Drug Events Advisory Council) and individuals/groups were charged with implementing the system improvements.
- Year-to-Year Comparisons were performed and additional improvements are made as needed.

SOLUTION:
- To improve the safety of range dose orders we implemented:
  - A Range dose policy in 2004
  - Upper dose limit checks in 2004
  - A Revised policy and education initiative in 2005
  - Computerized physician order entry (CPMOE) in 2007
  - Customized the range dose orders in CPMOE in 2008 so that they are more explicit for all Health Care Providers
    - Identified drugs approved for range dosing
    - Added a required dose range instructions field
    - Dose range checking is performed on highest dose
      - potential for overdose is reduced
    - A dose range is required and displays clearly on the Electronic Medication Administration Record (eMAR)
- To reduce morphine/hydromorphone confusion we implemented:
• Sound-alike-look alike alerts on MAR and Pharmacy label in 2004
• Intermittent J mails and Newsletters to Health Care Professionals
• Enhanced lettering (tall man/person lettering) in 2005
• Implemented CPMOE in 2007
  ▪ Forced ordering of hydromorphone by brand name of “Dilaudid®”
  ▪ Sound-alike-look alike alerts on eMAR
• Sound-alike-look alike alerts on Omnicell® screen
• Omnicell Safety Stock®, a bar code scanning feature to restock, remove, and return medications to the Omnicell in 2008

• To increase safety of medication use process we implemented CPMOE.
  o Transcription errors are eliminated
  o Pharmacy computer entry errors are minimized
  o Compliance with prn pre and post pain score documentation is increased
  o Timely administration of medications is increased
  o Dangerous abbreviations in medication orders are eliminated
  o Medication reconciliation is prompted upon admission, transfer, and discharge
  o Allergy information is required prior to medication ordering
    ▪ ordering/administration of allergens is reduced
  o Documentation of patch placement and removal is required
    ▪ Duplicate patch placement is minimized
  o Specialized analgesic therapy (e.g., IVPCA, epidurals) are standardized through the use of order sets and PowerPlans®

• Other system improvements
  o Removed high dose injectable opioids from most units
  o Implemented unit doses & labeling for oral opioids
  o Standardized concentrations (e.g., IV, oral, epidural)
  o Instituted meperidine restrictions
  o Implemented pump double checks
  o Introduced smart pump technology
  o Implemented an on-line Event Reporting system with real-time notification to Pharmacy, Nursing, and Risk Management to facilitate rapid evaluation and intervention

Conclusion: The group continues to monitor and evaluate the data. System changes reduced or eliminated many errors. However changes in technology brought new challenges requiring additional system fixes. These errors are more sophisticated requiring more complex system interventions.