Improving Patient Safety Through the Use of Risk Stratified Opioid Pain Management Physician Orders

Paula Kobelt, MSN, RN-BC
Krisanna Deppen, MD
Michelle Meyer, PharmD, BCPS, BCNSP
Kelly Besco, PharmD, FISMP, CPPS

Conflict of Interest Disclosure

No Conflicts of Interest:
• Paula Kobelt, MSN, RN-BC
• Michelle Meyer, PharmD, BCPS, BCNSP
• Krisanna Deppen, MD

Objectives

• Review the scope of the problem surrounding opioid prescribing and opioid induced respiratory depression.
• Describe criteria linking patients to high risk for opioid induced adverse drug events (ADEs), opioid naive or opioid tolerant status.
• Discuss strategies for risk stratified opioid prescribing to safely and effectively manage pain.
The Facts…

- Each hospital patient is subjected to at least one medication error per day.
- Approximately one-third of cardiac arrests in US hospitals are from respiratory depression.
- 77% of opioid-related inpatient deaths occur in the first postoperative day.
- Very few providers complete training in pain management—“It’s just part of the job!”
- The reporting of pain is highly subjective (i.e., Use of rating scales to dictate the opioid dose ignores patient’s risk for opiate depression).

HYDROMorphine: A Cause for Alarm

- Lack of knowledge about potency and the difference as compared to morphine has led to serious errors.

\[
1 \text{ mg of HYDROMorphine} = 6 \text{ mg of Morphine}
\]

- A study of adult ED patients observed that physicians & nurses were reluctant to give 6 to 10 mg of morphine due to risk.
- In contrast, same providers were not reluctant to give equianalgesic dose (i.e., 1 to 1.5 mg) of HYDROMorphine.
- In June 2011, FDA revised Prescribing Information to have new starting dose of 0.2 mg for intermittent IV therapy.

Our Story…
2003 Naloxone Trigger Project

• Used naloxone administration as a “trigger” to identify possible opioid errors.
• Multidisciplinary team reviewed medical records of naloxone usage cases to identify opportunities for improvement.
• Expanded across the health system to include 6 hospitals.
• Standard monthly report and process now used.

Monthly Naloxone Report

Standardized monthly generated naloxone usage report includes:
- Patient name, age, gender, admitting diagnoses
- Medical record number
- Admission and discharge dates
- Date/time of naloxone administration(s), dose, quantity, location, order entry: automated dispensing cabinet (ADC)
- Opioids and benzodiazepines administered in past 24 hours, date/time, medication, dose, quantity, location, order entry: ADC

Cases are eliminated from review process if:
- No opioids were administered or if
- No opioids were administered before naloxone
- Naloxone was administered after the duration of action of opioid e.g., naloxone administered 7 hours after dose of IV HYDROMorphone

Opioid ADE Collection Worksheet

Demographics
Patient History:
- Comorbidities
- Risk stratification: naïve, high risk, tolerant, combination
Brief event summary
Opioid Dosing Information
Preventable Matrix
- Auto-Exclude
- ADE Team Required
- Non-ADE’s Non-Preventable
The Facts...

Naloxone Trigger Project

- Multiple initiatives put in place secondary to the trigger project since 2003 include:
  - Prescriber/nursing/pharmacy education regarding dosing
  - Education provided for HYDROMorphone IV to oral conversion, equianalgesia to morphine
  - Removal of 2 mg HYDROMorphone ampules from non-procedural areas
  - Removal of promethazine from PCA orders
  - Reduced the number of concentrations for PCA meds
  - Developed risk stratified dosing for PCA pre-printed orders
  - Improved respiratory and sedation assessments
  - Education and adjustment of scheduled administration times to avoid stacking of sedating medications
  - Standardized definitions of risk for opioid associated respiratory depression
  - Intermittent Pain Management pre-printed orders

Late-2012

- In August 2012, something wonderful happened...

The Joint Commission Sentinel Event Alert

A comprehensive publication of the Joint Commission
Safe use of opioids in hospitals
Defining Risk  
- The FDA defines opioid tolerant as any patient taking greater than 30mg of oxycodone daily for at least 7 days.
- Opioid naïve: patients who do not meet definition of opioid tolerant

Patients at high risk for opioid related adverse events include:
- Age >60
- Obese (BMI >30)
- Renal/hepatic impairment (CrCl <40ml/min)
- Known/suspected sleep apnea
- Multiple coexisting diseases
- Concurrent CNS depressant

High Risk/Opioid Tolerant patients meet criteria for opioid tolerance AND have characteristics placing them at higher risk for opioid induced respiratory depression.

Definitions are consistently used in system hospital pain management policy and all pre-printed order sets.

Standardized Screening and Assessment Medication Reconciliation
- The Joint Commission states “the best medication reconciliation requires a complete understanding of what the patient was prescribed and what medications the patient is actually taking.”
- It can be difficult to obtain a complete list, and accuracy is dependent on the patient’s ability and willingness to provide this information.
- Current medications include those taken at scheduled times and those taken on an as-needed basis.
- Examples of medication information that may be collected include name, dose, route, frequency, purpose and when the last dose was taken.
- Use of Prescription Monitoring Program (PMP)

Standardized Screening and Assessment for Obstructive Sleep Apnea (OSA)
* All surgical patients are screened preoperatively.
* Labor and Delivery patients are now also screened.
The use of the appropriate sedation scale is dependent on the goal and type of treatment.

Use the Pasero Opioid-Induced Sedation Scale (POSS) With Interventions for prevention and detection of unwanted opioid-induced sedation and respiratory depression for patients receiving opioids for pain management.

Use the Richmond Agitation and Sedation Scale (RASS) in areas using intentional sedation, delirium and or analgesia/sedation protocols (e.g., Critical Care areas, Procedural areas).

Standardized Respiratory Assessment Process and Documentation

- Obtain a more accurate respiratory assessment by standing at the bedside and assessing respirations before awakening the patient.
- Arousing or awakening the patient typically stimulates the patient's respirations which can mask the dangerous respiratory effects that occur with over sedation (e.g., decreasing respiratory rate, depth, periods of apnea, decreased SPO2, etc.).
- Observe the rise and fall of the patient's chest noting the quality of respirations and the following characteristics:
  - Respiratory pattern
  - Noisy sounds
  - Ventilatory effort
  - Ventilatory depth / expansion
  - Respiratory rate

Opioid Prescribing

TJC Therapeutic Duplication
- Therapeutic duplication is a condition where multiple drugs are prescribed for the same clinical indication without clear criteria for selecting the use of one drug over the other.
- Following standards while allowing for multimodal care

Dosing to Pain Scale
- Dose must match score
- Ignores risk
- Ignores pts unable to self-report
- Ignores patient response

Range Order limitations
- Need to clearly delineate when the nurse gives what
- Example of clear range order include dosing to pain scale and one time dose escalation
Pain Management
Intermittent Orders

• Appropriate dosing provided for naïve/high risk and tolerant categories
• Standardized definitions used
• Start low and go slow
• Utilizes one time dose escalation
• May only have orders for 1 Oral and/or Intravenous agent at a time
• Revised to include dose escalation for tolerant dosing

Pain Management
Intermittent Orders

• Naloxone 3 step orders
• Bowel Regimen

Patient Controlled Analgesia (PCA)
Physician Orders

• Dosed to risk
• One concentration for each drug
• Limits choice
• Initial and Change order format
• Care and monitoring of patient
Patient Controlled Analgesia (PCA) Physician Orders-page 2

- 2 step naloxone order
- Treatment of side effects- constipation, itching, nausea
- Definition of opioid tolerance
- Equianalgesic doses
- Sedation scales

Opioid Safety Team and Risk Stratified Order Sets
- The risk stratified PRN opioid orders were implemented across all hospitals in May 2012.
- CPOE default doses for orders placed outside of the order set additionally modified.
- Nursing & Pharmacists completed a mandatory Learning Module focused on Opioid Safety.
- Direction provided by Leadership to integrate order set into new/updated system-wide standardized orders.
- Physician utilization is not mandatory.
- Increased utilization demonstrated at CPOE campuses due to ability to integrate into order outlines.

Multimodal Therapy

Non-opioid Order set
- Addressing therapeutic duplication, scheduling adjunct or non-opioid medications ATC vs PRN
Multimodal Therapy

- Case Study

COMPLEMENTARY THERAPIES OFFERED AT THE BEDSIDE
Guided Imagery, Healing Touch, Massage Therapy, Drumming, Animal Assisted Activity, Relaxation Channel
OhioHealth Grant Medical Center

- Opioid Safety Team reinvigorated efforts to improve opioid safety.
  - Pain Management policy updated with SEA recommendations.
  - Patient Education developed for immediate release, sustained release opioids and methadone.
  - Methadone pre-printed order set developed.
  - Non-opioid Pain Management order set developed.
  - Intermittent (PRN) order set “updated” to include dose escalation for tolerant patients.
  - Opioid Safety Team to serve as inter-rater reliability team to assess preventability of the events identified via a naloxone “trigger”.

“Duplicate Opioid” Policy

• Purpose:
  - Provide a protocol for Pharmacists to respond to duplicate (i.e., multiple) opioid orders in instances where there is a therapeutic duplication.
  - Will allow Pharmacists to take action to address duplications without clarification (unless clarification specified).

• Process/Policy:
  - Any order for an IV PRN opioid will be discontinued when a subsequent order for an IV PRN opioid is placed unless there is clear criteria included on the order for when to administer one opioid over the other.
  - Any order for a short-acting PRN oral opioid will be discontinued when a subsequent order for a short-acting oral opioid is placed unless there is clear criteria included on the order for when to administer one opioid over the other.

• Proposal:
  - Add language to the “Ordering of Medications” to instruct Nurses on appropriate action to take when a non-opioid and opioid have been ordered PRN for pain management, as well as inclusion of clinical indication in nursing documentation.
  - Example:
    - “May administer in conjunction with opioid for multimodal pain management therapy”
    - “May administer instead of opioid medication per patient preference”
    - “May administer NSAID for aching, throbbing pain”
    - “Acetaminophen 650 mg oral every 6 hours for soreness, headache, dull pain or patient preference.”

Ongoing Staff Education

LMS: C5630
Risk Based Opioid Medication Orders for Pain Management

Attention
No preventable ADEs have been identified via trigger review or unusual occurrence reporting with the use of the Intermittent Pain Order set.

Conclusions

• Opioid dosing is risky business.
  – Prevention of adverse events requires the layering of multiple mitigation strategies.
  – We have made significant strides, but our work is not complete!