Opioid Safety: 
The balance between pain, sleep and breathing

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Presentation Objectives

By the end of the presentation, the audience members should be able to:

• Contrast the risks and benefits of opioid medication use, evaluating factors such as patient selection, drug and route selection, monitoring, communication and potential gaps in the medication use process.
• Investigate options to reduce the risk of adverse drug events due to opioids in the hospital setting.
• Outline steps to improve the safety of opioid medication use in the community setting.

STEP 1: DEFINING THE PROBLEM
During the past year, the TDS has made 25 arrests, seized multiple weapons and computer equipment utilized for the creation of fraudulent prescriptions, and seized the following drugs:

- 3,528 pills — prescription drugs
- 3,124 pills — methadone (laxative)
- 689 kilos of ephedrine
- 300 grams of heroin
- 4 pounds of methamphetamine
- 6 pounds of methamphetamine
- 5 gallons of GHB

(Most drug crimes involve multiple types of drugs.)

In Utah, there are more deaths from prescription drug overdoses, than from motor vehicle crashes.

Utah Department of Health, www.useonlyasdirected.org
Pain Control

- Pain as 5th Vital Sign
  - The Joint Commission Standards
- HCAHPS Questions
  - “How often was your pain well controlled”
  - “How often did the hospital staff do everything they could to help you with your pain”

STEP 2: ASSESSING THE PROBLEM

Definitions

- Medication Error: Any preventable event that may cause or lead to inappropriate medication use or patient harm, while the medication is in the control of the health care professional, patient, or consumer*
- Adverse Drug Reaction (ADR): Any adverse drug event where harm occurs
- Adverse Drug Event: Any medication error and/or adverse drug reaction

*1996 - National Coordinating Council on Medication Error Reporting and Prevention
Intermountain Healthcare Adverse Drug Event Policy
Simplified Definitions

• Medication Error: Someone made a mistake

• Adverse Drug Reaction (ADR): The patient had a reaction to his/her medication

• Adverse Drug Event: Any of the above happened
Incidence of Medication Errors in Hospitals

- Institute of Medicine – 2007 publication
- Preventing Medication Errors (part III in series on medical errors)
- Based on published data on medication errors, estimates:
  “One medication error occurs per patient per day in Hospital Care”


Detecting ADEs


Simple Criteria for Detecting ADRs


Others: Dig level>2, AlIMS rev step or reduction, Vit K, Doubling of Creatinine, Kaspacetox, Paragric, Flumazinol.
### Trigger Tool

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Challenges</th>
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<tbody>
<tr>
<td>Increase reporting of adverse drug events</td>
<td>High number of false positives</td>
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<tr>
<td>Some can catch changing status (creatinine, vitals, other labs)</td>
<td>Requires someone to evaluate if ADE occurred</td>
</tr>
<tr>
<td></td>
<td>Most are retrospective</td>
</tr>
</tbody>
</table>

### ADE: What to Report

- Patient information (service, location…)
- Drug Name (coded)
- Was there an error involved
- Level of Harm (A-I)
- Contributing factors
- Could it be prevented (smart pump, bar coding…)

### STEP 3: LOOKING FOR SOLUTIONS
Health System Setting

The Joint Commission: “High-Alert” Medications

- Insulin
- Opiates/Narcotics
- Injectable Potassium Chloride (or Phosphate) concentrate
- Intravenous anticoagulants (heparin)
- Sodium Chloride solutions > 0.9%

www.jointcommission.org - Sentinel Event Alert Bulletin #11 - 11/19/1999
Institute for Healthcare Improvement (IHI)
High Alert Medications

- Anticoagulants
- Insulin
- Narcotics
- Sedatives

IHI 5 Million Lives Campaign – December 2006 (www.ihi.org)

The Joint Commission (TJC)
Sentinel Event Alert (SAE) #49

- For Opioid Related Adverse Drug Events (including deaths) from 2004-2011:
  - 47% were wrong dose medication errors
  - 29% related to improper monitoring
  - 11% other factors (excessive dose, medication interactions…)

The Joint Commission, Sentinel Event Alert Issue #49, August 8, 2012
High Risk Patients

- Sleep apnea or other sleep disorders
- Morbid Obesity
- Snoring
- Older age
  - 61-70 are 3 x risk
  - 71-80 are 5 x risk
  - >80 are 9 x risk
- Post Surgery (longer length of anesthesia)

The Joint Commission, Sentinel Event Alert Issue #49, August 8, 2012

High Risk Patients

- Receiving other sedatives
  - Benzodiazepines, antihistamines, sedatives, other CNS depressants
- No recent opioid use (or habitual use)
- Increase opioid dose requirement
- Preexisting pulmonary or cardiac disease
- Thoracic or other incisions that impair breathing
- Smoker

The Joint Commission, Sentinel Event Alert Issue #49, August 8, 2012

Screening - STOPBANG

Opportunities to Reduce Risk

- Medication History! (history of analgesic use or abuse, duration and side effects)
- Full Body assessment (fentanyl patch, pain pump…)
- Use an individualized, multimodal treatment plan
- Start at lowest effective dose
- Avoid rapid dose escalation
- Avoid “dose stacking” – give time for effect based on pharmacokinetics

The Joint Commission, Sentinel Event Alert Issue #89, August 8, 2012

Opportunities to Reduce Risk

- Set Treatment Goals
  - Involve patients on realistic goals for pain reduction
    - Cannot eliminate all pain
    - What is reasonable for that patient (e.g. 3/10 acceptable)
  - Use of non-opioid modalities
  - Education of patients on pain control, goals and side effects

The Joint Commission, Sentinel Event Alert Issue #89, August 8, 2012

Opportunities to Reduce Risk

- Dose Conversions (Changing from one opioid to another, including IV to PO)
  - Consult Pharmacist or Pain Management Expert
  - Incomplete cross tolerance
  - Patient specific differences in conversion
  - Disease state effects (e.g. absorption, renal clearance)
  - Multiple factors must be considered in conversion
  - Use extreme caution with conversion or “equal analgesic” charts – Sentinel events have been report to The Joint Commission when tools misused.

The Joint Commission, Sentinel Event Alert Issue #89, August 8, 2012
Issues to Consider Before Opioid Conversion

Conversion Recommendations
Opportunities to Reduce Risk

• Communication is Critical!
  – Documentation of medications given
  – Handoff of patients from one service to another
  – Consider lingering effects from anesthesia and other sedatives given during surgery
  – Patient may not be at peak effect from previous medications given before transfer
  – Involve patient and their family/caregivers

Opportunities to Reduce Risk

• Use of Technology
  – Bar Coding
  – Dose Checking software
  – Smart Pumps with limits set
  – Standardized concentrations
  – PCA (not using continuous infusion mode)
  – Formulary Systems (remove Demerol/Meperidine from formulary!)
  – Preprinted Orders or CPOE order sets

Monitoring

• Monitoring Options
  – Level of Sedation
  – Vital Signs (respiratory rate, pulse, BP…)
  – Pulse Oximetry (oxygenation)
  – Capnography (ventilation)
  – Other
**Pulse Oximetry**

- Measures O2 saturations (% bound hemoglobin)
- Non-invasive (finger)
- False readings if other gases bound to Hgb
- Reactive: Alerts AFTER saturation drops, often too late in process

**Capnography**

- Measures:
  - Respiratory Rate
  - CO2
- Use nasal cannula or face mask
- Can catch ventilation changes before O2 saturations decline
- American Society of Anesthesiologists (ASA) recommends use in moderate to deep sedation procedures
  

**Capnography**

- Limitations:
  - Requires calibration
  - Breathing frequency can affect CO2 measurements
  - Contamination by secretions may lead to unreliable results
- Recommended to use with oximetry

Community Setting

Reducing Risk in Community Setting

- Involves team approach
  - Prescriber
  - Pharmacy
  - Patient
  - Family/Caregivers

Reducing Risk in the Community Setting

- Prescriber
  - Limit # of pills based on illness, patients expectations and past usage, ability for follow-up and other factors
  - Use database on opioid prescribing
  - Educating patients:
    - Not Sharing
    - Storage
    - Disposal
Prescribing Guidelines

• Assess patient for risk of non-medical use or medical misuse
• Watch for and treat co-morbid mental disease (depression/ anxiety)
• Caution with conversion tables
• Avoid concurrent benzodiazepines, especially during sleep

• Use methadone as 2nd or 3rd line and titrate very slowly
• Assess for sleep apnea
• Counsel patients on long-term opioids to reduce dose during respiratory illness
• Avoid long acting opioids for acute pain (surgery, trauma…)


Pharmacy Opportunities

• Patient Education!
• Complete Medication History
• Screening for other sedative medications (especially sleeping medications)
• Review prescriptions from other pharmacies (if available)
• Referrals for sleep apnea testing

Patient Education

• Save Use

• Safe Storage

• Safe Disposal

Use Only as Directed http://www.useonlyasdirected.org/ accessed 8/30/13
Patient Education: Safe Use

• Never take prescription pain medications that are not prescribed to you
• Never share your prescription pain medications with anyone
• Never take your medications more often or in higher doses than prescribed
• Never drink alcoholic beverages while taking prescription pain medications

Use Only as Directed http://www.useonlyasdirected.org/ accessed 8/30/13

Patient Education: Safe Use

• Driving under the influence (including prescription drugs) is illegal
• Taking prescription pain medication with other depressants, such as sleep, antianxiety, or cold medicines can be dangerous
• Tell your healthcare providers about ALL medications and supplements that you take

Use Only as Directed http://www.useonlyasdirected.org/ accessed 8/30/13

Patient Education: Safe Storage

• Store prescription pain medications out of reach of kids, family and guests (preferably locked)
• Know where your prescription pain medications are at all times
• Keep pain pills in original bottle with label attached and child-resistant cap secure
• Keep track of how many pills are in your bottle, so you are aware if any are missing

Use Only as Directed http://www.useonlyasdirected.org/ accessed 8/30/13
Pharm Parties

- Teens bring prescription drugs from home, mix together in bowl and grab a handful
- Also called: “bowling parties”, “trail mix”

Patient Education: Safe Disposal

- Do not flush
- Do not pour
- Take to permanent collections site or community take-back event
- If cannot find location to take back:
  - Take out of original container
  - Crush and mix with undesirable substance (coffee grounds, cat litter, spoiled food), mix well and place in plastic bag
  - Wrap in duct tape or place in another container
  - Throw container in trash on pickup day.
  - Remove all identifying information from prescription bottles (use permanent markers)

Summary

- Inappropriate opioid medication use is a cause of morbidity and mortality, both in health-systems and in the community
- Interventions to reduce adverse effects in the health systems is multifaceted and multidisciplinary
- Patient education is a key to reducing problems in the community setting
What Now?

Pick one potential solution to reduce opioid adverse drug events to take back to your workplace after this conference.

Questions?

Resources

- The Joint Commission
  - [http://www.jointcommission.org/sentinel_event.aspx](http://www.jointcommission.org/sentinel_event.aspx)
- Institute for Safe Medication Practices (ISMP)
  - [www.ismp.org](http://www.ismp.org)
- Institute for Healthcare Improvement (IHI)
  - [www.ihi.org](http://www.ihi.org)
- National Coordinating Council for Medication Error Reporting and Prevention (NCC-MERP)
  - [www.nccmerp.org](http://www.nccmerp.org)
Resources

• Centers for Disease Control and Prevention
  – http://www.cdc.gov/injury/

• Zero Unintentional Deaths (non-profit organization founded by Utah Pain MD)
  – http://www.yourlifesource.org/

• Use Only as Directed (Utah Commission on Criminal Justice and Utah Division of Substance Abuse and Mental Health)
  – http://www.useonlyasdirected.org/