You’ll Have to Optimize your Electronic Medical Record CERNER or Later to Satisfy The Joint Commission: It’s an EPIC Task

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The presenters have no actual or potential Conflict of Interest in relation to this presentation.

Learning Objectives
1. List the medication safety risks associated with suppression of duplicate therapy alerts
2. Identify safe and efficient ways to suppress duplicate therapy alerts
3. Describe the role of Clinical Informatics as part of regulatory readiness
4. List three medication-related challenges with meeting The Joint Commission Standards
5. Apply a solution to a Joint Commission citation regarding medication safety

Duplicate Therapy Alert Overview
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Analyst – Pharmacy Informatics
Indiana University Health
Outline

• Indiana University Health (IUH): About our System
• Duplicate Therapy Alert Assessment
• Duplicate Therapy STATS: General Overview
• Incidents
• Strategies to Improve Duplicate Therapy Alerting

Group Discussion I

• Duplicate therapy monthly stats
• Highest alerting therapeutic classes/medication
• Duplicate therapy alert enhancement strategies
• Related Incidents

Indiana University Health (IUH): About our System

• General Overview:
  • Largest network of physicians in the state of Indiana
  • Partnership with Indiana University School of Medicine
  • Inpatient and outpatient setting
  • 17 hospitals
• Patients
  • Admissions 119,308
  • Outpatient Visits 2,879,430
  • Available Beds 2,683
• PharmNet Team
Duplicate Therapy Alert Assessment

Duplicate Therapy Alert Assessment
February 2018

Duplicate Therapy Alert Assessment

Duplicate Therapy Alert Assessment
Duplicate Therapy Alert Assessment

- Duplicate Alerts (02/2018): 147,449 Alerts
- Incidents Database Search
  - 12 Therapeutic Classes
  - 18 Subgroup Classes
- 206 Incidents
- 35 Incidents (Duplicate therapy Filtering)
  - 7 Therapeutic Classes
  - 24 Subgroup Classes
- Duplicate Therapy Alert Assessment
  - Analyze Duplicate therapy Categories
  - Analyze Incidents due to Duplicate therapy Filtering
  - Recommendations

Calculations Explained

\[
\% \text{ of Total Alerts} = \frac{\text{Number of Duplicate Therapy Alerts for Therapeutic Category}}{\text{OVERALL Total of Duplicate Therapy Alerts}}
\]

\[
\% \text{ of Override} = \frac{\text{Number of Duplicate Therapy Alerts Override for Therapeutic Category}}{\text{Total Duplicate Therapy override for that category}}
\]
Duplicate Therapy by Therapeutic Category

Percentage of Total Duplicate Therapy

- Anti-infective: 17%
- Nutritional products: 15%
- Hormones/hormone modifiers: 13%
- Anticoagulants: 11%
- Cardiovascular Agents: 10%
- Central nervous system agents: 10%
- Psychotherapeutic agents: 7%
- Gastrointestinal agents: 6%
- Metabolic: 3%
- Respiratory Agents: 2%
- Miscellaneous: 1%
- Genitourinary tract agents: 0%

Duplicate Therapy STATS: General Overview

- Percentage of Total Alerts: 75.09%
- Percentage of Override: 88.92%

Highest Alerting Medication Pairs: Same Therapeutic Class

Accounts for 74.69% of total alerts fired

1. Minerals and electrolytes
2. Penicillins/beta-lactamase inhibitors
3. CNS stimulants
4. Coumarins and indanediones
5. Narcotic analgesic combinations
6. Adrenal cortical steroids
7. Cephalosporins
8. Heparins
9. Glucocorticoids
10. Loop diuretics
11. Thiazide and thiazide-like diuretics
12. Proton pump inhibitors
13. Beta blockers, non-cardioselective
14. Insulin
15. Calcium channel blocking agents
- Potassium chloride & Potassium phosphate-sodium phosphate
- HydroCODONE-acetaminophen & OXYcodone-acetaminophen
- Potassium chloride & Potassium phosphate

**Highest Alerting Medication Pairs: Same Medication**
Accounts for 58.53% of total alerts fired

1. Potassium chloride
2. Warfarin
3. Methylprednisolone
4. Ceftriaxone
5. Cefazolin
6. Enoxaparin
7. Prednisone
8. Furosemide
9. Metoprolol
10. Pantoprazole
11. Dexamethasone
12. Carvedilol
13. Insulin glargine
14. Cefepime
15. Potassium phosphate-sodium phosphate
16. Ditiazem

**Incidents Distribution by Therapeutic Class**

- Anti-infectives
- Cardiovascular agents
- Central nervous system agents
- Gastrointestinal agents
- Hormones/hormone modifiers
- Miscellaneous
- Respiratory agents
Incidents (Total = 35)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Therapeutic Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azithromycin</td>
<td>Anti-infectives</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>Cardiovascular Agents</td>
</tr>
<tr>
<td>Digoxin</td>
<td>Central Nervous System Agents</td>
</tr>
<tr>
<td>Fausolin</td>
<td>Medication Therapeutic Class</td>
</tr>
</tbody>
</table>

Incidents Distribution by Month

- November 2017: 111
- December 2017: 51
- January 2018: 1
- February 2018: 1
- March 2018: 3
# Strategies to Improve Duplicate Therapy Alerting

## Duplicate Therapy Filtering: Cerner Model

<table>
<thead>
<tr>
<th>Therapeutic Class</th>
<th>Cerner</th>
<th>IU Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-infectives</td>
<td>All</td>
<td>Cephalosporins, Carbapenems, Penicillins, Quinolones</td>
</tr>
<tr>
<td>Cardiovascular Agents</td>
<td>All</td>
<td>Angiotensin II Inhibitors, Angiotensin Converting Enzyme (ACE) Inhibitors, Beta-adrenergic Blocking Agents, Calcium Channel Blocking Agents, Loop Diuretics</td>
</tr>
</tbody>
</table>

## Duplicate Therapy Filtering: Cerner Model

<table>
<thead>
<tr>
<th>Therapeutic Class</th>
<th>Cerner</th>
<th>IU Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Nervous System</td>
<td>Miscellaneous Analgesics, Narcotic Analgesics, Combination Narcotic Analgesics</td>
<td>None</td>
</tr>
<tr>
<td>Central Nervous System</td>
<td>Anticonvulsants, Muscle relaxants</td>
<td></td>
</tr>
<tr>
<td>Coagulation Modifiers</td>
<td>Anticoagulants</td>
<td>Anticoagulants</td>
</tr>
<tr>
<td>Gastrointestinal Agents</td>
<td>All</td>
<td>Proton pump inhibitors</td>
</tr>
</tbody>
</table>
### Duplicate Therapy Filtering: Cerner Model

<table>
<thead>
<tr>
<th>Therapeutic Class</th>
<th>Cerner</th>
<th>IU Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hormones/Hormone Modifiers</td>
<td>Adrenal cortical steroids</td>
<td>Adrenal cortical steroids</td>
</tr>
<tr>
<td>Metabolic Agents</td>
<td>Antidiabetic Agents (ALL)</td>
<td>Insulin Statins</td>
</tr>
<tr>
<td>Nutritional Products</td>
<td>IV Nutritional Products</td>
<td>Minerals and Electrolytes</td>
</tr>
<tr>
<td>Minerals and Electrolytes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychotherapeutic Agents</td>
<td>None</td>
<td>SSRI antidepressants</td>
</tr>
<tr>
<td>Respiratory Agents</td>
<td>None</td>
<td>Anticholinergic bronchodilators</td>
</tr>
</tbody>
</table>

### Duplicate Therapy Alert Enhancement Initiatives

- Workflow changes
- Shortages
- Clinical Judgement
- Mental Overload

### Duplicate Therapy Alert Enhancement Initiatives

- Duplicate therapy filtering: Turn on/off
- Smart power plans
- Suppressing duplicate alert within power plans
- PRN/Route duplicate therapy filtering
Other related initiatives:

<table>
<thead>
<tr>
<th>Filtering</th>
<th>Override reason in the alert history</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Medication to Inpatient Filtering</td>
<td>mCDS Home Med to IP filtering</td>
</tr>
<tr>
<td>Inpatient to Prescription Filtering</td>
<td>mCDS IP to Rx filtering</td>
</tr>
<tr>
<td>Scheduled/PRN filtering</td>
<td>mCDS Scheduled w/PRN filtering</td>
</tr>
<tr>
<td>Exclusive PowerPlan filtering</td>
<td>mCDS PowerPlan filtering</td>
</tr>
<tr>
<td>Discontinue on Scratchpad Filtering</td>
<td>mCDS DC on Scratchpad filtering</td>
</tr>
<tr>
<td>Provider Encounter Filtering</td>
<td>mCDS_filtering</td>
</tr>
<tr>
<td>Insulin repeat number set to 10</td>
<td>mCDS Duplicate filtering</td>
</tr>
<tr>
<td>Inhaled vs. oral medication</td>
<td>mCDS Duplicate filtering</td>
</tr>
<tr>
<td>Mineralocorticoids + Glucocorticoids</td>
<td></td>
</tr>
</tbody>
</table>

Group Discussion II

- Application of newly learned strategies
- Sharing experience of different facilities
Leveraging the Electronic Medical Record to Meet The Joint Commission Safety Requirements

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Background: Joint Commission Survey
October 2017

Major findings from the survey:
1. Therapeutic duplication
2. Titration orders
3. Protocols and availability in the legal medical record

Approach – How to Respond to the Joint Commission Standards
“Teamwork Makes the Dream Work”

Clinical Informatics

Clinical and Inpatient Pharmacy

Quality/Risk

Role of Clinical Informatics

Clinical Operations

Clinical Informatics

IT/IS

Challenges with Meeting The Joint Commission Standards
Challenge #1: Therapeutic Duplication

“The inclusion of patient preference into the medication order cannot subsequently create a therapeutic duplication with other prescribed medications”

Think, Pair, Share: How is your institution addressing this issue, specifically regarding PRN orders? What challenges have you encountered?

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Eskenazi Health Plan

- Physician enters duplicate PRN order
- Pharmacist discontinues original order
- Pharmacist uses “per protocol” order mode

If physician wants both medications to remain available for patient, must indicate “first line”, “second line”, etc.

If two orders are placed for the same indication at the same time without appropriate staging, the Pharmacist will call the physician for clarification

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Challenges Identified

- Policy development
- Policy approval
- Revisions to existing order sets
- Pharmacy and physician education
Challenge #2: Titration Orders

Required Elements:
- Medication name
- Medication route
- Initial or starting rate of infusion (e.g. dose/min)
- Incremental units the rate can be increased or decreased
- Frequency for incremental doses
- Maximum rate (dose) of infusion
- Objective clinical endpoint (e.g. RASS, CAM-ICU, etc.)

Think, Pair, Share: How is your institution addressing this issue? What challenges have you encountered?

Eskenazi Health Process

Mock Survey Findings
Titratable Medication Workgroup
Epic® Changes
Nursing Education

General Approach

- Addressed all titratable medication orders on formulary
- Drug, priority, bolus considerations, updated titration instructions

<table>
<thead>
<tr>
<th>Drug</th>
<th>Priority</th>
<th>Titrated?</th>
<th>Bolus?</th>
<th>Titration Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lorazepam</td>
<td>High</td>
<td>Yes</td>
<td>Yes</td>
<td>Initiate...</td>
</tr>
<tr>
<td>Midazolam</td>
<td>High</td>
<td>Yes</td>
<td>Yes</td>
<td>Initiate...</td>
</tr>
</tbody>
</table>

Dexmedetomidine Example

Initiate at 0.4 mcg/kg/hour. Goal RASS -1 to 1. If RASS above goal, may increase by 0.1 mcg/kg/hour every 30 minutes to maintain goal RASS. If RASS below goal, stop infusion until RASS goal achieved, then resume at 50% of the previous rate. Maximum dose 1.5 mcg/kg/hour.

Challenges Encountered

- Sequence of titration for multiple medications
- Titratable medications for pain
- Epic® capabilities
- Physical space on medication label

Challenge #3: Incorporating Protocols within the Medical Record

“The medical record must contain evidence of an order to implement the protocol as well as the protocol itself.”

Think, Pair, Share: How is your institution addressing this issue? What challenges have you encountered?
Eskenazi Health Plan

- Incorporate protocols as order sets within the electronic medical record
- Work with Clinical Informatics to optimize Epic® to include links to protocols
- Incorporate changes into live production environment

Challenges Identified

- Epic® capabilities with linking protocols
- Nursing workflow with linked protocols
- Revisions to existing order sets

Conclusion
Communication is Key

Physicians
Prescribe the medication

Clinical Informatics

Pharmacists
Verify the order and prepare the medication

Nurses
Carry-out the administration and monitoring of the medication

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