




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

**Allison N. Boyd, PharmD**  
Clinical Pharmacy Specialist – Trauma/Burn  
Rhode Island Hospital

**Betsy A. Vance, RN, CEN, LSSBB**  
Chief Nursing Information Officer  
Eskenazi Health

**Mohammad K. Zaatari, PharmD, MSc, BCPS**  
Analyst – Pharmacy Informatics  
Indiana University Health

*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**

Mohammad K Zaatari, PharmD, MSc, BCPS  
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 119,908
  - Outpatient Visits 2,879,430
  - Available Beds 2,683
- **PharmNet Team**



---

---

---

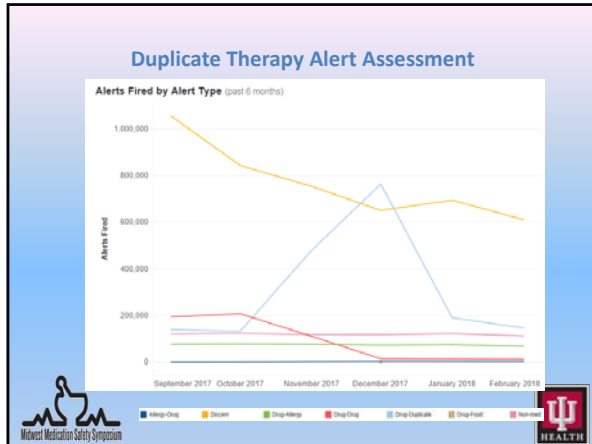
---

---

---

---

---



---

---

---

---

---

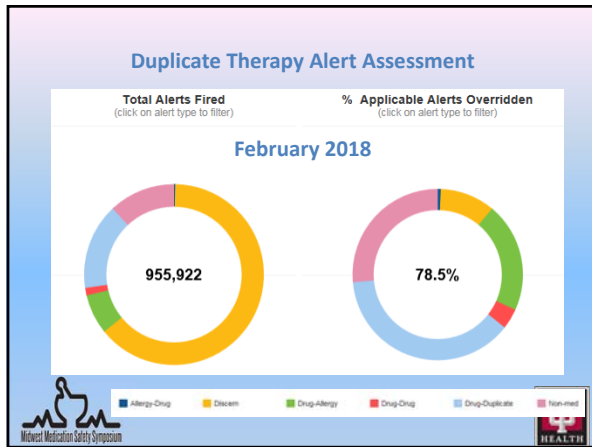
---

---

---

---

---



---

---

---

---

---

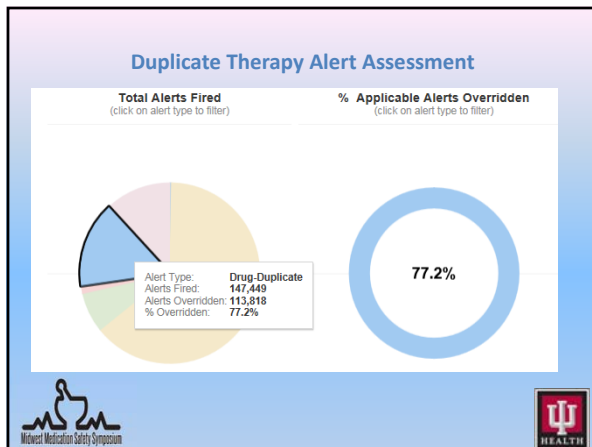
---

---

---

---

---



---

---

---

---

---

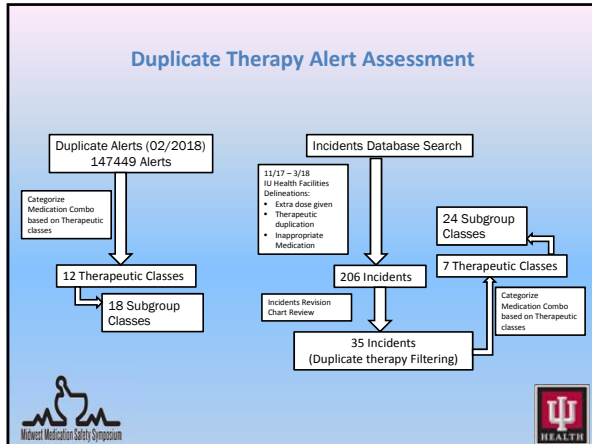
---

---

---

---

---




---

---

---

---

---

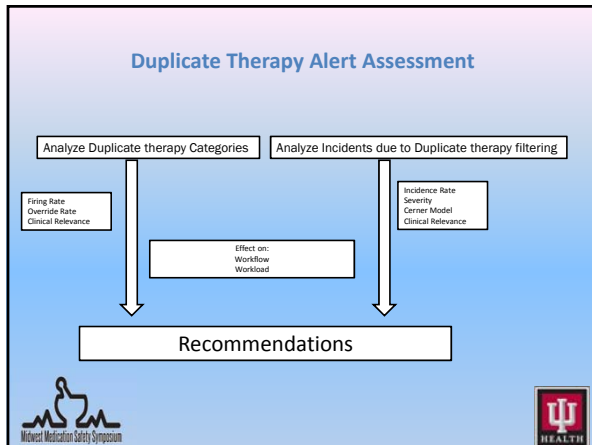
---

---

---

---

---




---

---

---

---

---

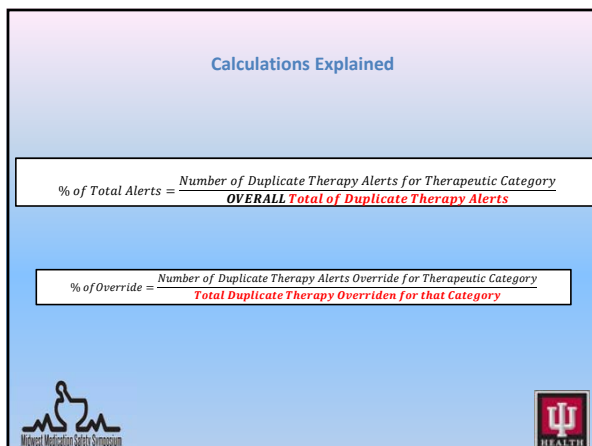
---

---

---

---

---




---

---

---

---

---

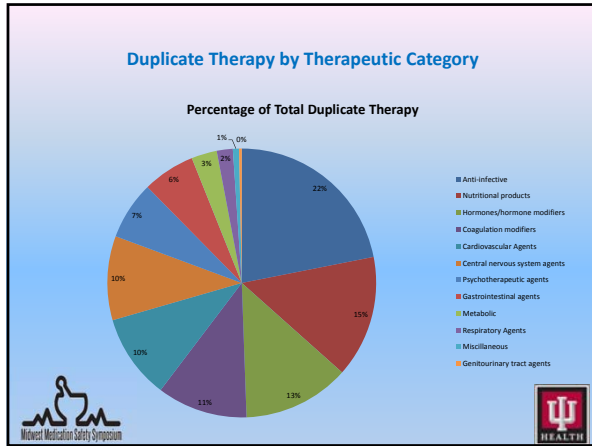
---

---

---

---

---




---

---

---

---

---

---

---

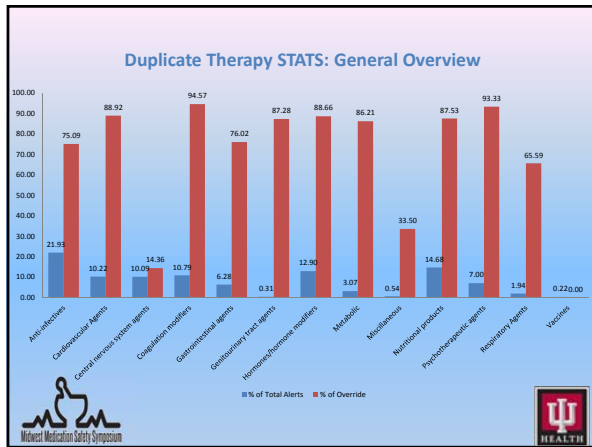
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

---

---

- ### 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
- Midwest Medication Safety Symposium | HEALTH

---

---

---

---

---

---

---

---

---


---

---

---

### Highest Alerting Medication Pairs: Same Therapeutic Class

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


---

---

---

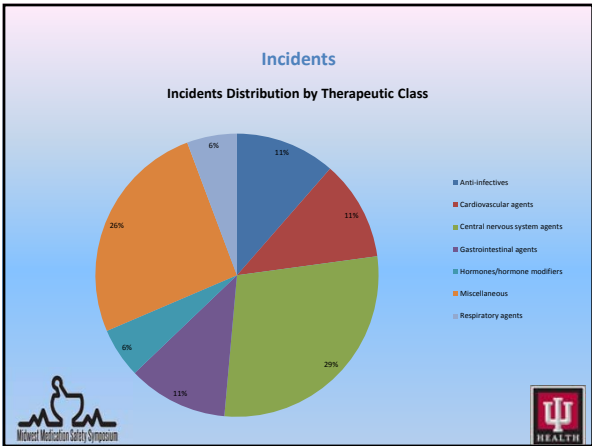
---

---

---

---

---




---

---

---

---

---

---

---

---

**Incidents (Total = 35)**

Medication	Therapeutic Class
<b>Anti-infectives</b>	
Azithromycin	Macrolides
Metronidazole	Amebicides
<b>Cardiovascular Agents</b>	
Digoxin	Inotropic Agents
Prazosin	Antiadrenergic Agents, Peripherally Acting
Tamsulosin	Antiadrenergic Agents, Peripherally Acting
<b>Central Nervous System Agents</b>	
Ropinirole	Dopaminergic Antiparkinsonism Agents
Lorazepam	Benzodiazepines
Lacosamide	Miscellaneous Anticonvulsants
Hydrocodone/APAP	Narcotic Analgesic Combinations
Acetaminophen	Miscellaneous Analgesics
Hydromorphone & Morphine	Narcotic Analgesics
Levetiracetam	Miscellaneous Anticonvulsants

---

---

---

---

---

---

---

---

---

---

**Incidents**

Medication	Therapeutic Class
<b>Gastrointestinal Agents</b>	
Ondansetron	5HT3 Receptor Antagonists
Lactulose	Laxatives
Prochlorperazine	Phenothiazine Antiemetics
oribitol	Laxatives
<b>Hormones/Hormone Modifiers</b>	
Levothyroxine	Thyroid Hormones
<b>Miscellaneous</b>	
Latanoprost	Ophthalmic Glaucoma Agents
Propofol	General Anesthetics
PV & Pediarix	Toxoids
Allopurinol	Antigout Agents
Hepatitis B Vaccine	Viral Vaccines
Aspirin	Salicylates
Nystatin	Mouth And Throat Products
Tacrolimus	Immunosuppressive Agents
Pegfilgrastim & Filgrastim	Colony Stimulating Factors
<b>Respiratory Agents</b>	
Guaifenesin	Expectorants

---

---

---

---

---

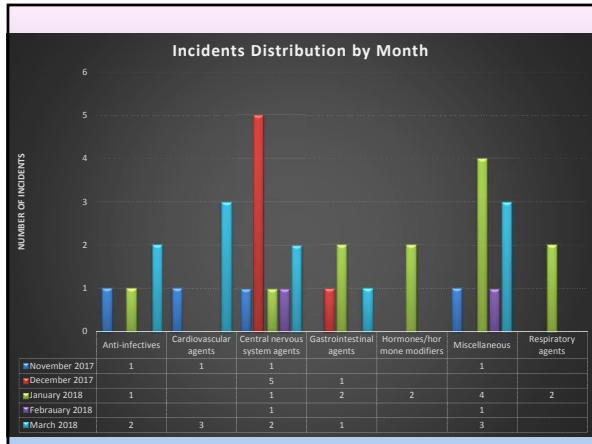
---

---

---

---

---




---

---

---

---

---

---

---


---

---

---

### Incidents

National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP, 2001).



The pie chart illustrates the NCC MERP incident classification system, divided into seven categories (A-G) based on error type and severity. The categories are: Category A (No error), Category B (Error, no harm), Category C (Error, no harm), Category D (Error, no harm), Category E (Error, no harm), Category F (Error, no harm), and Category G (Error, death). A legend below the chart identifies the colors: Blue for No error, Yellow for Error, no harm, Orange for Error, no harm, and Green for Error, death.

<http://www.nccmerp.org/sites/default/files/IncidentsColor2001-06-12.pdf>

Midwest Medication Safety Symposium

---

---

---

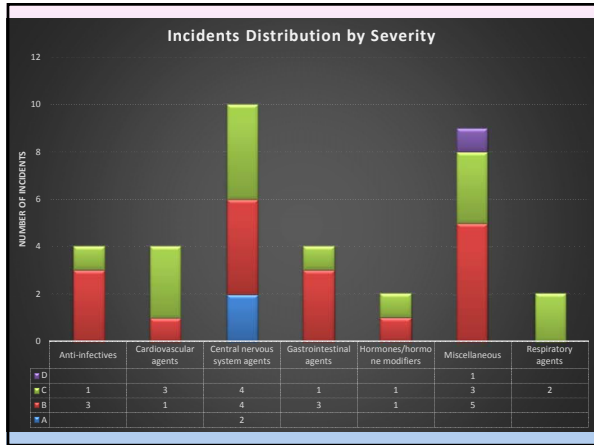
---

---

---

---

---




---

---

---

---

---

---


---

---

### Incidents Distribution by Severity

A	B	C	D
Hydromorphone	Acetaminophen	Allopurinol	
Hydrocodone/APAP	Aspirin	Azithromycin	Tacrolimus
	Azithromycin	Digoxin	
	Hydrocodone/APAP	Guafenesin	
	Hydromorphone & Morphine	Hepatitis B Vaccine	
	IPV & Pediarix	Lacosamide	
	Levothyroxine	Lactulose	
	Metronidazole	Latanoprost	
	Nystatin	Levetiracetam	
	Ondansetron	Levothyroxine	
	Pegfilgrastim & Filgrastim	Lorazepam	
	Prochlorperazine	Prazosin	
	Propofol	Ropinirole	
	Sorbitol	Tamsulosin	

Midwest Medication Safety Symposium




---

---

---

---

---

---

---

---



## Strategies to Improve Duplicate Therapy Alerting




---

---

---

---

---



---

---

---

### Duplicate Therapy Filtering: Cerner Model

Therapeutic Class	Cerner	IU Health
Anti-infectives	All	Cephalosporins Carbapenems Penicillins Quinolones
Cardiovascular Agents	All	Angiotensin II Inhibitors Angiotensin Converting Enzyme (ACE) Inhibitors Beta-adrenergic Blocking Agents Calcium Channel Blocking Agents Loop Diuretics


---

---

---

---

---



---

---

---

### Duplicate Therapy Filtering: Cerner Model

Therapeutic Class	Cerner	IU Health
Central Nervous System	Miscellaneous Analgesics Narcotic Analgesics Combination Narcotic Analgesics	None
Central Nervous System		Anticonvulsants Muscle relaxants
Coagulation Modifiers	Anticoagulants	Anticoagulants
Gastrointestinal Agents	All	Proton pump inhibitors


---

---

---

---

---



---

---

---

### Duplicate Therapy Filtering: Cerner Model

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



---

---

---

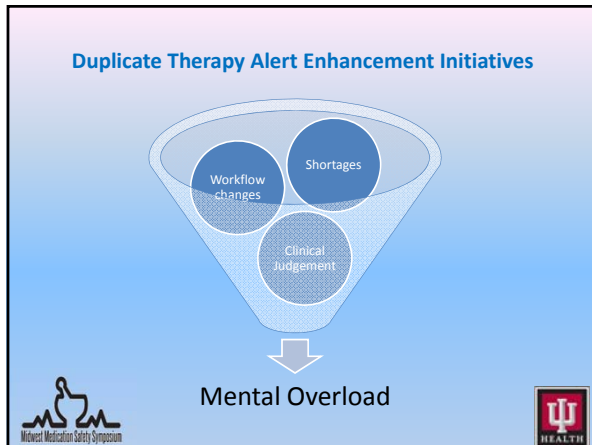
---

---

---

---

---



---

---

---

---

---

---

---

---

- ### 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
- 
- 

---

---

---

---

---

---

---

---

### Duplicate Therapy Alert Enhancement Initiatives

- Other related initiatives:

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

---

---

---

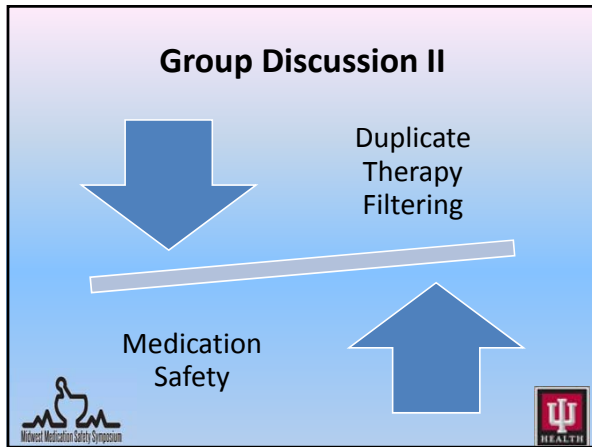
---

---

---

---

---



---

---

---

---

---

---

---

---

### 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

Allison N. Boyd, PharmD  
Clinical Pharmacy Specialist – Trauma/Burn  
Rhode Island Hospital

Betsy A. Vance, RN, CEN, LSSBB  
Chief Nursing Information Officer  
Eskenazi Health



---

---

---

---

---

---

---

---

## 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



---

---

---

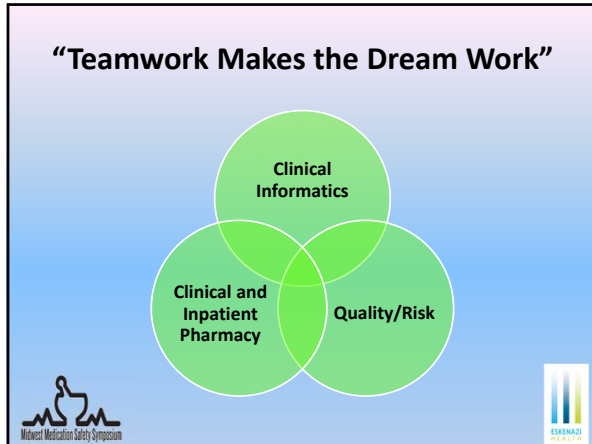
---

---

---

---

---



---

---

---

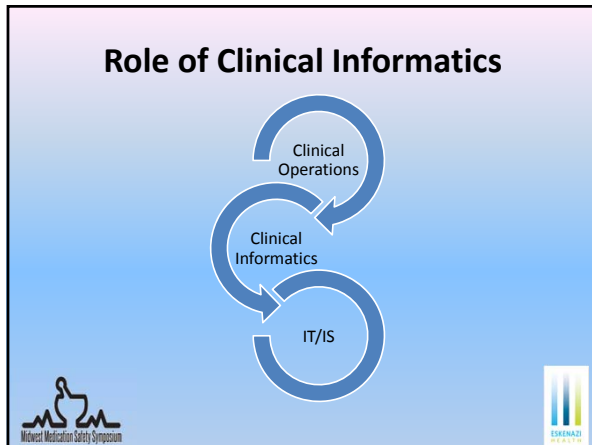
---

---

---

---

---



---

---

---

---

---

---

---

---



---

---

---

---

---

---





---

---

### 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?



---

---

---

---

---

---

---



---

### 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



---

---

---

---

---



---

---

---

### 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?**

The Joint Commission. <https://www.jointcommission.org>. Accessed 2018 June 26.

---

---

---

---

---

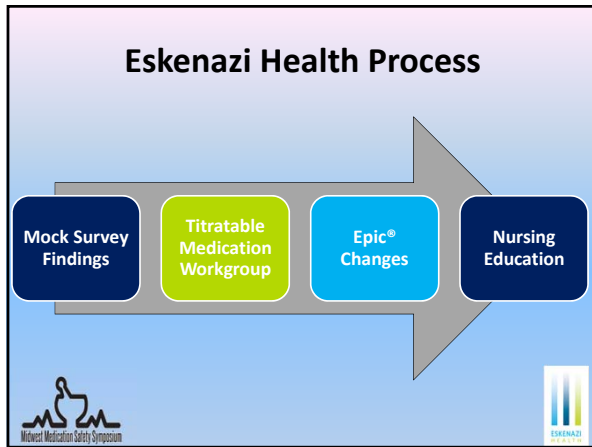
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

## General Approach

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

Drug	Priority	Titrated?	Bolus?	Titration Instructions
Lorazepam	High	Yes	Yes	Initiate...
Midazolam	High	Yes	Yes	Initiate...

---

---

---

---

---

---

---



---

---

---

### 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?



The Joint Commission. <https://www.jointcommission.org>. Accessed 2018 June 26.

---

---

---

---

---




---



---

---



### 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



---

---

---

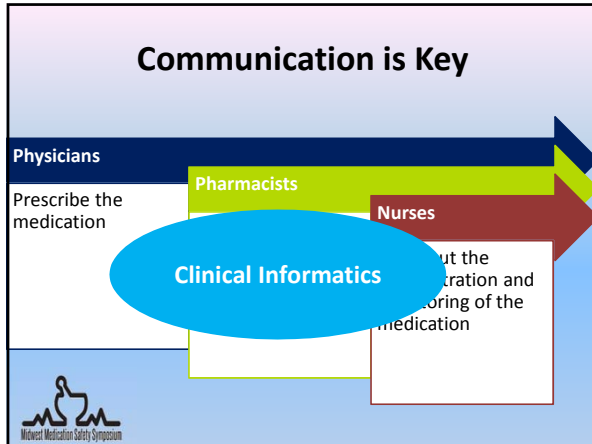
---

---

---

---

---



---

---

---

---

---

---

---

---

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

**Allison N. Boyd, PharmD**  
Clinical Pharmacy Specialist – Trauma/Burn  
Rhode Island Hospital

**Betsy A. Vance, RN, CEN, LSSBB**  
Chief Nursing Information Officer  
Eskenazi Health

**Mohammad K. Zaatari, PharmD, MSc, BCPS**  
Analyst – Pharmacy Informatics  
Indiana University Health

ESKENAZI HEALTH  
Midwest Medication Safety Symposium  
HEALTH

---

---

---

---

---

---

---

---