MSOS Member Briefing
May 2023

MSOS Member Briefing
May 2023

Moderated by: E. Robert Feroli, PharmD, FASHP

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MEDICATION SAFETY OFFICERS SOCIETY

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A Road Less Traveled: Smart Pump Library Hard Limits

May 25, 2023

Silvana Balliu, PharmD
Coordinator of Pharmacy Services – Smart Pumps

Cleveland Clinic

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May 2023

Cleveland Clinic Health System

- **Main Campus**
- **19** hospitals
- **19** full service family health centers throughout Northeast Ohio
- Cleveland Clinic locations in Florida, Nevada, Toronto, London and Abu Dhabi

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Introduction

- Smart pump hard limit implementation in <u>adults</u> in <u>large volume pumps</u>
  - Dose
    - lower
  - Weight
    - lower and upper
  - Anesthesia/OR care area

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Dose Lower Hard Limit Implementation

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Heparin Lower Hard Limit Attempts

- Current lower hard limit
  - 200 units/hr
- Error type – rate/dose programming
- Total number of hard limit attempts ~ 1000
- Alerts generated in all care areas
- Critical care area has the largest number of alerts

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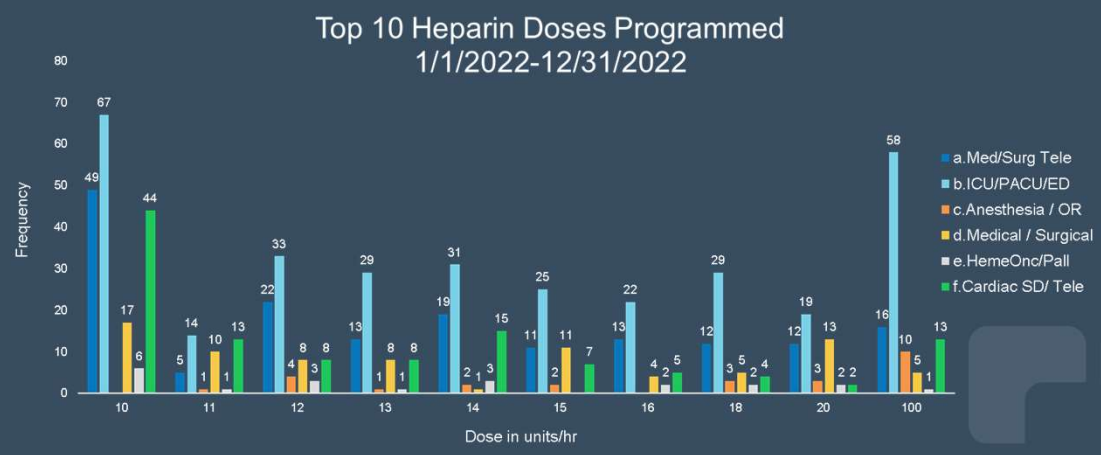
Heparin Lower Hard Limit Attempts



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Weight Hard Limit Implementation

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Weight Hard Limit Implementation

- Current hard limits
  - Lower: 20 kg
  - Upper: 500 kg (pump default)
- Applies to the care area settings
- Double confirmation is required during programming
- Impacts medications dosed based on the weight
  - For example aminocaproic acid, argatroban, bivalirudin, atracurium, dexmedetomidine, ketamine, midazolam, propofol

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Weight Hard Limit Implementation

- Error types
  - Dose/weight
  - Decimal point errors
  - Double digit errors
- Incorrect programming
  - Below the low hard limit
  - Above hard limit
- ~400 weight hard limit attempts/per year

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Weight Hard Limit Attempts

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Weight Hard Limit Attempts

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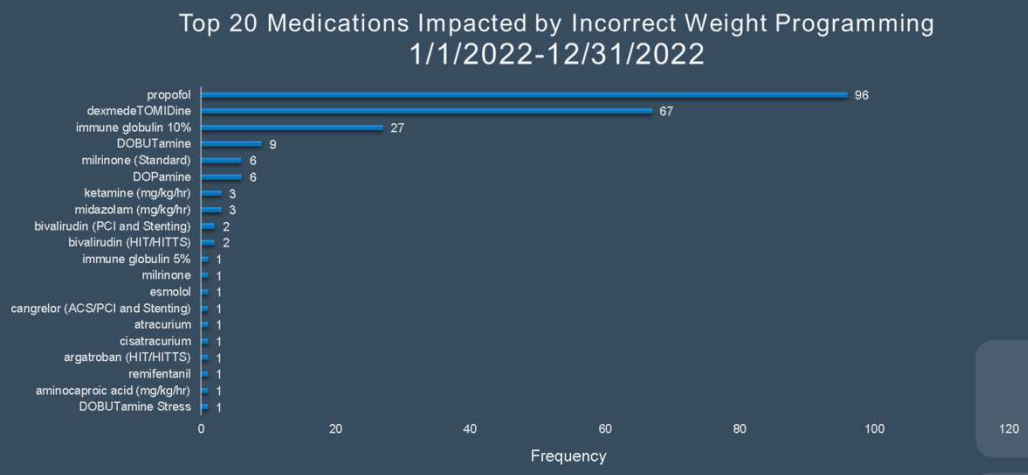
Medication Impacted by Weight Programming



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Hard Limit Implementation in the Anesthesia/OR Care Area

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Hard Limit Implementation - Anesthesia Care Area

- Weight hard limits
  - Lower: 20 kg
  - Upper: 500 kg
- Continuous infusion
  - Dose lower and upper hard limits
- Intermittent infusions
  - Duration lower limits
- Error types
  - Dose/weight; decimal point errors; double digit errors
- ~500 hard limit attempts/per year

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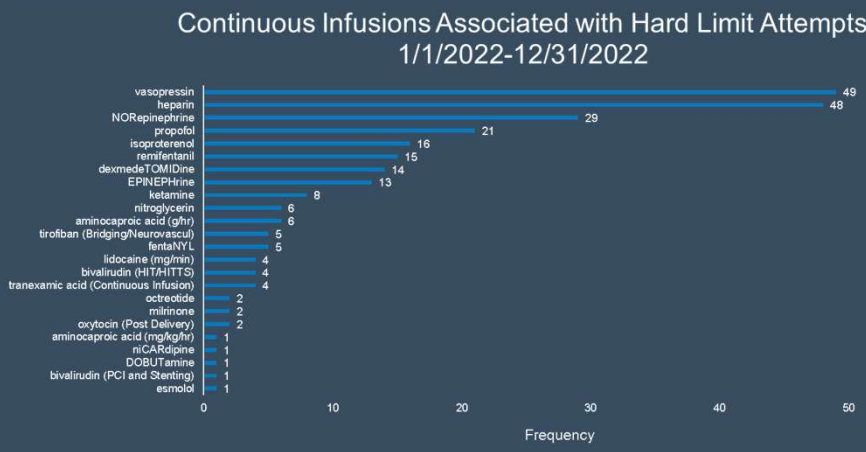
Anesthesia Hard Limit Attempts



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Anesthesia Hard Limit Attempts

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Anesthesia Hard Limit Attempts Vasopressin

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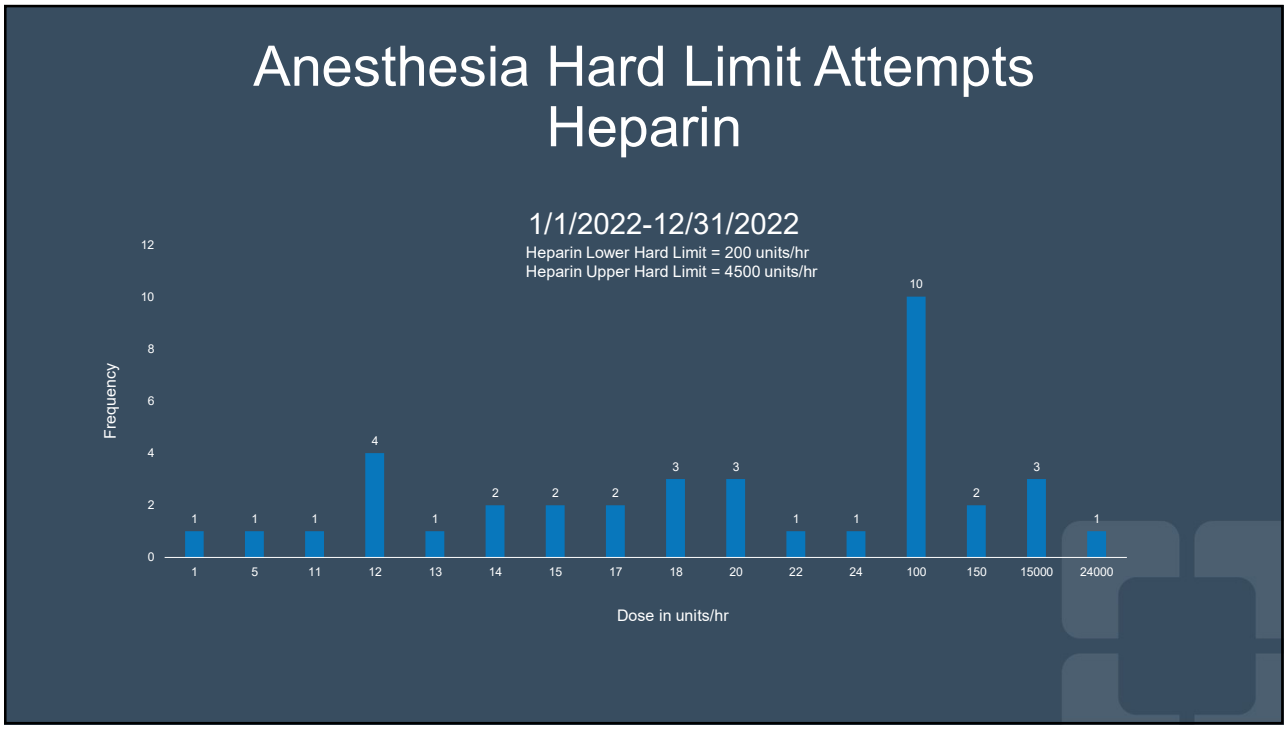
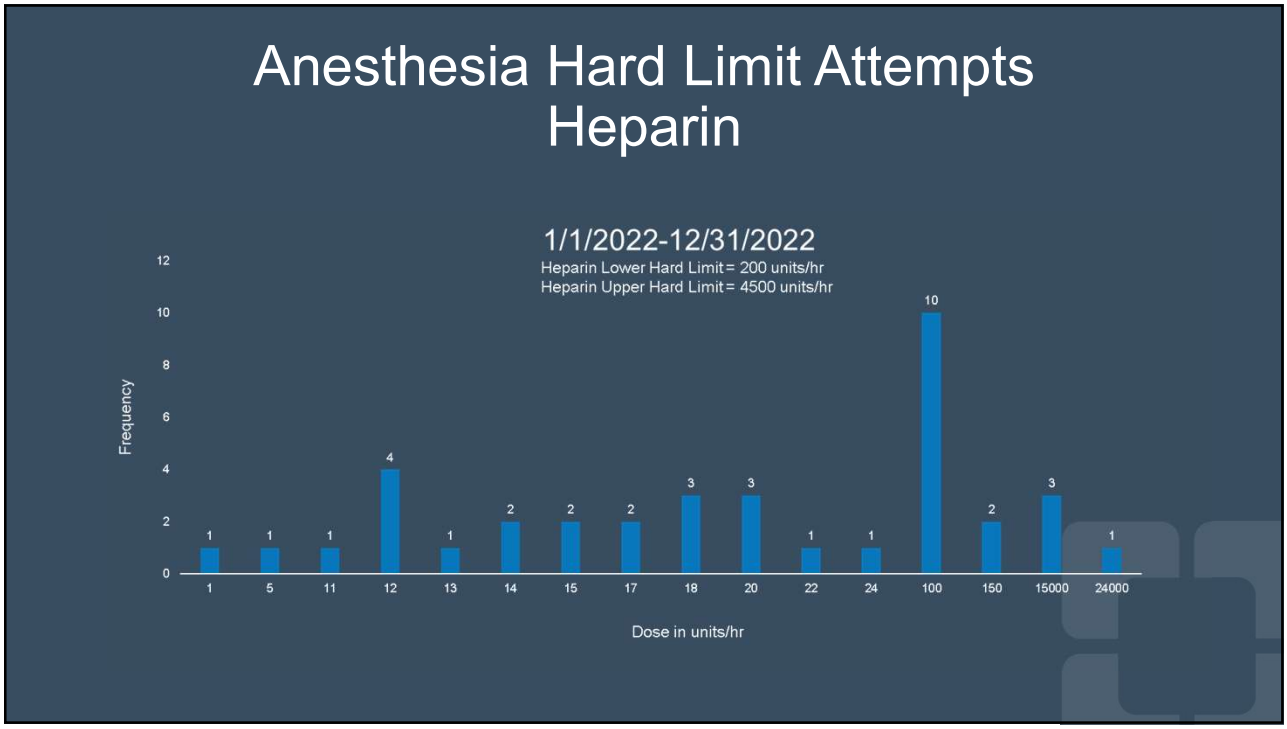

Anesthesia Hard Limit Attempts
Heparin
1/1/2022-12/31/2022
Heparin Lower Hard Limit = 200 units/hr
Heparin Upper Hard Limit = 4500 units/hr
Frequency
Dose in units/hr
1 5 11 12 13 14 15 17 18 20 22 24 100 150 15000 24000
1 1 1 4 1 2 2 2 3 3 1 1 10 2 3 1

19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Frequency
Dose in units/hr
1 5 11 12 13 14 15 17 18 20 22 24 100 150 15000 24000
1 1 1 4 1 2 2 2 3 3 1 1 10 2 3 1

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Anesthesia Library Compliance 1/1/2022-12/31/2022

Library Compliance %
97.2%
97.7%
97.8%
98.3%
95.3%
96.9%
100.0%
93.4%
96.6%
97.6%
98.5%
99.6%
92.8%
97.3%
98.6%
100.0%
95.3%
97.2%

- Implementation of hard limits in the anesthesia care area has not impacted the library compliance
- It is challenging in the beginning with some of our newer sites
- Review of the smart pump data has highlighted some differences in practice

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Summary

- Lower hard limit implementation is important in preventing dose/rate error types
  - Underdosing can be harmful to patients as well
- Implementation of hard weight limit has a significant impact in preventing weight manual programming errors
- All humans are prone to errors, and hard limits are necessary for anesthesia care area as well

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Questions

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A Medication Safety Rotation for Pharmacy Residents and APPE Students

Dan Sheridan, MS, RPh, CPPS

Medication Safety Pharmacist
OhioHealth Marion General Hospital & Hardin Memorial Hospital
Marion, OH

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OhioHealth Marion General Hospital

250-bed, not-for-profit,
community hospital

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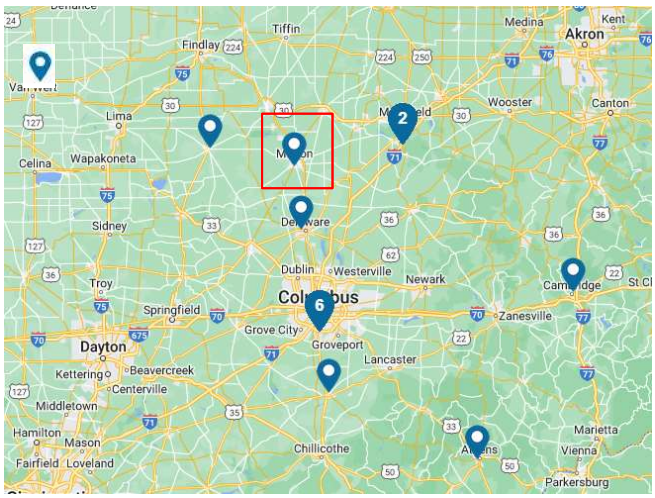
OhioHealth Hospitals



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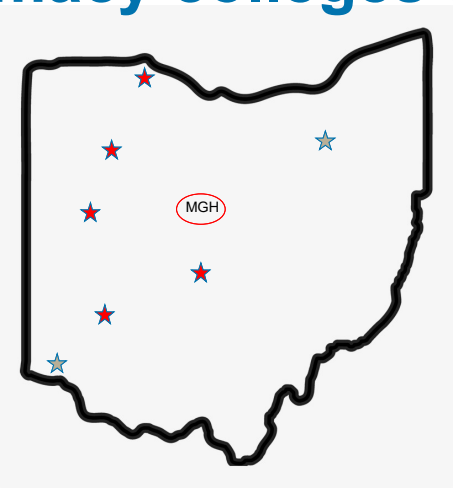
Pharmacy colleges served



2 pharmacy residents/year.

50+ APPE Med Safety students since 2011

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What works for you in a medication safety rotation?

Please put suggestions in the chat.

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Are New Pharmacists like New Drivers?

"Nationwide, 43 percent of first-year drivers and 37 percent of second-year drivers are involved in car crashes."[1]

A safety program that helps new drivers to identify high risk situations can decrease accidents.[2]

Shouldn't we do the same for new pharmacists?

1. https://www.safetyinsurance.com/driversafety/tips_statistics.html
2. https://www.linkedin.com/pulse/distracted-driving-why-we-do-how-stop-central-insurance-companie?trk=pulse-article_more-articles_related-content-card

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Structure

1. Schedule (syllabus prepared in advance)
2. Projects
3. Readings
4. Questions of the day
5. Adapt to student's career plans
6. Meetings

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May 2023

1. Schedule

Syllabus for month

Will be on the MSOS website with the slide handouts.

Marion General Hospital
OhioHealth

Jan 2023

Abbey, Christian, Jessica, Jocelyn

Med Safety

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT/SUN
2	3 7:15 am: Meet in east lobby 1:30 pm: DERT 2 pm: Pharmacy Informatics	4 9:30 Brian Feifer 11 am DERT noon-1:30 MSL Huddle Assignment 1 remote	5 11 DERT 2:30 pm: leaky pump brainstorming session 6 to 8 pm: P&T Meeting (virtual) Assignment 2 remote	6 1:30 DERT Assignment 3 ISMP Newsletter due by 5 pm Feedback Fridays Dan: 2 pm to 10:30 pm On site	7/8 Abbey weekend
9 1:30 DERT Assignment 4 On site Dan: 6 a to 2:30 p	10 Assignment 5 Noon: P&T Committee 1:30 pm DERT remote	11 Assignment 6 11 am DERT Noon-1:30 MSL Huddle Update all staff email remote	12 Assignment 7 1:30 pm DERT remote	13 Project day 1:30 pm Hardin Northern School visit On site Dan: 6 a to 2:30 p	14/15 Christian weekend

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2. Projects

Students and Residents:

- Calculate benchmark data
- Review ISMP newsletter drafts
- Write article for ***Nursing 2023*** (if capable writer)
- Investigate why a particular medication has a poor scanning rate.
- Write medication safety “Tip of the Week” for pharmacy and nursing across OhioHealth.

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2. Projects
(continued)

Examples of “deep dive” projects

- Is epinephrine being given by the correct route for anaphylaxis?
- Are we putting medications into “protect from light” bags that don’t need to be?
- Identify all OhioHealth patients with sulfur allergies and correct them to “Sulfa (Sulfonamide antibiotics)”.

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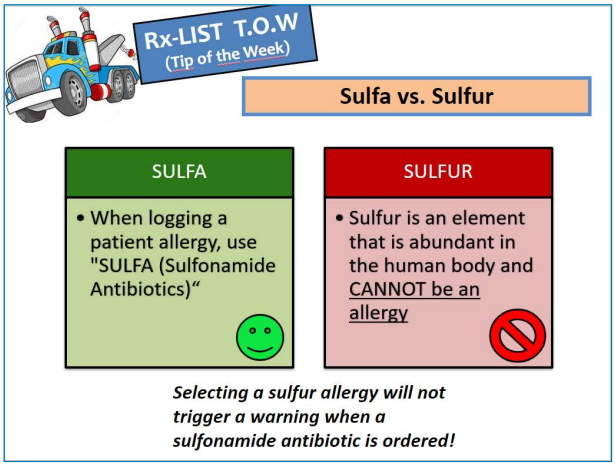
2. Projects

Tip of the Week.



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Projects

Additionally, residents

- Precept students
- Guide students on first day
- Establish Microsoft Teams page for rotation
- Analyze all error reports for month, review with med safety pharmacist.
- Prepare and lead campus medication safety meeting.
- Add safety information to weekly pharmacy update.

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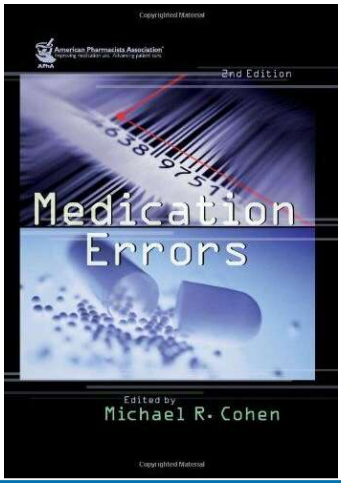
3. Readings



- Selections from **Medication Errors** (Cohen)

  - Chapter 3: Health Care Providers' Experiences with Making Fatal Errors

  - Chapter 4: Causes of Medication Errors

  - Pages 81-86: Lessons from Denver

  - Chapter 7: The Role of Drug Packaging and Labeling in Medication Errors

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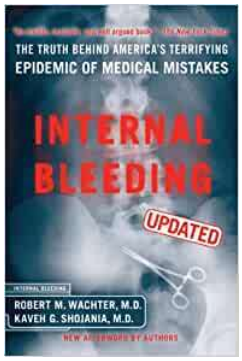
3. Readings (continued)

- Chapters from **Internal Bleeding** (Wachter, Shojania)

  - The Wrong Patient

- - It's the System, Stupid
- - Doctors' Handwriting and Other Prescribing Errors
- - The Forgotten Half of Medication Errors



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3. Readings (continued)

Acute Care ISMP Medication Safety Alert!
Educating the Healthcare Community About Safe Medication Practices

Just Culture and its critical link to patient safety

Delayed administration and contraindicated drugs place hospitalized Parkinson's disease patients at risk

Three new Best Practices in the 2022-2023 Targeted Medication Safety Best Practices for Hospitals

Telling true stories is an ISMP hallmark
Here's why you should tell stories, too…

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4. Questions of the day

- 52 questions (3 or 4 per day)
- Day 1: “What is the most serious medication error that you’ve seen? How could it have been prevented?”
- What do you think are the three most dangerous medical abbreviations, and why?
- End of Rotation: “Think about pharmacists that you have worked with. What techniques have you seen them incorporate to help prevent errors? What unsafe practices have you seen? What will you incorporate into your practice to increase patient safety?”

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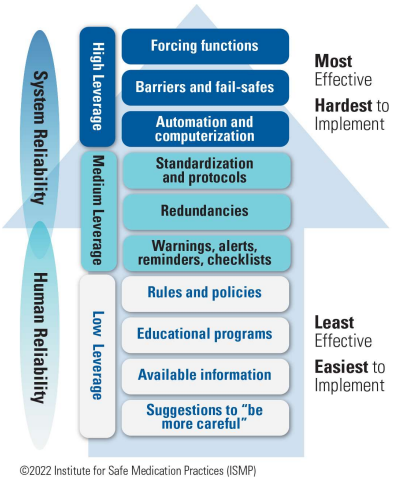
4. Questions of the day

- Make up a hypothetical error. Using the ISMP Safety Strategies chart, give one example of each level of strategy. Explain why each strategy is or is not effective.



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5. Adapting to Career Plans

- Retail pharmacy interest: Topic discussions from ISMP retail newsletter
- Authors: Video call with journal editor.
- Seek out the experts.

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6. Meetings

- Daily event reviews
- Weekly system med safety meeting
- Monthly campus med safety meeting
- RCA or ACA if available, even if not medication-related

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Tips for Success

01	02	03	04	05
Set expectations early	Use real life examples. Tell stories.	Take career plans into account	Seek feedback to continuously improve the rotation	Have students suggest new questions

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Questions?

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Patient and Personnel Safety: ADC Override Formulary Alignment and Monitoring Dashboard Implementation at a Regional Health-System

Austin Price, PharmD, MBA, MS
Emily Howes, CPhT-Adv, AAS
Michael Hayes, PharmD, MBA

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Disclosure Statement

- Disclosure statement: the presenters have nothing to disclose concerning possible financial or personal relationships with commercial entities (or their competitors) that may be referenced in this presentation.

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Cone Health

- Over 1,200 acute care beds
- 5 acute care hospitals
- 7 cancer centers
- 5 outpatient pharmacies
- Women's and Children's Center
- 2 stand-alone EDs
- Urgent Care facilities
- Specialty clinics and physician offices

Moses H. Cone Memorial Hospital

Alamance Regional Medical Center

236 beds

Wesley Long Hospital

175 beds

Annie Penn Hospital

110 beds

Behavioral Health Hospital

80 beds

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Background- Override Misuse

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- **All pharmacy professionals have a responsibility to ensure that appropriate policies, procedures, and quality assurance programs are in place to address the safety, accuracy, security, and patient confidentiality of automated pharmacy systems, including ADCs.**

- ISMP defines medication "override" as a process of bypassing the pharmacist's review of a medication order to obtain a medication from the ADC.
- Bypassing the review of a medication order by a pharmacists for safety and appropriateness can lead to:
  - **Incorrect medication administration**
  - **Overuse of medications**
  - **Drug interactions**
  - **Duplicate therapy**
  - **Administering a medication to the incorrect patient**

ASHP guidelines on the safe use of automated dispensing systems.2010. "Over-the-Top Risky". *Institute For Safe Medication Practices.* 2019.

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Background

HEALTH

Vanderbilt nurse: Safeguards were 'overridden' in medication error, prosecutors say

Brett Kelman
Nashville Tennessean

Investigation: Former Vandy nurse admits she 'f—d' up, multiple overrides lead to death

by Caitlyn Shelton | Wednesday, March 27th 2019

Nurse found guilty in deadly medical mistake to learn her sentence Friday

The Washington Post — Subscribe — Sign in

Ex-nurse convicted of injecting patient with wrong drug gets probation

By Timothy Bella

CBS NEWS — NEWS — SHOWS — LIVE — LOCAL — Login

CRIME

Former Tennessee nurse RaDonda Vaught found guilty in woman's death after accidentally injecting her with wrong drug

MARCH 29, 2022 / 7:57 AM / AP

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Background- ISMP Best Practice

Optimize the use of ADCs in a profiled mode

- Allows medication selection after orders have been reviewed and verified by a pharmacist. Use the profiled mode in both inpatient and outpatient areas

Require medication orders

- Electronic, written, telephone or verbal order prior to removing **any** medications from ADC

Document override rationale

- If menu-driven choices are available, ensure they will provide adequate information about the reason/circumstances for the override

Continuous Oversight

- Use an interdisciplinary group to routinely analyze override reports to identify if an order was obtained prior to removing the medication and whether the rationale for each overridden medication was appropriate.

ISMP Guidelines for the Safe Use of Automated Dispensing Cabinets. ISMP; 2019.

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Cone Health ADC History

- Partnered with Pyxis/BD for more than 20 years
  - Currently utilizing Pyxis version 1.7.3
  - System-Wide equipment utilization – operating in a hybrid dispensing model with ~85% of medications dispensing from Pyxis
    - 158 profiled stations
    - 55 Non-Profiled Stations
    - 85 Anesthesia Stations
    - 8 CII Safe ES

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Situation prior to project

- Across the heath-system, we found a great deal of variability in the override assignments, override group naming, and witness requirements

Medication Name	Facility	Override Groups Assigned	Witness Required on Override?
Haloperidol 5mg/1mL Injection	ARMC	Basic – Witness	N
	AP	Emergent – No Witness	N
	BH	BH Override – NO Witness	N
	MedCtr	None	N
	MC	Basic – Witness	Y
	WL	Basic - Witness	N

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Path to alignment:

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Development of standardized override groups

Review and standardization of Pyxis formulary settings and override group assignments across all facilities

Regular meetings with pharmacy leadership to review progress and align support

Apply new override groups to appropriate devices and user groups

Reviewed changes with system wide nursing leadership

Implement changes in step-by-step fashion as to not interrupt access to necessary medications

Remove old override groups from the system

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Timeline to alignment:

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May 2022
Initial meeting to review the issue

Aug.–Sep. 2022
Regular scheduled pharmacy meetings to develop and review approach

Nov. 2022 and Dec. 2022
Presentations to Nursing Leadership

Dec. 2022 – Feb. 2023
Changes to Pyxis formulary settings

February 23, 2023
Project complete February 23, 2023

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Requirements and recommendations for success:

- Engaged pharmacy staff and pharmacy leadership team
- Informed and supportive nursing leaders
- Staff with in-depth knowledge of the functionality of ADC equipment and interconnectivity of server settings
- Multidisciplinary, collaborative and methodical approach to changes
- Acceptance that it will be a lengthy process and require dedicated time and resources

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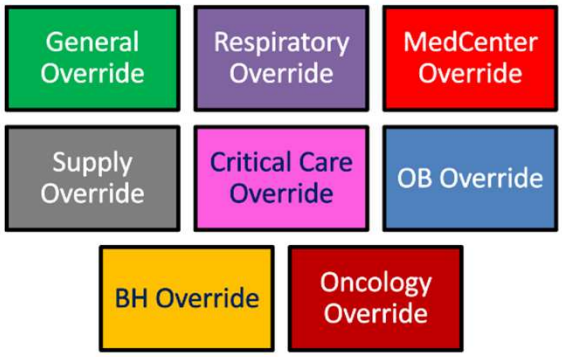
Alignment Results – Pyxis Settings



14 override groups → reduced to 8 override groups

Prior to alignment work
- 716 items available on override – including supply items (at least 1 facility)

After project completion
- 513 items available on override – including supply items – standardized across health system

This resulted in a 28% overall decrease in medications available on override

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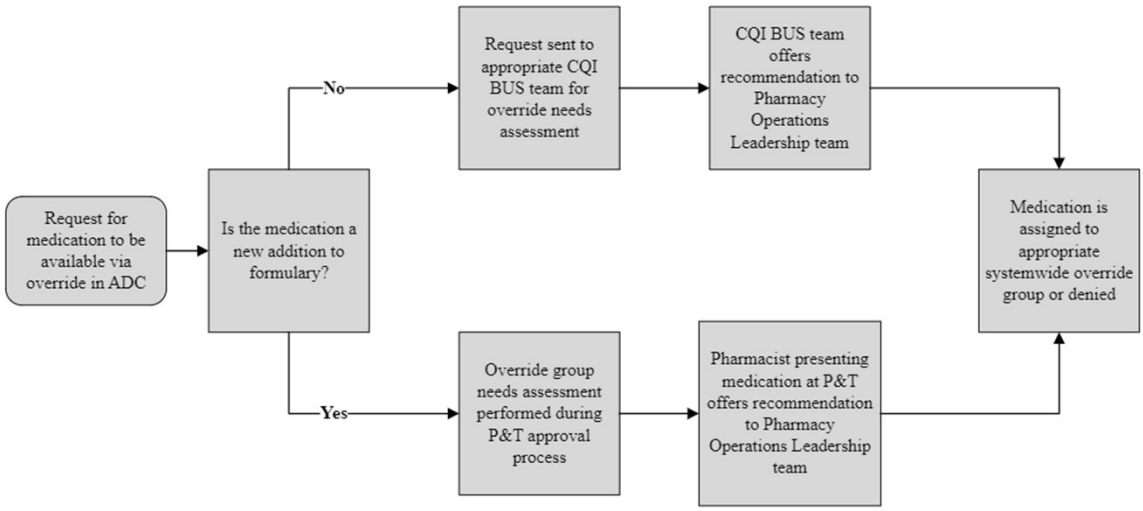
Additions to ADC Override List



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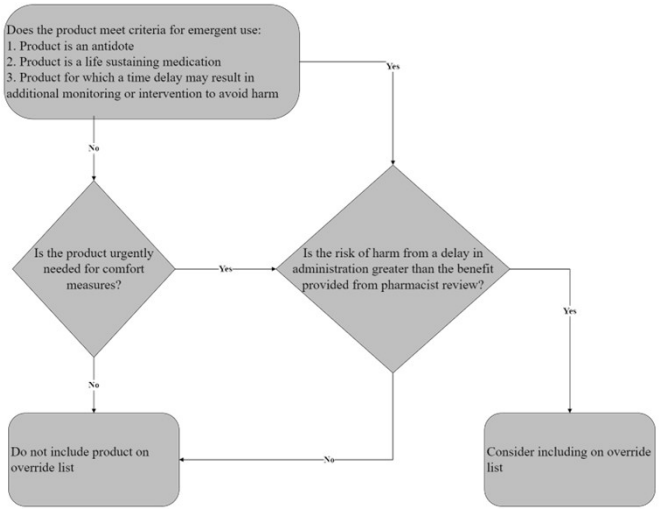
Maintaining over time: Decision Methodology



ASHP guidelines on the safe use of automated dispensing systems.2010.

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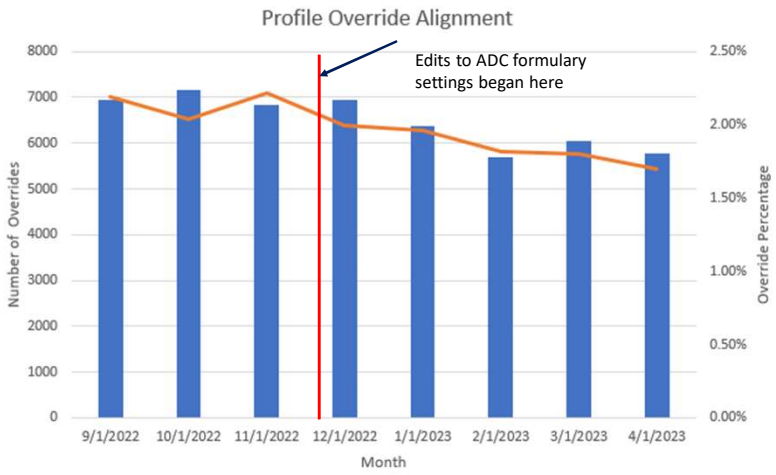
Alignment Results – Data Review



Average Profile overrides before formuary edits = 2.15%

Average profile overrides after edits began = 1.85%

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PowerBI Dashboard - Draft

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In Conclusion:

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Standardization and regular review of medications overridden from ADCs is important to protect the safety of our patients AND our staff.

This work requires multidisciplinary support and engagement, staff knowledgeable in the ADC system, dedicated time, and patience.

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Questions?

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Institute for Safe Medication Practices
An ECRI Affiliate

ISMP Update
MSOS Briefing May 2023

Rita K. Jew, PharmD, MBA, BCPPS, FASHP
President
Institute for Safe Medication Practices

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Happy Nurses Month!!

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Introduction: Jennifer Young, PharmD, BCPS, CSP

- Medication Safety Specialist, Membership
- Supports Specialty Pharmacy Membership & community pharmacy initiatives
- 14 years pharmacy experience
- Previously Director of Specialty Pharmacy Services at Atrium Health Wake Forest Baptist
- Received her PharmD from University of Georgia College of Pharmacy & completed PGY1 Pharmacy Practice Residency at Wake Forest Baptist Health

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We Want to Hear from You …

ISMP Survey on the 2022-2023 *Targeted Medication Safety Best Practices for Hospitals*

ISMP is conducting a short survey to get a sense of the current level of implementation of the 2022-2023 ***Targeted Medication Safety Best Practices for Hospitals***. We would very much appreciate your participation in this survey. Please complete this survey online by **June 30, 2023**, by visiting: www.ismp.org/ext/1164. ISMP plans to present the results of this survey during the American Society of Health-System Pharmacists (ASHP) Midyear Clinical Meeting and Exhibition in December 2023. The findings will also be described when introducing the **new** 2024-2025 ***Targeted Medication Safety Best Practices for Hospitals*** early in 2024.

- Please complete by June 30, 2023
- https://surveys.ismp.org/s3/ISMP-Survey-on-the-2022-2023-Targeted-Medication-Safety-Best-Practices-for-Hospitals

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Podcasts

- Errors Associated with Oxytocin
  - https://www.ismp.org/events/errors-associated-oxytocin
- The Perils of Polypharmacy
  - https://www.ismp.org/events/perils-polypharmacy
- Errors Associated with Paxlovid
  - https://www.ismp.org/events/errors-associated-paxlovid
- Errors Associated with COVID-19 Vaccines
  - https://www.ismp.org/events/errors-associated-covid-19-vaccines

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https://www.ismp.org/events/international-medication-safety-update

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Foundations in Medication Safety

- Online, narrated, asynchronous program
- Designed for all healthcare providers managing/administering medications
- Essential concepts to enhance safety behaviors and practices
- Case scenarios to support application
- Yearly subscription
- Annual updates, new modules
- Dashboard to track compliance

Value:

- Provides cost effective, time effective, highly reliable organizational approach
- Ensures staff get consistent messaging and understand key medication safety basics
- Increases reporting confidence to proactively address concerns
- Drives risk avoidance and shared accountability
- Helps to meet regulatory requirements for quality and safety training

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Questions?

- A copy of today's slides will be posted on our website
- Next MSOS Briefing date – July 27, 2023.

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