



# Ask the Experts: Deep Dive into Controlled Substances Diversion in the Health System

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## A Live Webinar

Tuesday, March 30, 2021  
12:00 – 1:00 pm ET

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## Home Study Available

May 12, 2021 – May 12, 2022

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## FACULTY

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The American Society of Health-System Pharmacists is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education.

- ACPE #: 0204-0000-21-401-L04-P & T  
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- 1.0 hour, application-based

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## **Ask the Experts: Deep Dive into Controlled Substances Diversion in the Health System**

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## Learning Objectives

- Analyze unique areas of focus within controlled substances surveillance that are an emerging and growing concern for pharmacy leaders.
- Develop a plan to establish, sustain, and promote a culture of continuous quality improvement within the controlled substances diversion prevention continuum.
- Develop strategies for managing and minimizing controlled substance waste.



# Diversion and Healthcare Workers



- More than 100,000 annually
- 1 in 10 will abuse
- Affects people of all demographics equally

Substance Abuse and Mental Health Services Administration (SAMHSA) National Survey on Drug Use and Health: National Findings. September 2008. <https://www.dpft.org/resources/NSDUHresults2008.pdf>

# Increases in Opioid-Related Overdoses



40+ states increase in opioid-related mortality



Opioid overdose increase  
March 2020: 18%  
April 2020: 29%  
May 2020: 42%



54% of behavioral health organizations have closed programs and 65% have turned away, rescheduled, or canceled patients

Shaw G. COVID reignites substance use epidemic. *Emergency Medicine News*. September 2020; 42(9):26.  
National Council for Behavioral Health Member Survey. COVID -19 continuing impact behavioral health organizations in need of relief. September 2020.

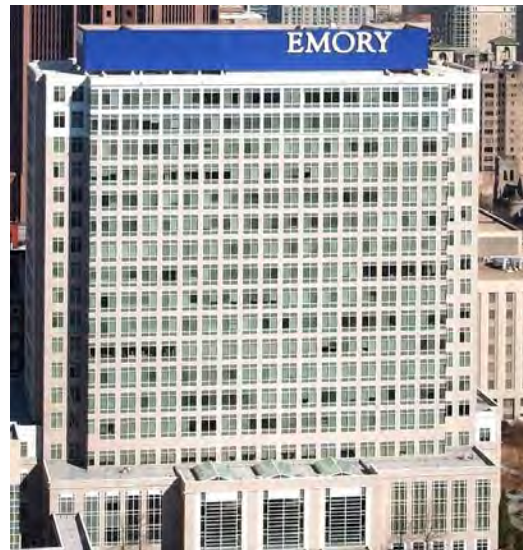
## Viewpoint from Healthcare Executives

- Surveyed hospitals that did NOT have a drug diversion program
  - 2017: 39%
  - 2019: 41%



Porter Research Study 2020: A comprehensive look at drug diversion from the view of healthcare executives.  
[http://porterresearch.com/wordpress/wp-content/uploads/2020/05/Invistics\\_Diversion-Report-2020-Porter\\_Research.pdf](http://porterresearch.com/wordpress/wp-content/uploads/2020/05/Invistics_Diversion-Report-2020-Porter_Research.pdf)

## Mass General/Emory





## The Art of Perpetual Inventory

### Life cycle of controlled substances

- Account for every dosage form from order generation to administration
  - Utilization of controlled substance management system within an integrated platform
  - Controlled substance order generation based on specific hospital unit utilization or established par levels
  - All par level adjustments can be tracked and documented in systems



## Segregation of Duties

- One of the most important strategies utilized for internal control
- Duties are considered incompatible if individual can carry out and conceal an activity based on their daily responsibilities
- Limiting access to the Controlled Substance Ordering System
- No one is immune from oversight and segregation
- Periodic reviews of responsibilities are important and warranted
- This is an important principle to implement regardless of size of the health system

## Segregation of Duties

Reduce opportunity for diversion and concealment

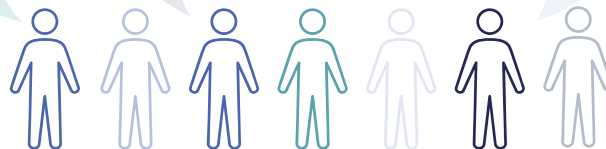
Automation helps propose the order on validated pars

Pharmacy buyer reviews order and accumulation

Pharmacy leader reviews and submits the final order

Pharmacist receives order and compares with initial order submission

Automation reconciles order for what is received in vault



## Waste Impacts on Safety/Cost-Effectiveness

- Understand how controlled substance waste impacts your organization
  - Ambulatory surgical centers
  - Increased waste creates additional opportunities for diversion
  - Impacts staffing and labor costs for reconciliation
  - Greater waste requires additional oversight and monitoring

Original Article

### A Continuous Observation Workflow Time Study to Assess Intravenous Push Waste

John Hertig<sup>1</sup>, Kaitlyn Jarrell<sup>2</sup>, Prachi Arora<sup>1</sup>,  
Jonell Nwabueze<sup>1</sup>, Charlotte Moureaud<sup>1</sup>,  
Daniel D. Degnan<sup>1</sup>, and Tate Trujillo<sup>2</sup>

Hospital Pharmacy  
3-8  
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Hertig et al. *Hosp Pharm.* June 2020.

## Dangers of Partially Filled Vials/Syringes

- Leftover controlled substance waste can be a pathway for diversion
- Reduce opportunities for healthcare workers to divert
- Focus on using strategies, such as prefilled syringes in the smallest volume, to decrease leftover waste in disposal and sharps containers



COVID-19 RESOURCES ABOUT CONTACT NEWS SUPPORT

Information for consumers

Consulting and Education Tools and Resources Publications and Alerts Error Reporting LOGIN

FEATURED ARTICLES

### Partially Filled Vials and Syringes in Sharps Containers are a Key Source of Drugs for Diversion

March 10, 2016



## EPA Policy Impact on IV Waste

- As of August 21, 2020, the EPA has banned sewerage of controlled substance medications under the federal Resource Conservation and Recovery Act (RCRA)
- In addition, the DEA requires controlled substances to be “rendered irretrievable” if any waste exists after administration
- In response to these new regulations, health care facilities have had to purchase controlled substance waste disposal bins where excess drug can be disposed of appropriately
- The antiquated method of sewerage controlled substance waste down the sink will no longer be acceptable and free

EPA-Environmental Protection Agency  
DEA-Drug Enforcement Administration

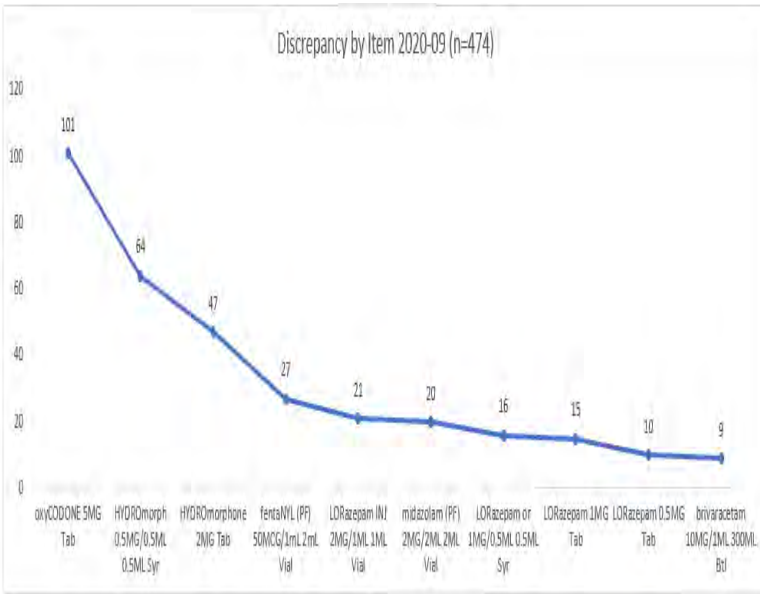


# Diversion Dashboard

- Anomalous User
  - Activity checks
  - Post-case reconciliation (PCR)
  - Overrides
  - Discrepancy checks
  - Dispense >5 report
  - Destock transactions
  - Destock and Null transactions
  - Suspicious order monitoring
- Annual inventory
  - DEA Form 106 filings
  - DPH filings
  - ADC user adds and deletes

DPH-Department of Public Health  
ADC-Automated dispensing cabinet

# Discrepancies and Overrides

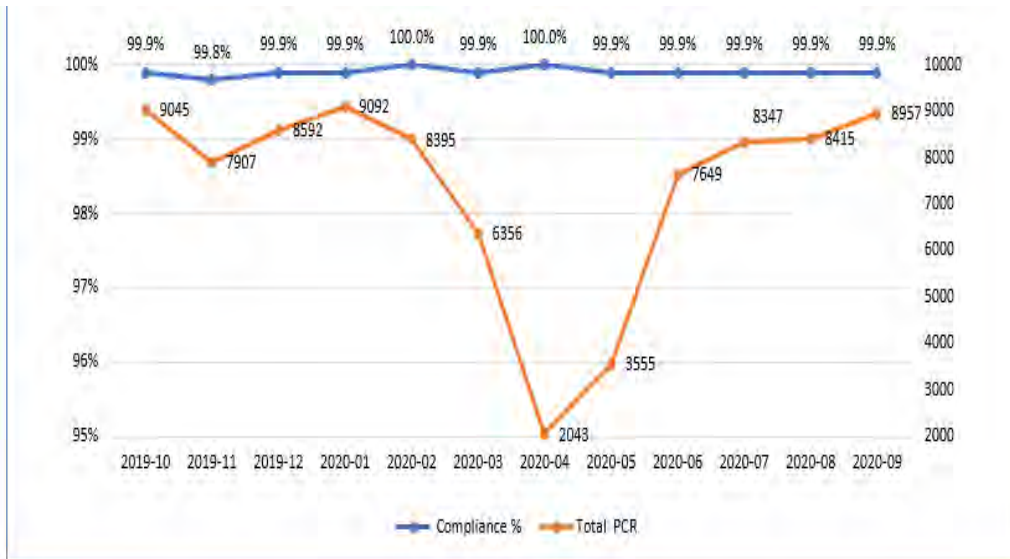


## Frequently Overridden Medications (3 Months)\*

Item Name	2020-07	2020-08	2020-09	Total
HYDromorphone (PF) (DILAUDID) 0.5 mg/0.5 mL inj	78	125	95	298
LORazepam (ATIVAN) 2 mg/mL injection	85	93	78	256
fentaNYL (PF) (SUBLIMAZE) 50 mcg/mL injection	84	73	66	223
HYDromorphone (PF) (DILAUDID) 1 mg/mL inj	39	41	28	108
morphine 2mg/ml inj syringe	26	27	23	76
midazolam (PF) (VERSED) 1 mg/mL injection Soln	32	39	19	90
midazolam (VERSED) 1 mg/mL infusion syr	6	12	11	29
morphine (PF) Duramorph) 1mg/ml	3	5	5	13

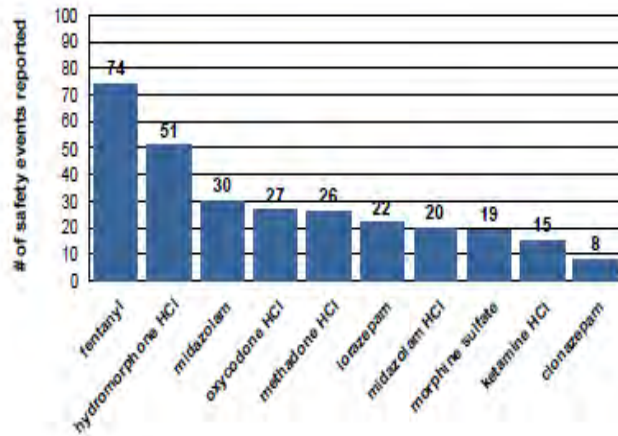
\* Note: items with multiple concentrations are listed as different medications

# Post-Case Reconciliation

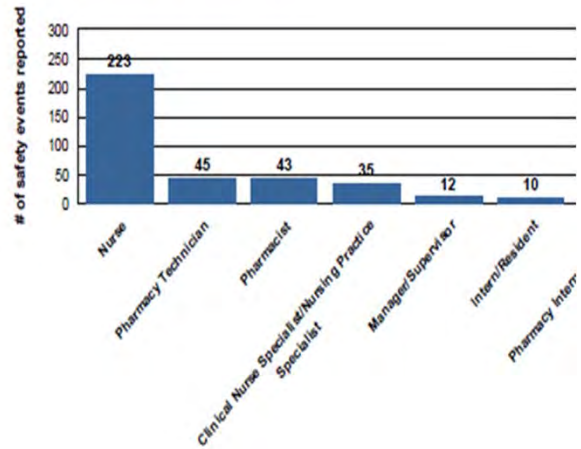


# Safety Event Reporting

- By Medication Name (April'20 - September'20)

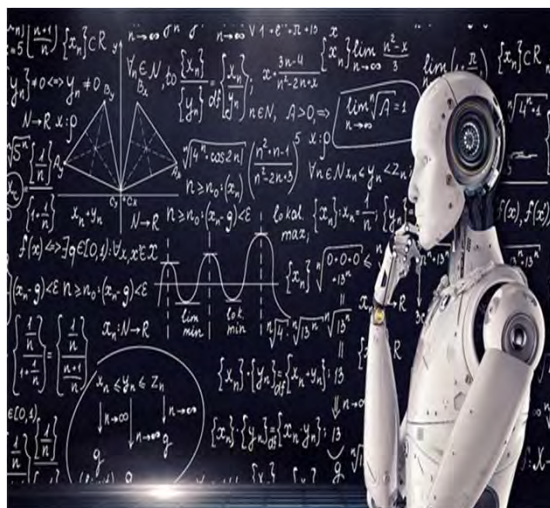


- By Reporter Role (April'20 - September'20)

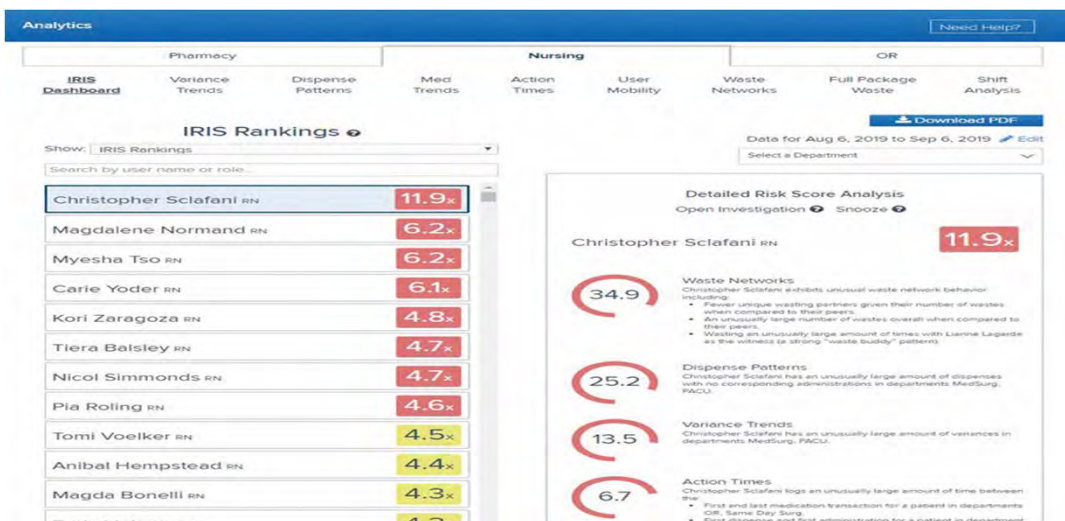


## Next Generation Surveillance

- Missing drug alerts
- Gaps in documentation
- Full waste transactions
- Delays in administration
- Delays in documentation
- Dispense off clock
- Pain scales
- Monitor in eScribe data



## Advanced Algorithms



## Major Types of Machine Learning

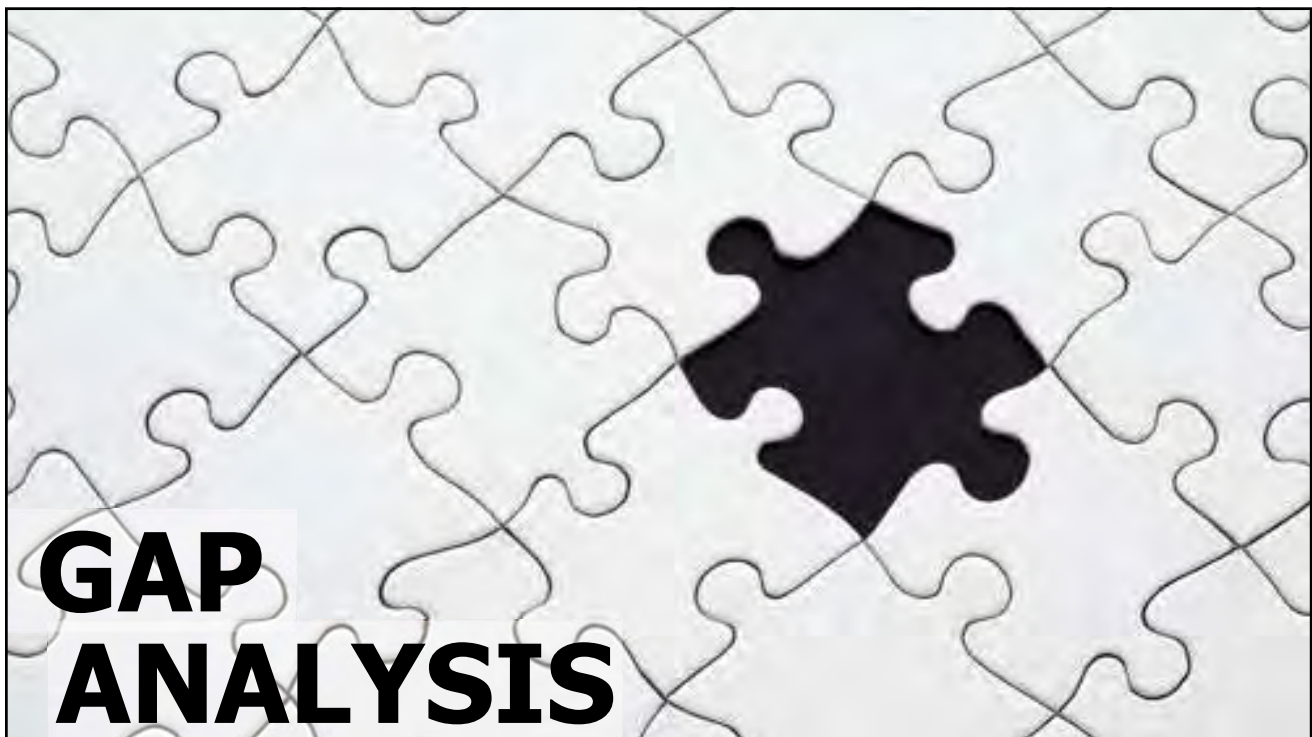
- **Supervised Learning:** Learning on labelled data. Typical goal is to predict the label or value.
  - Example: Given a set of emails labeled as “legitimate” or “spam”, learn the patterns in the text indicating whether an email is spam, and predict labels for incoming messages.
- **Unsupervised Learning:** Learning on unlabeled data. Typical goals include finding patterns in the data and identifying data points outside the normal range/pattern.
  - Example: Given a set of credit card transaction data, identify patterns of typical transaction behavior by amount, geographic location, and purchase category, and “flag” transactions that are anomalous and may indicate fraud.

## What is Machine Learning?

- **Supervised**
  - Must be exact or won't progress forward
  - Testing with different datasets often ends with poor results
  - Will be too specific across hospitals with limited datasets
  - Would need millions of rows
  - If behaviors change, not able to adapt quickly
- **Unsupervised**
  - Changes as behavior changes. What is identified as being risky changes based on the data being given and over time
  - Looks for trends
  - Don't need to “train the machine”

## Vendor Assessment

- Request for information
- Vendor demonstrations
  - Utilize drug diversion task force/interprofessional reps
- Vendor criteria and scorecard
- Reference checks
- Information technology (IT) requirements – interoperability and interfaces



# Utilizing a Gap Analysis Tool



- An assessment of current controlled substance performance compared with what it should or could be
- Used to identify what is preventing us from reaching that goal and how to get there



WHERE ARE WE NOW?



WHERE DO WE HOPE TO BE?



WHAT IS MISSING?



HOW CAN WE GET THERE?



SELF AUDIT / MONITORING

## Gap Analysis Resources

**ASHP Guidelines on Preventing Diversion of Controlled Substances**

**Purpose**

The purpose of these guidelines is to provide guidance to health systems in planning for and implementing best practices that establish a comprehensive CDSP. Establishing a comprehensive CDSP will require thoughtful leadership, thoughtful planning, a culture of open communication, and a commitment to continuous improvement. The guidelines provide recommendations for developing CDSPs that are comprehensive and effective. The guidelines are intended to be used as a starting point for developing CDSPs that are tailored to the needs of individual health systems. The guidelines are intended to be used as a starting point for developing CDSPs that are tailored to the needs of individual health systems. The guidelines are intended to be used as a starting point for developing CDSPs that are tailored to the needs of individual health systems.

**Scope**

These guidelines address all settings in which controlled substances are typically used, including inpatient, ambulatory, and long-term care settings. The guidelines are intended to be used as a starting point for developing CDSPs that are tailored to the needs of individual health systems. The guidelines are intended to be used as a starting point for developing CDSPs that are tailored to the needs of individual health systems. The guidelines are intended to be used as a starting point for developing CDSPs that are tailored to the needs of individual health systems.

**Core Elements of a CDSP**

A comprehensive CDSP includes core administrative elements such as: legal and regulatory requirements, organizational structure and governance, external controls such as law enforcement cooperation, and internal controls such as monitoring and reporting mechanisms.



### Road Map to Controlled Substance Diversion Prevention 2.0

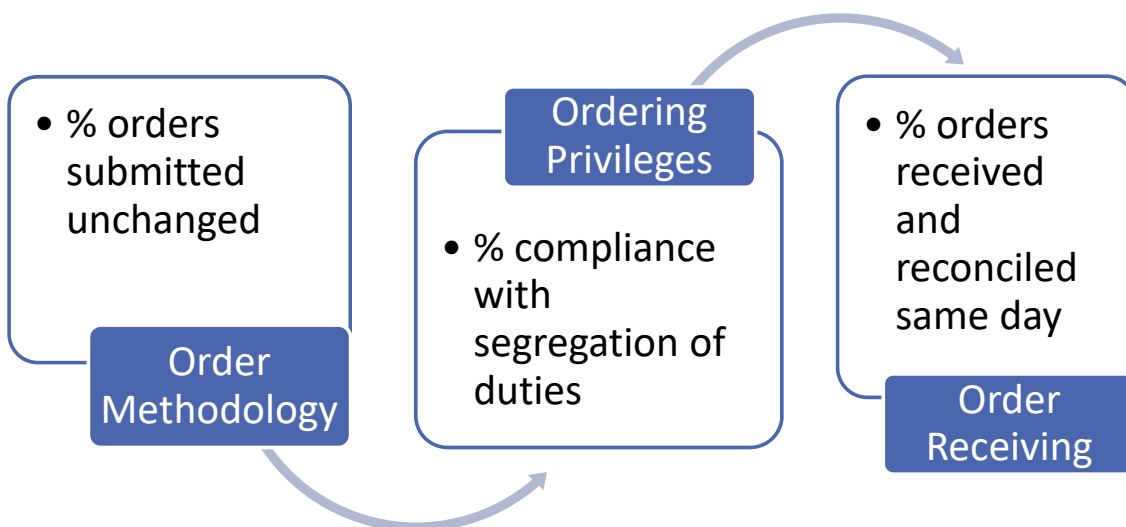


Brummond PW et al. *Am J Health-Syst Pharm.* 2017; 74:325-48.  
Minnesota Hospital Association. Road Map to Controlled Substance Diversion Prevention 2.0, 2015.

# Controlled Substance (CS) Gap Analysis Tool

SECTION	ITEM	Priority	COMMENT	TIMELINE
1.1	All CS are procured from the pharmacy. If other departments or individuals are authorized to procure CS, there are checks and balances established to ensure the same policies and procedures are consistently followed throughout the organization.			Complete
1.1	Separation of duties exists between the ordering and receipt of CS:			Complete
1.11	Two authorized individuals count and sign (two signatures) for CS upon receipt (packing slip), and confirm that what is received matches what was ordered and invoiced (purchase order and invoice).			< 1 year
1.13	Automated vault technology is utilized in the central pharmacy main storage location.			3+ years

## Measures of Success



Teitelman J, Detweiler K. AAHA Guide to Safeguarding Controlled Substances, 2020.



# Key Performance Indicators

Indicator	Description	Importance
Time to Detection	Time between event and detection	Validating tools and measures are appropriate
Time to Resolution	Time elapsed between event and resolution	Reduces gaps in processes in a timely manner
False-Positive Rate	% investigations where suspects are cleared	Measures effectiveness of methods

Minnesota Hospital Association. Road Map to Controlled Substance Diversion Prevention 2.0. 2015.



**IMPACT OF  
COVID**

## COVID-Related Considerations

- Mental health impact on healthcare providers and opportunities for diversion and abuse
- Maintain daily surveillance and evaluate trending reports
- Recovery
  - Debrief
  - Consider accountability audit
  - Password and access cleanup



## Key Takeaways

- **Goal to establish a comprehensive controlled substance drug diversion program**
  - Conduct gap analysis
  - Ensure appropriate diversion committee structure
  - Make sure your own house is in shape
  - Keep executive sponsors updated
- **Controlled substance diversion programs often rely on manual processes at facilities with limited resources**
- **Strategies are needed to reduce the risk of drug diversion**
  - Careful product selection
  - Use of surveillance systems
  - Monitoring of data using real-time diversion dashboards and metrics
- **Little guidance for health systems on minimizing diversion is available from DEA**
- **Interprofessional collaboration is needed to address the problem**

## How will you change your practice?

- Identify practices that support medication safety and eliminate risks for drug diversion.
- Discuss with key stakeholders interventions to minimize diversion of controlled substances.
- Engage key stakeholders in my health system to develop a drug diversion stewardship program.
- Collaborate with other healthcare providers and hospital staff to reduce the opportunity for controlled substance diversion.
- Develop a plan to ensure controlled substance medications are supplied in the smallest ready to use dosage forms as possible.
- Educate staff on identifying and preventing controlled substance diversion.

**Take a moment to reflect on changes you would make based on what you learned today.**

# References

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